# University of Waterloo
## SENATE
### Notice of Meeting

**Date:** Monday 25 March 2013  
**Time:** 3:30 p.m.  
**Place:** Needles Hall, Room 3001

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Action</th>
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<tbody>
<tr>
<td>3:30</td>
<td><strong>OPEN SESSION</strong></td>
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<td></td>
<td><strong>Consent Agenda</strong></td>
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<td><strong>Motion:</strong> To approve or receive for information by consent items 1-5 below.</td>
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<tr>
<td></td>
<td>1. Minutes of the 25 February 2013 Meeting</td>
<td>Decision</td>
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<td>2. Report from the Graduate &amp; Research Council</td>
<td>Information</td>
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</table>
|       | 3. Report of the President  
|       |   a. Recognition and Commendation | Information |
|       | 4. Reports from the Faculties | Information |
|       | 5. Other Business  
|       |   a. Report from the COU Academic Colleague | Information |
|       | **Regular Agenda**       |        |
|       | 6. Business Arising from the Minutes  
|       |   a. Centre for Extended Learning [from 21 January 2013 minutes] | Information |
|       | 7. Reports from Committees and Councils  
|       |   a. Amit & Meena Chakma Awards for Exceptional Teaching by a Student Committee [to be distributed] | Information |
|       |   b. Distinguished Teacher Award Committee [to be distributed] | Information |
|       |   c. Graduate & Research Council | Decision |
|       |   d. University Appointments Review Committee | Information |
|       | 8. Research Presentation: Professor Jack Callaghan, Kinesiology | Information |
|       | 9. Report of the President  
<p>|       | 10. Q &amp; A Period with the President | Discussion |
|       |   a. Report from the Working Group on Work Life Balance | Information |
|       |   b. University Professor Designation | Information |
|       | 12. Report of the Vice-President, University Research | Information |
|       | 14. Report of the University Librarian | Information |</p>
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<thead>
<tr>
<th>Time</th>
<th>Item</th>
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<tbody>
<tr>
<td>5:30</td>
<td>15. Other Business</td>
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<tr>
<td></td>
<td><strong>CONFIDENTIAL SESSION</strong></td>
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<tr>
<td>5:35</td>
<td>16. Minutes of the 25 February 2013 Meeting</td>
<td>Decision</td>
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<tr>
<td>5:40</td>
<td>17. Business Arising from the Minutes</td>
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<tr>
<td>5:45</td>
<td>18. Report from the Nominating Committee for Honorary Degrees</td>
<td>Decision</td>
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JLA:tad
7 March 2013

Logan Atkinson
Secretary of the University
University of Waterloo
SENATE
Minutes of the Monday 25 February 2013 Meeting


Nello Angerilli, Mario Coniglio, Peggy Jarvie, Cathy Newell Kelly, Chris Read, Daniela Seskar-Hencic, Bud Walker, Dave Wallace

Secretariat: Logan Atkinson, Tracy Dietrich


*regrets

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

The chair welcomed everyone to the meeting. He made special mention of those individuals attending Senate in their new roles: Nello Angerilli, associate vice-president, international; Mario Coniglio, associate vice-president, academic; Geoff McBoyle, vice-president, academic & provost.

OPEN SESSION

Consent Agenda
Senate heard a motion to approve or receive for information by consent items 1-5 below.

1. MINUTES OF THE 21 JANUARY 2013 MEETING
Senate approved the minutes of the meeting as distributed.

2. REPORT FROM GRADUATE & RESEARCH COUNCIL
Senate received this report for information.

3. REPORT OF THE PRESIDENT
Recognition and Commendation. Senate received this report for information.

4. REPORTS FROM THE FACULTIES
Senate received these reports for information.

5. OTHER BUSINESS
Report from the COU Academic Colleague. Senate received this report for information.
Committee/Council Appointments [revised report at senators’ places]. Senate approved the following appointments:

- **Amit & Meena Chakma Awards for Exceptional Teaching by a Student Committee:**
  Adam Garcia and Skaidra Puodziunas as undergraduate student representatives, terms to 31 December 2013.

- **Distinguished Teacher Awards Committee:** Amy Zhou and Keemo Delos Santos as undergraduate student representatives, terms to 31 December 2013.

- **Undergraduate Council:** Cindy Tsang as applied health sciences undergraduate student representative, replacing Brad Henry, term to 30 April 2013.

- **University Committee on Student Appeals:** Mario Coniglio as chair, replacing Geoff McBoyle, term to 30 April 2014.

Porreca and Noble.

It was noted that two appointments referenced in the report from the dean of arts (Christy MacDonald and Pohanna Pyne Feinberg) failed to include the position for those appointees.

The motion carried.

[Secretary’s Note: MacDonald appointed assistant professor and Pyne Feinberg lecturer.]

Regular Agenda

6. **BUSINESS ARISING FROM THE MINUTES**
   Centre for Extended Learning. This item was deferred to the March meeting of Senate.

7. **REPORT FROM UNDERGRADUATE COUNCIL**
   - **Honours Social Development Studies – Cultural Diversity Specialization, Social Development Studies.** Senate heard a motion to approve the new specialization as provided in the report.

   McGinnis and Cartwright. Carried.

   - **Examination Regulations and Related Matters.** Senate heard a motion to approve the recommended changes to the text in “Study Breaks” as described in the report.

   Ramdev and McGinnis.

   Discussion ensued on the advisability of making the changes contemplated by this motion, and the extent to which the proposal enhances the possibility of student success. The question was also raised as to the determination of “reasonableness” in considering the extent of office hours after the end of classes and before the examination in any particular course.

   The motion carried with four opposed.

   - **Examination Regulations and Related Matters.** Senate heard a motion to approve the recommended changes to the text in “Accommodation” as described in the report.

   Ramdev and McGinnis.
The question was raised that professors ought to be required to set the deferred exams for their courses, rather than having the deferred exam set by the professor teaching the course at the time, and this was explained by reference to the inability to require work by sessional lecturers after the end of their contract.

The motion carried with one opposed.

- **Senate Bylaw 9.** Senate heard a motion to give second reading to and approve the proposed amendments to Senate Bylaw 9 as outlined in the report.

  Frank and Porreca. Carried.

The remaining item in the report was received for information.

8. **RESEARCH PRESENTATION**

Dixon introduced Philippe Van Cappellen, professor of earth and environmental sciences. Van Cappellen delivered a presentation on the work of the Ecohydrology Research Group at the University of Waterloo, summarizing that work across scales from the molecular to watershed modeling. Dr. Van Cappellen answered several questions related to the work of his group.

Slides used in the presentation may be seen at [https://uwaterloo.ca/secretariat/sites/ca.secretariat/files/uploads/files/research_0.pdf](https://uwaterloo.ca/secretariat/sites/ca.secretariat/files/uploads/files/research_0.pdf)

9. **REPORT OF THE PRESIDENT**

The president presented a broad report covering a number of items, including the following: the recent NSERC funding announcement; the Town Hall held on 12 February; the university’s core administrative priorities, including the strategic plan, a multi-year integrated budgeting model, and strategic enrolment management; and the appointment of a new Minister of Training, Colleges and Universities in Ontario, the Hon. Brad Duguid.


10. **Q&A PERIOD WITH THE PRESIDENT**

The president answered questions on the strategic plan, whether it will be discussed and approved by Senate and the Board of Governors, and indicated that both bodies would be kept up-to-date as the plan is developed, and that a series of mini town halls would be held in addition to get input from a broad audience. He answered further questions on issues in gender equity, and on the approvals process for the strategic plan.

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

**2012-13 Operating Budget Update** [handout at senators’ places]. McBoyle reviewed performance against the 2012-13 operating budget, noting an approximately equal increase in revenues and expenses since the last report on the budget in June, and forecasting an operating surplus of approximately $1.0 million. He also reviewed the planning assumptions to be used in preparation of the 2013-14 operating budget, focusing on uncertainty related to the government grant and the tuition framework, and on changes expected in university expenses.

McBoyle indicated that it is not yet clear whether undergraduate international students will face a tuition increase in addition to the special government assessment on international students.

He also spoke to the relationship between uncertainties relative to the government grant, and the possibility of a meaningful multi-year budget model.
Undergraduate Admissions. On behalf of the registrar, McBoyle summarized first year admission targets and provided updates re: applications and early entrance scholarships. Comments were made on the relationship between continuing increases in the numbers of undergraduate students at the university, and the quality of the student experience. Further comments were made on the likelihood of succeeding in the efficiency study without input from an objective source. Senate was advised that the efficiency study is based on a benchmarking exercise conducted by outside accountants, and that a second study (by an outside firm) related to organizational structure will be underway shortly.

McBoyle advised that he had just received a report on the progress being made in student retention by the Student Success Office, and Associate Provost, Students Chris Read indicated that research is underway to determine retention factors. McBoyle also commented on the importance of continuing education in the English language to support the success of international students.

12. REPORT OF THE VICE-PRESIDENT, ADVANCEMENT
There was no report from McGillivray.

13. REPORT OF THE VICE-PRESIDENT, UNIVERSITY RELATIONS
Jackson reported on the Hadfield downlink from the international space station and the support the university has received from Commander Hadfield, and he commended the team that designed and executed the project.

He reported as well on the innovation summit to be co-hosted by Hamdullahpur and Kevin Lynch, chair of the Board of Governors, on 22 and 23 April 2013.

14. REPORT OF THE VICE-PRESIDENT, UNIVERSITY RESEARCH
Dixon reported on the establishment of a new Ministry of Research and Innovation in the provincial government, and on further successes for the university in the Canadian Foundation for Innovation. He also advised that the Social Sciences and Humanities Research Council of Canada had placed a moratorium on the Connection Grants program, likely to last only to the end of the current fiscal period. Dixon advised as well that two grants have been received by university researchers from the Canadian Institutes of Health Research.

15. OTHER BUSINESS
Ramdev emphasized the wish by students to be more heavily involved in decision-making so as to represent Senate and the administration more thoroughly to their constituents. Related to this is the need for the disclosure of reasons for decisions as they are made. Finally, he urged the university to provide opportunity for all students to create lasting memories of their experiences through the course of their studies.

Senate convened in Confidential Session.
Senate Graduate & Research Council met on 11 February 2013 and agreed to forward the following items to Senate for information. These items are recommended for inclusion in the consent agenda.

Further details are available at: www.adm.uwaterloo.ca/infosec/Committees/senate/sgrc.htm

FOR INFORMATION

SCHOLARSHIPS AND AWARDS
On behalf of Senate, Council approved the creation of the Fairfax Financial Academic All-Canadian Awards, the Frank and Azniv Lochan Family Foundation Award, the Cecilia and the late George Piller Graduate Research Award, the Jack Rosen Memorial Award for Environmental Innovation, the Paul Jeffrey Mesbur Memorial Award and the Renison Town and Gown Society Award.

AMENDMENTS TO UW/SSHRC GUIDELINES AND FORM
On behalf of Senate, Council approved amendments to: the UW/SSHRC Small Grant Review Committee’s terms of reference; changes to the travel grant policy guidelines and application form; changes to the seed grant policy guidelines and application form; and changes to the Humanities and Social Sciences Endowment Fund terms of reference and application form.

/mg  Sue Horton  George Dixon
Associate Provost, Graduate Studies  Vice President, University Research
FOR INFORMATION

Recognition and Commendation
Professor Matteo Mariantoni, from IQC and physics and astronomy, has won a Sloan Research Fellowship from the Alfred P. Sloan Foundation, valued at $50,000 over two years. Professor Mariantoni is the 11th University of Waterloo researcher to receive a Sloan Fellowship. “The Sloan Research Fellowships seek to stimulate fundamental research by early-career scientists and scholars of outstanding promise. These two-year fellowships are awarded yearly to 126 researchers in recognition of distinguished performance and a unique potential to make substantial contributions to their field.”
[20 February 2013 Daily Bulletin]
University of Waterloo
REPORT OF THE DEAN OF APPLIED HEALTH SCIENCES TO SENATE
March 25, 2013

FOR INFORMATION

A. APPOINTMENTS

Probationary-term Appointment
HECKMAN, George, Associate Professor, School of Public Health and Health Systems, July 1, 2013 to June 30, 2016. [Honours Bachelor of Applied Science, Engineering Physics (1988), Master of Mathematics (1991), Doctor of Medicine (1995), University of Toronto; Master of Science, Health Research Methodology, McMaster University (1999); Specialist Certificate in Internal Medicine and Geriatric Medicine, Royal College of Physicians and Surgeons of Canada (2000)].

Visiting Appointment

Postdoctoral Fellow to Research Appointment
DePAUL, Vincent, Department of Kinesiology, January 1, 2013 to December 31, 2015.

Joint Appointment
HORTON, Sue, Professor, Faculty of Arts (.51) and the School of Public Health and Health Systems (.49), effective July 1, 2014.

B. ADMINISTRATIVE APPOINTMENT
WARD, Glenn, Acting Associate Director, Undergraduate Studies, School of Public Health and Health Systems, January 1, 2013 – January 31, 2013.

C. RESIGNATION
McDONALD, Paul, Professor, School of Public Health and Health Systems, effective April 4, 2013.

Susan J. Elliott
Dean, Applied Health Sciences
FOR INFORMATION

A. APPOINTMENTS

Tenured Appointments

**FERRER, Ana**, Associate Professor, Department of Economics, July 1 2013. Professor Ferrer completed her bachelor in economic theory (1990) at the Universidad Autónoma de Madrid before heading to Boston University to finish her MA (1997) and PhD (1998). Dr. Ferrer started her career as an associate researcher at the Western Research Network. She then went to the University of British Columbia as a visiting professor from 1999-2005. Professor Ferrer has held the following posts at the University of Calgary: adjunct professor (2005-06), assistant professor (2007-09) and associate professor (2009- to date). Her research interests are: labour economics, human capital, the economics of immigration, and family economics. She continues to have active affiliations with Metropolis, an international network for comparative research, as well as being an associate researcher at both the Global Network on Child Migration at Princeton, and the Canadian Labour Market and Skill Researcher Network (CLSRN). According to colleagues, “she combines her research with an interest in public policy that makes her work relevant beyond the Academy.”

**GONZALEZ, Francisco**, Professor, Department of Economics, July 1 2013. Professor Gonzalez achieved his BA (1990) in economics from the Universidad Autónoma de Madrid. He then went on to complete a PhD at Boston University (1997). His career started as an assistant professor at the University of British Columbia (1997-2005), and he has been an associate professor at the University of Calgary since 2005. Dr. Gonzalez’s research interests are social conflict, inequity, unemployment and economic fluctuations. He is an exceptional instructor as evidenced by his number of nominations and achievement of teaching awards. Professor Gonzalez has had two SSHRC grants: one from 2006-2010; and a current grant from 2010-2013. A colleague of Gonzalez states “he has published important research in top journals and can be expected to produce creative and interesting research well into the future.”

Probationary-term Appointment

**HARRIS, Jennifer** (BA 1995 University of Western Ontario; MA 1996, MA 1998 and PhD 2004 York University), Associate Professor, Department of English Language and Literature, May 1 2013 to June 30 2016. Professor Harris is a specialist in nineteenth-century American literature, African-American literature, and transnational approaches to literature. Formerly the editor of a book series with MIT Press, she joins us from Mount Allison University, where she was an associate professor and the recipient of awards honouring both her research and her teaching. She will strengthen existing areas of excellence in English in American studies, black studies, and the global contexts of English literature. Professor Harris is author of numerous articles in her areas of expertise, and her research has been funded by both SSHRC and the Fulbright Foundation. Among other professional contributions, she is president of the Canadian Association for American Studies and a board member of the Northeast Modern Language Association.

Probationary-term Appointments – Date Changes

**HAMPTON, Clark**, Assistant Professor, School of Accounting & Finance, end date extended to June 30, 2015.

**KELETA-MAE, Naila**, Assistant Professor, Department of Drama & Speech Communication, end date extended to June 30, 2016.

**RUS, Horatiu**, Assistant Professor, Department of Economics, end date extended to June 30, 2017.
Visiting Appointment
ROTBERG, Robert, Professor, Department of Political Science, January 1, 2013 to April 30, 2013.

Adjunct Appointment
Instruction
CHOPRA, Anish, Lecturer, School of Accounting and Finance, January 1, 2013 to April 30, 2013.

Adjunct Reappointments
Instruction
CHAPUT, Louise, Lecturer, Department of French Studies, January 23, 2013 to February 15, 2013.
LOCKWOOD, Eric, Lecturer, School of Accounting and Finance, January 1, 2013 to April 30, 2013.
LOPES, Maria, Lecturer, School of Accounting and Finance, January 1, 2013 to April 30, 2013.
MACKINNON, Ernie, Associate Professor, Department of Psychology, January 1, 2013 to April 30, 2013.
MALONE, Toby, Lecturer, Department of Drama and Speech Communication, January 1, 2013 to April 30, 2013.
O’HARA, Kathleen, Lecturer, Department of Drama and Speech Communication, January 1, 2013 to April 30, 2013.
WATT, Kirsten, Lecturer, Department of Drama and Speech Communication, January 1, 2013 to March 13, 2013.

B. ADMINISTRATIVE APPOINTMENT
BOIDO, Mario, Associate Chair, Undergraduate Studies, Department of Spanish and Latin American Studies, May 1, 2013 to April 30, 2014.

C. SABBATICAL LEAVES
For Approval by the Board of Governors
BOYCHUK, Gerard, Professor, Department of Political Science, July 1, 2013 to June 30, 2014 at 97.5% salary.
DOUCET, Mathieu, Assistant Professor, Department of Philosophy, July 1, 2013 to December 31, 2013 at full salary.
FRIEDMAN, Ori, Associate Professor, Department of Psychology, July 1, 2013 to December 31, 2013 at 85% salary.
MCMURRY, Andrew, Associate Professor, Department of English Language & Literature, July 1, 2013 to June 30, 2014 at 85% salary.
STOLZ, Jennifer, Professor, Department of Psychology, July 1, 2013 to December 31, 2013 at 85% salary.

Douglas M. Peers
Dean, Arts
FOR INFORMATION

A. APPOINTMENTS

Tenured Appointment

MATSEN, Mark, Professor, Department of Chemical Engineering (51%) and Department of Physics & Astronomy (49%), September 1, 2013. PhD University of Guelph 1991; BSc Simon Fraser University 1987. Nanotechnology has become a major thrust in the Department of Chemical Engineering with the hiring of several faculty members, experts in nanotechnology, and with the active participation of a large number of our faculty in the Waterloo Institute of Nanotechnology. Furthermore, through the most recenthirings we have developed within the department expertise in advanced mathematical modeling at the nano-scale and in multi-scale modeling. Dr. Mark Matsen’s research focuses on polymeric materials with nano-scale structure and he is a world authority in the field of self-consistent field theory for block-copolymer materials and polymeric brushes. His hiring not only further strengthens the capacity of the Department of Chemical Engineering to become a leader in modeling/simulation at the nano scale, but also reinforces the existing strong expertise in polymer science and engineering in the department.

Probationary-term Appointments

WEI, Lan, Assistant Professor, Department of Electrical & Computer Engineering, October 1, 2013 – June 30, 2017. PhD Stanford University 2010; MS Stanford University 2007; BS Peking University 2005. Dr. Lan Wei is a strong researcher in the field of advanced electronic devices and integrated circuits. She has already established a solid research record of highly multidisciplinary nature demonstrating an expertise in nano- and micro-electronics not only at device level, but also at integrated circuits and system levels. This rare combination of knowledge and skill sets is what is needed to bridge the worlds of nano-electronics devices and integrated-circuits. Dr. Wei will nicely fill that need in the department. She has published in top venues such as IEEE Transactions on Electron Devices, Nanotechnology, Device and Material Reliability, etc.

YOON, Young Ki, Assistant Professor, Department of Electrical & Computer Engineering, May 1, 2013 – June 30, 2016. PhD University of Florida 2008; MS University of Florida 2005; BS Korea University, Korea 1999. Dr. Young Ki Yoon is an outstanding researcher in computational nano-electronics focusing on novel devices. He has established a strong research record in quantum transport simulation, device physics of advanced nano-transistors, mono-layer devices based on non-conventional materials, and new device concepts barrier-free tunneling zero-band gap semi-metal heterostructures. The department’s strength in nanotechnology with all its experimental researchers will be further enhanced with the addition of Dr. Yoon, a computational nanotechnologist. He has published in high impact venues such as Nano Letters, Science, IEEE Transactions on Nanotechnology, IEEE Transactions on Electron Devices, Applied Physics Letters, etc. He has also been the principal creator of the research and educational software, CNTbands, available from nanoHUB and used by several thousand users.

Definite-term Reappointment


Visiting Appointments


EL SABOUR SEADA, Noha Aly Abd, Scholar, Department of Systems Design Engineering, September 1, 2013 – August 31, 2015.

HUNT, Barry, Scientist, Department of Chemical Engineering, February 1, 2013 – December 31, 2013.

LIU, Xuejia (Ian), Scholar, Department of Chemical Engineering, January 1, 2013 – March 31, 2013.

MACKENZIE, Jennifer, Scholar, Department of Chemical Engineering, January 1, 2013 – December 1, 2013.


SHAREEFDEEN, Zarook, Researcher, Department of Chemical Engineering, January 1, 2014 – April 30, 2014.

YANG, Yongqiang, Scholar, Department of Chemical Engineering, December 24, 2012 – December 23, 2013.

YU, Zhao, Scholar, Department of Civil & Environmental Engineering, June 1, 2012 – May 31, 2013.

ZOU, Ray, Scholar, Department of Chemical Engineering, February 1, 2013 – April 30, 2013.

Adjunct Appointments

Instruction

ABDEL WAHAB, Noran, Lecturer, Department of Civil & Environmental Engineering, May 1, 2013 – August 31, 2013.

CICHY, Mark, Assistant Professor, School of Architecture, January 1, 2013 – April 30, 2013.

HARRIS-BRANDTS, Suzanne, Assistant Professor, School of Architecture, January 1, 2013 – April 30, 2013.

HUANG, Yiqing (Irene), Lecturer, Department of Electrical & Computer Engineering, May 1, 2013 – August 31, 2013.

MOHAMED, Samar, Lecturer, Department of Electrical & Computer Engineering, May 1, 2013 – August 31, 2013.

MUNAWAR, Mohammad Ahmad, Lecturer, Department of Electrical & Computer Engineering, May 1, 2013 – August 31, 2013.

RAHIM, Amir, Lecturer, Department of Management Sciences, January 1, 2013 – April 30, 2013.

ROSS, Barbara, Assistant Professor, School of Architecture, January 1, 2013 – April 30, 2013.

SEIFERT, Rolf, Assistant Professor, School of Architecture, January 1, 2013 – April 30, 2013.
Graduate Supervision and Research


**PARK, Joonhong**, Associate Professor, Department of Civil & Environmental Engineering, January 1, 2013 – December 31, 2014.


Adjunct Reappointments

Instruction

**GABER, Tammy**, Assistant Professor, School of Architecture, January 1, 2013 – April 30, 2013.

**MATEOS SANTILLAN, Edgar**, Lecturer, Department of Electrical & Computer Engineering, May 1, 2013 – August 31, 2013.

Cross Reappointment

**PROUZET, Eric**, Associate Professor, Department of Chemistry to the Department of Chemical Engineering, February 1, 2013 – January 31, 2016.

Staff to Faculty Appointment

**KOLLER, Heinrich**, Adjunct Lecturer, School of Architecture, January 1, 2013 – April 30, 2013.

B. SABBATICAL LEAVES

**BURN, Donald**, Professor, Department of Civil & Environmental Engineering, July 1, 2013 – December 31, 2013 at 100% salary.

**NIEVE, Patricia**, Associate Professor, Department of Mechanical & Mechatronics Engineering, May 1, 2013 – October 31, 2013 at 100% salary.

For Approval by the Board of Governors

**SALEHIAN, Armaghan**, Assistant Professor, Department of Mechanical & Mechatronics Engineering, July 1, 2013 – December 31, 2013 at 100% salary.

C. ADMINISTRATIVE LEAVE

**JEWKES, Beth**, Professor, Department of Management Sciences, May 1, 2013 – August 31, 2013 at 100% salary.

[Signature]

Pearl Sullivan
Dean, Engineering
FOR INFORMATION

A. APPOINTMENTS

Adjunct Appointments

Instruction

BROWN, Graham, Professor, School of Environment, Enterprise and Development, January 1, 2013 to December 31, 2015.

CASTON, Wayne, Lecturer, Department of Geography and Environmental Management, May 1, 2013 to August 31, 2013.

RAIMBAULT, Beverly, Lecturer, Faculty of Environment, May 1, 2013 to August 31, 2013.

Graduate Supervision

BONNER, Kieran, Professor, School of Planning, January 1, 2013 to December 31, 2015.

BRANFIREUN, Brian, Associate Professor, Department of Geography and Environmental Management, January 1, 2013 to December 31, 2017.

HOLBEIN, Bruce, Professor, School of Planning, January 1, 2013 to December 31, 2015.

REMENDA, Victoria, Associate Professor, Department of Geography and Environmental Management, January 1, 2013 to December 31, 2013.

Cross Appointment

TOLSON, Bryan, Associate Professor, Department of Civil and Environmental Engineering to the Department of Geography and Environmental Management, January 1, 2013 to December 31, 2015.

Staff to Faculty Appointment

McKENZIE, Ian, Associate Professor, Department of Geography and Environmental Management, May 1, 2013 to August 31, 2013.

Graduate Student to Part-Time Lecturer Appointments

HO, Jacqueline, Department of Geography and Environmental Management, May 1, 2013 to August 31, 2013.

LUUS, Kristina, Department of Geography and Environmental Management, May 1, 2013 to August 31, 2013.

MARIAMPILLAI, Danial, Department of Geography and Environmental Management, May 1, 2013 to August 31, 2013.

SILVER, Amber, Department of Geography and Environmental Management, May 1, 2013 to August 31, 2013.
B. SABBATICAL LEAVES
For Approval by the Board of Governors

CUKIER, Judie, Associate Professor, Department of Geography and Environmental Management, July 1, 2013 to December 31, 2013 at 85% salary.

TSUJI, Len, Professor, Department of Environment and Resource Studies, September 1, 2013 to February 28, 2014 at 100% salary.

André Roy
Dean, Environment
FOR INFORMATION

A. APPOINTMENTS

Visiting Appointments


Adjunct Reappointments

Instructor


GESHNIZJANI, GHAZEL, Lecturer, Dept. of Applied Mathematics, January 1, 2013 – April 30, 2013.


Cross Appointments

BEN-DAVID, Shai, Professor, David R. Cheriton School of Computer Science to the Dept. of Statistics and Actuarial Science, December 1, 2012 – November 30, 2014.


B. SABBATICAL LEAVES

For Approval by the Board of Governors

CORMACK, Gordon, Professor, David R. Cheriton School of Computer Science, September 1, 2013 – August 31, 2014 with 85% salary.

ORCHARD, Jeff, Associate Professor, David R. Cheriton School of Computer Science, August 1, 2013 – July 31, 2014 with 89.2% salary.

WOLKOWICZ, Henry, Professor, Dept. of Combinatorics and Optimization, July 1, 2013 – June 30, 2014 with 85% salary.

SABBATICAL LEAVE CHANGE

RICHTER, Bruce, Professor, change from David R. Cheriton School of Computer Science to Dept. of Combinatorics and Optimization, March 1, 2013 – August 31, 2013 with 85% salary.
FOR INFORMATION

A. APPOINTMENTS

Tenured Appointment – Date Change
MURPHY, Paul, Professor, School of Optometry and Vision Science, start date changed from January 1, 2013 to April 1, 2013.

Adjunct Appointment
Undergraduate Instruction
GOODWIN, Amanda, Lecturer, School of Pharmacy, May 1, 2013 to August 31, 2013.

Adjunct Reappointments
Undergraduate Instruction
JASINSKI, Paul, Lecturer, Department of Earth and Environmental Sciences, January 1, 2013 to April 30, 2013.

NAKHLA, Nardine, Assistant Professor, School of Pharmacy, January 1, 2013 to December 31, 2013.

SILLS, Victoria, Lecturer, School of Pharmacy, January 1, 2013 to December 31, 2013.

Graduate Supervision
BARNETT, Robin, Professor, Department of Physics and Astronomy, January 1, 2013 to December 31, 2016.

Graduate Supervision and Research
GINN, Brian K., Associate Professor, Department of Biology, March 1, 2013 to February 28, 2016.

LUMSDEN, John S., Professor, Department of Biology, March 1, 2013 to February 28, 2016.

MORENO-HAGELSIEB, Gabriel, Associate Professor, Department of Biology, April 1, 2013 to March 31, 2016.

Cross Appointment
WILSON, Christopher, Associate Professor, Department of Electrical and Computer Engineering to the Department of Physics and Astronomy, January 1, 2013 to December 31, 2016.

Graduate Student to Part-time Lecturer Appointment
STUDHOLME, Catherine, Lecturer, Department of Biology, May 1, 2013 to August 31, 2013.

Research Associate to Part-time Lecturer Appointment
TETREAULT, Gerald R., Lecturer, Department of Biology, May 1, 2013 to August 31, 2013.
B. ADMINISTRATIVE APPOINTMENT
EVANS, Stephen, Associate Chair, Department of Earth and Environmental Sciences, January 1, 2013 to December 31, 2014.

C. SABBATICAL LEAVE
For Approval by the Board of Governors
BALOGH, Michael, Associate Professor, Department of Physics and Astronomy, September 1, 2013 to August 31, 2014 with 85% salary.

T.B. McMahon
Dean, Science
Council of Ontario Universities
Report on Academic Colleagues Meeting
January 31 - February 1, 2013, Toronto
Report from Dan Brown, Cheriton School of Computer Science

The meeting on January 31 and February 1 was a meeting of the Academic Colleagues only. There was dinner on January 31 and a morning meeting on February 1.

At the dinner, the Academic Colleagues had a report from Peter Gooch, from COU, who discussed the uncertainties resulting from the change in leadership in Queen’s Park. He also discussed the difficult climate for public-sector unions and other employee groups in light of Ontario’s fiscal difficulties. It seems unclear how much the Strategic Mandate Agreements prepared in 2012 will fit with priorities of the new government, and it is also unclear how likely it is that there will be new resources for universities to enact their proposals.

Another topic discussed was the government’s decision to claw back $750 in operating grant for international students; it is currently unclear how this decision will be enacted.

The balance of the evening was spent discussing a draft discussion paper about the changing role of faculty: has the job of being a professor changed in ways that require a different approach to training PhD students? Colleagues discussed the changes that are universal due to technology, and also the changes in how universities are managed, and the increased role of professional staff in the running of the institutions. There seems to be great diversity among universities in how many senior roles are held by non-academics.

On Friday morning, the discussion of the changing role of faculty continued. Another topic of discussion was the rise in unemployment rates among recent university graduates, and the popular perception that university education is not training students for their careers; some Academic Colleagues who study higher education gave reference to recent peer-reviewed papers debunking this belief.
Senate Graduate & Research Council met on 11 February 2013 and 4 March 2013, and agreed to forward the following items to Senate for approval. These items are recommended for inclusion in the regular agenda.

Further details are available at: www.adm.uwaterloo.ca/infosec/Committees/senate/sgrc.htm

FOR APPROVAL

NEW PROGRAMS

Master of Arts in Public Issues Anthropology

1. **Motion:** To establish a Master of Arts in Public Issues Anthropology to be offered by the Department of Anthropology in the Faculty of Arts, as described in attachment 1.

   **Rationale:**
   The recommendation to establish a Master of Arts in Public Issues Anthropology arises because of a mutual decision by Universities of Waterloo and Guelph not to continue operating their joint MA in Public Issues Anthropology, but to offer two separate programs.

   The University of Waterloo’s Public Issues Anthropology program represents a unique approach to graduate studies in anthropology which encompasses the subdisciplines within anthropology (cultural, archaeological and biological) equally and in an integrated fashion. This approach intends to bring anthropological knowledge to bear on issues that are of demonstrated interest to society generally, emphasizing relevance to and engagement with a wide array of social issues that interest and impact diverse publics, and conjoins anthropological theory and data with application where possible.

   The program involves both coursework and research leading to the writing and defense of a masters thesis. Students will normally complete the program in 16 months of full-time study, and the program will be delivered in-person. The existing joint program will admit its final students in 2013; the proposed program will take its first students in 2014.

Collaborative research master and doctoral programs in Integrated Water Management

2. **Motion:** To establish collaborative research master and doctoral programs in Integrated Water Management to be offered by the following departments/schools: Applied Mathematics; Biology; Civil and Environmental Engineering; Earth and Environmental Sciences; Environment and Resources Studies; Environment, Enterprise and Development; Geography and Environmental Management; in the Faculties of Engineering, Environment, Math, and Science, as described in attachment 2.

   **Rationale:**
   The need for water specialists and managers with a broader multidisciplinary and interdisciplinary background is well documented, and a host of pressures including demographics, urbanization, intensification of agricultural production and climate change are making issues concerning the management of water increasingly complex. The University of Waterloo, with the exceptional breadth in research and teaching programs, is well positioned to serve this need.
The objective of the Integrated Water Management program is to provide students with a broad, multidisciplinary foundation in water science and engineering, technology and management. Students will gain discipline expertise from their parent departments. The parent and collaborative programs combined will provide students with a specialist area of focus and level of understanding of other water-related disciplines such that they can be effective in multidisciplinary or interdisciplinary settings.

Students participating in the program will be registered in existing master and doctoral degree programs in their parent departments and will be required to complete all degree requirements of that program. The interdisciplinary objectives of the collaborative program will be achieved through successful completion of two one-term courses (2 courses x 0.5 credit/course) developed specifically for the program. By taking the courses coincident with other degree requirements, the program should add no more than one-half term to the normal completion time.

George Dixon
Vice-President, University Research

Sue Horton
Associate Provost, Graduate Studies
University of Waterloo

Program Proposal Brief of the

Master of Arts in Public Issues Anthropology

Submitted to the Ontario Universities Council on Quality Assurance

Volume I — Proposal

November, 2012
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1 - Introduction: Learning objectives and outcomes

1.1 - Brief listing of the program

The proposed Master of Arts in Public Issues Anthropology (PIA) will completely replace the Department of Anthropology’s existing Master of Arts in Public Issues Anthropology, which is a joint program with the University of Guelph’s Department of Sociology and Anthropology, and which has been accepting students since 2007. The University of Waterloo’s existing joint program will admit its final students in 2013; the proposed program will take its first students in 2014. The proposed program will not be a joint degree. It will be a research program with regular fees. Students will normally be expected to complete the program in four terms (16 months). The program will be full-time only, with no Co-op option. Unlike the existing program, which has both a Thesis option and a Major Research Paper option, the completion of a thesis will be mandatory in the proposed program. The program will be delivered in-person.

1.2 - Method used for preparation of the brief

The preparation of this brief involved extensive consultation among the Anthropology Department’s faculty members and its Administrative Assistant over a period of more than two years. Following discussions with the former Dean of Arts (Ken Coates) and the former Associate Dean of Arts for Graduate Studies and Research (Bruce Muirhead) in September of 2010, and discussions with our University of Guelph colleagues in the existing joint Master of Arts in Public Issues Anthropology in October, 2010, we began the process of designing the new program. Former and current graduate students in the joint program were consulted by email regarding their experiences in the existing program, and their opinions were solicited concerning the desirability of specific differences between the existing program and the proposed program. Their input informs the current proposal.

This proposal was approved by the Department of Anthropology on September 26, 2012. It was subsequently approved by the Faculty of Arts’ Graduate Affairs Group on October 18, 2012, by the Arts Faculty Executive Council on October 30, 2012 and by the Arts Faculty Council on November 13, 2012.

1.3 - Objectives of the program

The University of Waterloo’s Public Issues Anthropology program represents a unique approach to graduate studies in Anthropology. It encompasses Cultural, Archaeological and Biological Anthropology equally and in an integrated fashion. It is an approach that is based on two principles: (1) there are themes and issues that are fundamentally anthropological and which therefore cross-cut and integrate the three traditional subdisciplines of Anthropology—Cultural, Archaeological and Biological—that are represented here at UW even at the level of advanced research; (2) anthropological findings, theory, practices, experiences, and methodologies have relevance for many topics that show up today in public settings.

Based on these two principles, the intent of Public Issues Anthropology at the University of Waterloo is to bring anthropological knowledge and approaches to bear on issues that are of demonstrated interest to society generally. The program emphasizes Anthropology’s relevance to and engagement with a wide array of social issues that interest and impact diverse publics, and conjoins anthropological theory and data with application where possible. Given its subject matter and approach, the program will further the University of Waterloo’s pedagogical focus on emphasizing the relevance of knowledge, and on internationalization and intercultural awareness.

The proposed Master of Arts in Public Issues Anthropology has been designed to meet both the objectives outlined in the OCAV Graduate Degree Level Expectations for Masters Degrees as adopted by the University of Waterloo (cte.uwaterloo.ca/media/PDFs/GDLEs.doc) as outlined in Table 1 (below) and the following program-specific objectives. By the end of the program students should be able to:

1. identify anthropological knowledge that is relevant to issues of demonstrated interest to society, and be able to explain its relevance
2. understand the application of anthropological approaches (theory and method) employed in the three subdisciplines of Cultural, Biological and Archaeological Anthropology
3. demonstrate the ability to explore anthropological issues at a more advanced and exacting scholarly level than would be possible with just the breadth of background provided by a typical bachelor's degree in Anthropology.

4. recognize and explain ethical concerns as they pertain to anthropological research and the utilization of anthropological insights and knowledge, and therefore be able to apply the social and ethical responsibilities of professional anthropologists.

5. express complex ideas and arguments relevant to Public Issues Anthropology by communicating effectively both orally and in writing.

Section 1.8 and Table 1 (below) outline how the achievement of these objectives is assessed.

1.4 - Admission requirements

In order to be admitted to the MA in Public Issues Anthropology at the University of Waterloo a student must first meet the general admission requirements of the university. In addition, a minimum 75% average in the final two years of their undergraduate studies in a four-year undergraduate program (exclusive of first-year level courses in those two years) will normally be required. The expectation is that the undergraduate degree will be in Anthropology, but students with at least five courses in Anthropology may be admitted as long as these were part of a major in another social science or humanities program, and as long as the five Anthropology courses include both ethnography and either Biological or Archaeological Anthropology. We will also accept students with an undergraduate degree in the natural sciences with at least five courses in Anthropology, as long as the five Anthropology courses they have taken include anthropological theory plus both ethnography and either Biological or Archaeological Anthropology. Applicants are required to submit a statement of research interests.

1.5 - Structure

The program involves both coursework and research leading to the writing and defense of a Masters thesis. Students will normally complete the program in 16 months (four terms: Fall, Winter, Spring, Fall) of full-time study.

Incoming Public Issues Anthropology students, like all incoming UW graduate students, are required to attend an academic integrity workshop at the beginning of their studies.

The coursework component of the program is 2.0 credits, of which 1.5 credits will come from three required courses: ANTH 600 (Public Issues Anthropology); ANTH 608 (Anthropological Theory); and ANTH 614 (Research Methods). The one elective course (the remaining 0.5 credits) will allow each student to explore in depth a topic relevant to his/her specific interests or thesis research. ANTH 608 and ANTH 600 will both be offered each year in the Fall term, while ANTH 614 will be offered each year in the Winter term. Students will normally also take their elective course in the Winter term. By the end of the Winter term students are expected to have produced an acceptable research proposal which must be approved by their advisor.

The research component of the program will consist of a project that will result in a Masters thesis. When both appropriate and logistically possible, the thesis research component will involve a period of anthropological fieldwork but for many students the thesis research component will involve the analysis of some body of data located at or available from the University of Waterloo. The third and fourth terms of the program (Spring and Fall terms) will be devoted to researching, writing and defending the thesis. The thesis will be defended orally according to the Graduate Studies Office regulations governing Masters Thesis defenses. Additional Anthropology Department regulations concerning the thesis and defense include the thesis length (a maximum of 100 pages in length, excluding appendices, if any).

The program’s requirements and timetable are structured in such a way that students should normally have no difficulty in completing all the requirements in four terms of full-time study.

1.5.1 - Effect of structure on quality

Based on our experience with the current program we know that the proposed program will attract students with research interests arising from all three of Cultural, Biological and Archaeological Anthropology. By designing the required PIA courses to take that fact into account, and by requiring these students with their diverse backgrounds and
interests to take the three required courses together, the program will emphasize the fundamentally anthropological themes and issues that cross-cut and integrate these traditional subdisciplines of Anthropology.

By placing the required Public Issues Anthropology and Anthropological Theory courses (ANTH 600 and 608) at the very beginning of the program it is intended that students will become well-equipped conceptually to finalize the overall topic of their thesis research before they enter the second term. These two courses are designed to encourage students to explore the intersection between traditional anthropological topics and findings on the one hand, and topics that surface frequently in public discourse today on the other. The placement of the methodology course (ANTH 614) in the second term is designed to provide students with the practical tools necessary to allow them to design a methodologically sound research project that is scaled such that it can be completed within the remaining (third and fourth) terms of the program. Methodologies relevant to all the subdisciplines of Anthropology will be covered in the course content, and the students will also be required to discuss the methodological issues of their own proposed research, consistent with the integrated nature of the program.

Students will normally be expected to take their elective course in the Winter term, at the same time as the methodology course. Scheduling the elective course here will allow them to study some topic of particular interest to them or of particular relevance to their chosen research topic.

Thus, the program is structured in such a way as to provide students during their first Fall term with the conceptual and theoretical tools that they will need to finalize their research topic, after which they will acquire the methodological tools that they will need to design and conduct their own research project on that topic during the Winter term. Students will then be able to devote the final two terms of the program, Spring and Fall, to their thesis research, writing and defense.

1.6 - Program content

The concept of “Public Issues Anthropology” was developed collaboratively by the Anthropology Department of the University of Waterloo, and the Sociology and Anthropology Department of the University of Guelph for the joint Master of Arts in Public Issues Anthropology that they created in 2007. The joint program is being replaced by a stand-alone program at the University of Guelph and by this program here at the University of Waterloo. Public Issues Anthropology at the University of Waterloo is designed to cross-cut and integrate all of the traditional subdisciplines of Anthropology, including Cultural, Biological and Archaeological Anthropology (the subdisciplines presently represented in the University of Waterloo’s Department of Anthropology). Our program seeks to bring anthropological knowledge and approaches to bear on issues that are of demonstrated interest to society generally, emphasizing Anthropology’s relevance to and engagement with a wide array of social issues that interest and impact diverse publics. The required coursework promotes methodological and theoretical competence, and expands both the students’ knowledge and their communication skills (written and oral). The research component (leading to the production of a Masters Thesis) functions to deepen students’ understanding of Anthropology and provide them with opportunities to demonstrate the innovativeness and relevance of their acquired knowledge and skills.

The coursework component of the program comprises four courses of which three (75%) are required graduate-level courses: ANTH 600, ANTH 608 and ANTH 614 (see Section 4). These three courses will provide students in the program with a broad understanding of the approaches and methodologies used in advanced research in Anthropology generally, and expose them to a range of examples of how anthropological concepts and data are relevant to public issues. ANTH 600 (Public Issues Anthropology) is taught in modules with department members, including our adjunct faculty members, each contributing a one-week or two-week module, as appropriate. The coordinator of the course ensures that the modules work together consistently, and that students integrate the content of the individual modules. Our adjunct faculty are extremely valuable in this course since they bring a wealth of professional experience applying Anthropology in public settings, covering issues such as archaeological heritage and consulting, wildlife conservation, and the role of Anthropology in international organizations. The other two required courses, ANTH 608 (Anthropological Theory) and ANTH 614 (Research Methods), are standard graduate seminar courses that provide necessary theoretical and methodological expertise to allow the students to design and carry out their thesis research. Ethical issues will be among the topics addressed in both ANTH 608 and ANTH 614 and if students are proposing research for which research ethics approval will be required, the process of obtaining that approval will form part of ANTH 614.
The elective course will allow each student to explore a topic relevant to his/her specific interests or thesis research. Given the small size of our core faculty complement and the exigencies of offering our Anthropology undergraduate program, in most years it is unlikely that we will be able to offer more than one other graduate-level course in Anthropology. However, based on our experiences with our existing graduate program, students will be able to select from cross-listed (i.e., undergraduate/graduate) courses in Anthropology, reading courses, or relevant graduate courses from other disciplines.

### 1.7 - Mode of delivery

The required coursework component of the program consists of graduate seminars, with additional scholarly enrichment occurring in the context of department-sponsored speaker series. The research component of the degree is conducted primarily through regular one-on-one interaction and consultation between the student and his/her advisor, as well as consultation with the other members of the student’s supervisory committee when necessary. Because some students’ thesis research will involve fieldwork (which is a hallmark of some kinds of anthropological research), the department has earmarked funds from its modest endowment fund to defray part of the expenses of student fieldwork travel.

### 1.8 - Assessment of teaching and learning

The assessment of student learning in the program is achieved by a number of means, each of which is intended to evaluate the student’s performance in skills necessary for advanced work in the field of Anthropology and for their ability to begin working at the intersection between traditional anthropological knowledge and issues that are of interest or concern to the public. All students in the program are evaluated in the context of the required seminar courses (ANTH 600, 608 and 614) and through their thesis research. Each of the required seminar courses obliges students to contribute orally in discussions and via presentations, and in writing via substantial term papers.

Assessment of student learning is guided first by the OCAV Graduate Degree Level Expectations for Masters Degrees as adopted by the University of Waterloo (cte.uwaterloo.ca/media/PDFs/GDLEs.doc), which set general expectations under the following six headings:

1. Depth and Breadth of Knowledge
2. Research and Scholarship
3. Level of Application of Knowledge
4. Professional Capacity/Autonomy
5. Level of Communications Skills
6. Awareness of Limits of Knowledge

Assessment of student learning is also guided by the Public Issues Anthropology program-specific expectations listed above in Section 1.3. The particular components of the program expected to fulfil each of these expectations and to provide for their assessment are listed in Table 1 on the following page.

The assessment of Depth and Breadth of Knowledge focuses on students demonstrating their ability to engage issues where anthropological knowledge and methods intersect with topics that are of public interest rather than being solely of scholarly interest. Those issues are covered throughout the entire program but are the specific in-depth focus of ANTH 600 (Public Issues Anthropology). Their achievement will be assessed in each of the required courses, and in the students’ thesis research. OCAV’s expectations under Research and Scholarship and under Awareness of Limits of Knowledge are achieved largely through the required coursework and thesis as well, as outlined in Table 1. OCAV’s expectations under Level of Application of Knowledge and Professional Capacity/Autonomy are evaluated principally in the context of the student’s thesis research, but also through coursework and through workshops. Because Public Issues Anthropology explicitly involves the communication of scholarly findings to diverse publics, the criterion of Level of Communications Skills is particularly important and is assessed throughout the program. For example, students’ formal oral presentations in their courses are evaluated for depth of content and originality, but also for delivery and effectiveness of communication. Similarly, written work is evaluated based on both content and communication, including factors such as the clarity of expression, coherence of argument, depth of critical thinking and originality of approach.
**OCAV Graduate Degree Level Expectations for Masters Degrees**

<table>
<thead>
<tr>
<th>1. Depth and Breadth of Knowledge</th>
<th>Maj (Depth)</th>
<th>Maj (Breadth)</th>
<th>Maj (Breadth)</th>
<th>Min (Breadth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A systematic understanding of knowledge and a critical awareness of current problems and/or new insights, much of which is at or informed by, the forefront of their academic discipline, field of study, or area of professional practice.</td>
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<table>
<thead>
<tr>
<th>2. Research and Scholarship</th>
<th>Maj</th>
<th>Min</th>
<th>Min</th>
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<tbody>
<tr>
<td>A conceptual understanding and methodological competence that:</td>
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<tr>
<td>i) Enables a working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline.</td>
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<tr>
<td>ii) Enables a critical evaluation of current research and advanced research and scholarship in the discipline or area of professional competence.</td>
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<tr>
<td>iii) Enables a treatment of complex issues and judgments based on established principles and techniques.</td>
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<tr>
<td>On the basis of that competence, has shown at least one of the following:</td>
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<tr>
<td>i) The development and support of a sustained argument in written form.</td>
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<tr>
<td>ii) Originality in the application of knowledge.</td>
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<table>
<thead>
<tr>
<th>3. Level of Application of Knowledge</th>
<th>Min</th>
<th>Min</th>
<th>Min</th>
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<tbody>
<tr>
<td>Competence in the research process by applying an existing body of knowledge into the critical analysis of a new question or of a specific problem or issue in a new setting.</td>
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<tr>
<th>4. Professional Capacity/Autonomy</th>
<th>Maj</th>
<th>Maj</th>
<th>Min</th>
</tr>
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<tbody>
<tr>
<td>The qualities and transferable skills necessary for employment requiring:</td>
<td></td>
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<td></td>
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<tr>
<td>i) The exercise of initiative and of personal responsibility and accountability.</td>
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<tr>
<td>ii) Decision-making in complex situations.</td>
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<tr>
<td>The intellectual independence required for continuing professional development.</td>
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<tr>
<td>The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research.</td>
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<tr>
<td>The ability to appreciate the breadth and implications of applying knowledge to particular contexts.</td>
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<table>
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<tr>
<th>5. Level of Communication Skills</th>
<th>Maj</th>
<th>Maj</th>
<th>Min</th>
</tr>
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<tbody>
<tr>
<td>The ability to communicate ideas, issues and conclusions clearly.</td>
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<tr>
<th>6. Awareness of Limits of Knowledge</th>
<th>Maj</th>
<th>Maj</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognizance of the complexity of knowledge and of the potential contributions of other interpretations, methods, and disciplines.</td>
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**Public Issues Anthropology Masters-Program-Specific Expectations**

<table>
<thead>
<tr>
<th>1. Identify anthropological knowledge that is relevant to issues of demonstrated interest to society, and be able to explain its relevance</th>
<th>Maj</th>
<th>Min</th>
<th>Min</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key:</strong> (Maj = Major contribution toward fulfilling the outcome; Min = Minor but nonetheless substantial contribution toward fulfilling the outcome)</td>
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</table>
At the end of each term, every student in the program is required to complete an Anthropology Department “Graduate Student Progress Report” form documenting their accomplishments that term and outlining their objectives for the next term. Their advisor is then required to complete and submit an “Advisor’s Evaluation of Graduate Student Progress Report” form. These reports are reviewed by the Anthropology Department Graduate Officer and then held in the student’s file. This process is intended to ensure that students’ progress is evaluated and documented regularly and consistently, so that students whose progress through the program is not up to expectations can be identified quickly and assisted to get back on track.

2 - Human resources

The members of the Department of Anthropology maintain a successful undergraduate program in Anthropology that offers an Honours program, three-year and four-year General programs, and a Minor program. Approximately 15 students per year have graduated with an Anthropology undergraduate degree between 2005 and 2011. Since 2007 the members of the Department of Anthropology have also maintained a joint Master of Arts in Public Issues Anthropology with the University of Guelph, which the proposed program is intended to replace. An average of four students per year have graduated with a University of Waterloo Master of Arts degree from that joint program since the 2008-09 academic year.

2.1 - Resources for graduate programs only

The Department of Anthropology’s programs are presently provided by its 5.0 FTE tenured or tenure-track members, plus one definite-term faculty member (presently on contract through August 2014). The secondment of one tenured faculty member to the Department of Political Science has temporarily lowered the Anthropology Department’s tenured or tenure-track FTE from 6.0 to 5.0 but the return or replacement of that faculty member within two years is expected to return the department’s tenured or tenure-track FTE to 6.0. Until then the five tenured or tenure-track professors will be the core faculty members for the proposed Master of Arts in Public Issues Anthropology program. None of them is expected to retire before 2022. The department has one full-time support staff member whose present duties include supporting the existing Master of Arts in Public Issues Anthropology program. That position will provide the same support for the proposed program once it replaces the existing program.

2.1.1 - List of faculty by field

Table 2 lists the five core faculty members in the program, all of whom are full-time tenured or tenure-track professors in the Department of Anthropology. All have impressive research and publication records when calibrated to their career stages. Their CVs can be found in Volume 2. All have Ph.D.s in Anthropology—their areas of expertise span Cultural, Biological and Archaeological Anthropology and each has a commitment to the concept of Public Issues Anthropology.

Table 2. Core Faculty Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Status</th>
<th>Gender</th>
<th>Primary Research Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nancy Barrickman</td>
<td>Ph.D. 2008 (Duke)</td>
<td>Tenure-track Assistant Professor</td>
<td>Female</td>
<td>Biological Anthropology</td>
</tr>
<tr>
<td>Götz Hoepe</td>
<td>Ph.D. 2002 (Freie Universität Berlin)</td>
<td>Tenure-track Assistant Professor</td>
<td>Male</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>Maria Liston</td>
<td>Ph.D. 1993 (Tennessee)</td>
<td>Tenured Associate Professor</td>
<td>Female</td>
<td>Biological Anthropology</td>
</tr>
<tr>
<td>Jennifer Liu</td>
<td>Ph.D. 2008 (California)</td>
<td>Tenure-track Assistant Professor</td>
<td>Female</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>Robert Park</td>
<td>Ph.D. 1989 (Alberta)</td>
<td>Tenured Full Professor</td>
<td>Male</td>
<td>Archaeological Anthropology</td>
</tr>
</tbody>
</table>

In addition to the regular faculty members (tenured, tenure-track and definite-term) presently appointed to the Department of Anthropology, the Faculty of Arts normally provides sessional replacements for regular faculty members seconded to administrative appointments or on sabbatical leave. The department has benefitted greatly from the multi-year support of several scholars willing to step in and teach courses on this basis when needed. They and the department’s other current adjunct faculty members have consistently contributed to our existing Master of Arts in Public Issues Anthropology program, both as supervisory committee members and by teaching modules in the ANTH 600 (Public Issues Anthropology) course and will continue to do so in the proposed program. These nine non-core faculty members’ contributions are thus demonstrably substantial and sustained so we are including information on them in this proposal. Table 3 lists them; their CVs can be found in Volume 2. All have Ph.D.s in Anthropology. Seven of them have official adjunct appointments in the Department of Anthropology; of the remaining two, Hayes is a definite-
term appointment in the Department of Anthropology through August 2014 and Habib has a tenured appointment in the Department of Political Science. All of these non-core faculty members are committed to the concept of Public Issues Anthropology and two of them (MacDonald and Spini) bring especially valuable experience of applying Anthropology outside academia to a wide range of public issues. The CVs of these non-core faculty members can also be found in Volume 2.

### Table 3. Non-core Faculty Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Status</th>
<th>Gender</th>
<th>Primary Research Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russell Adams</td>
<td>Ph.D. 1999 (Sheffield)</td>
<td>Adjunct Assistant Professor</td>
<td>Male</td>
<td>Archaeological Anthropology</td>
</tr>
<tr>
<td>Jasmin Habib</td>
<td>Ph.D. 2000 (McMaster)</td>
<td>Tenured Associate Professor</td>
<td>Female</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>Nicole Hayes</td>
<td>Ph.D. 2011 (Boston)</td>
<td>Definite-term Lecturer</td>
<td>Female</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>Mary Jackes</td>
<td>Ph.D. 1977 (Toronto)</td>
<td>Adjunct Associate Professor</td>
<td>Female</td>
<td>Biological Anthropology</td>
</tr>
<tr>
<td>David Lubell</td>
<td>Ph.D. 1971 (Columbia)</td>
<td>Adjunct Full Professor</td>
<td>Male</td>
<td>Archaeological Anthropology</td>
</tr>
<tr>
<td>Andrew Lyons</td>
<td>Ph.D. 1974 (Oxford)</td>
<td>Adjunct Full Professor</td>
<td>Male</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>Harriet Lyons</td>
<td>Ph.D. 1978 (Oxford)</td>
<td>Adjunct Full Professor</td>
<td>Female</td>
<td>Cultural Anthropology</td>
</tr>
<tr>
<td>Robert MacDonald</td>
<td>Ph.D. 2003 (McGill)</td>
<td>Adjunct Assistant Professor</td>
<td>Male</td>
<td>Archaeological Anthropology</td>
</tr>
<tr>
<td>Lucilla Spini</td>
<td>Ph.D. 2005 (Oxford)</td>
<td>Adjunct Assistant Professor</td>
<td>Female</td>
<td>Biological Anthropology</td>
</tr>
</tbody>
</table>

#### 2.1.2 - External operating research funding

Table 4 lists the research funding obtained by the five core faculty members over the past seven years. Calibrated to their career stages, research needs and administrative appointments, all have been successful in obtaining research funding and in carrying out anthropological research in locations around the world during that period, including Greece, Nicaragua, Tanzania, Taiwan, China, India, Chile, Spain, Germany, the United States, and the Canadian Arctic. The output of their research efforts is discussed below, in section 2.2.

### Table 4. Core Faculty Members’ Research Funding for the Past Seven Years

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Amount</th>
<th>Currency</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrickman</td>
<td>2005</td>
<td>$4,000</td>
<td>US</td>
<td>Graduate Women in Science Eloise Gerry Grant</td>
</tr>
<tr>
<td>Barrickman</td>
<td>2005</td>
<td>$1,625</td>
<td>US</td>
<td>Field Museum in Chicago Visiting Scholarship from Women in Science</td>
</tr>
<tr>
<td>Barrickman</td>
<td>2005</td>
<td>$500</td>
<td>US</td>
<td>Aleane Webb Grant</td>
</tr>
<tr>
<td>Barrickman</td>
<td>2005</td>
<td>$2,165</td>
<td>US</td>
<td>Duke University Graduate School International Dissertation Research Grant</td>
</tr>
<tr>
<td>Liu</td>
<td>2005</td>
<td>$18,000</td>
<td>US</td>
<td>Fulbright Foundation Institute of International Education – Dissertation Research</td>
</tr>
<tr>
<td>Liu</td>
<td>2005</td>
<td>$3,000</td>
<td>US</td>
<td>UC Berkeley Science and Technology Center – Research</td>
</tr>
<tr>
<td>Liu</td>
<td>2005</td>
<td>$12,500</td>
<td>US</td>
<td>UC San Francisco Graduate Dean’s Health Science Fellowship</td>
</tr>
<tr>
<td>Liu</td>
<td>2006</td>
<td>$1,000</td>
<td>US</td>
<td>Duke University Graduate Mentorship Grant</td>
</tr>
<tr>
<td>Liston</td>
<td>2006</td>
<td>$1,400</td>
<td>Cdn</td>
<td>Iklinai-Pylos, Greece Excavations – Principal Investigator: Michael Cosmopoulos</td>
</tr>
<tr>
<td>Liu</td>
<td>2006</td>
<td>$3,000</td>
<td>US</td>
<td>UC Berkeley Center for Chinese Studies – Graduate Research Fellowship</td>
</tr>
<tr>
<td>Liu</td>
<td>2006</td>
<td>$6,000</td>
<td>US</td>
<td>UC Berkeley Summer FLAS Grant – Language study</td>
</tr>
<tr>
<td>Liu</td>
<td>2006</td>
<td>$19,000</td>
<td>US</td>
<td>Charlotte W. Newcombe Foundation – Doctoral Dissertation Fellowship</td>
</tr>
<tr>
<td>Liu</td>
<td>2006</td>
<td>$18,000</td>
<td>US</td>
<td>Doreen B. Townsend Center for the Humanities – Graduate Fellowship</td>
</tr>
<tr>
<td>Park</td>
<td>2006</td>
<td>$24,980</td>
<td>Cdn</td>
<td>SSHRC Research Cluster Development – Principal Investigator: Shelley Saunders</td>
</tr>
<tr>
<td>Barrickman</td>
<td>2007</td>
<td>$1,000</td>
<td>US</td>
<td>Duke University Graduate Mentorship Grant</td>
</tr>
<tr>
<td>Hoeppe</td>
<td>2007</td>
<td>€140,000</td>
<td>EUR</td>
<td>Research project “Anthropology of epistemic practices”, Deutsche Forschungsgemeinschaft (NSF/NEH equivalent)</td>
</tr>
<tr>
<td>Liu</td>
<td>2007</td>
<td>$18,000</td>
<td>US</td>
<td>California Institute for Regenerative Medicine – Scholars Training Fellowship</td>
</tr>
<tr>
<td>Liu</td>
<td>2007</td>
<td>$20,000</td>
<td>US</td>
<td>University of California Humanities Research Institute – A. &amp; F. White Graduate Research Grant (declined).</td>
</tr>
<tr>
<td>Park</td>
<td>2007</td>
<td>$84,708</td>
<td>Cdn</td>
<td>SSHRC Standard Research Grant – Principal Investigator: S. Brooke Milne</td>
</tr>
<tr>
<td>Barrickman</td>
<td>2009</td>
<td>$3,000</td>
<td>US</td>
<td>Human-Animal Studies Fellowship, Animals and Society Institute, $3000</td>
</tr>
<tr>
<td>Liston</td>
<td>2009</td>
<td>$1,100</td>
<td>Cdn</td>
<td>2009 Azoria Crete Excavations, Greece – Principal Investigator: Donald Haggis</td>
</tr>
</tbody>
</table>
### 2.1.3 - Graduate supervision

Table 5 lists the completed and current supervision experience of the core faculty members. As context for these numbers it may be relevant that the Department of Anthropology has only had a graduate program (the joint Master of Arts in Public Issues Anthropology program with the University of Guelph) since 2007 and three of the core faculty members (Barrickman, Liu and Hoeppe) were only appointed to the University of Waterloo within the past three years. Hoeppe supervised one MA thesis at Heidelberg (Germany) in 2008 but due to his adjunct status there he was not eligible to count as the official advisor.

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Amount</th>
<th>Currency</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nancy Barrickman</td>
<td>2010</td>
<td>$5,500</td>
<td>Cdn</td>
<td>Lois Claxton Humanities and Social Sciences Award, University of Waterloo</td>
</tr>
<tr>
<td>Götz Hoeppe</td>
<td>2010</td>
<td>$25,000</td>
<td>US</td>
<td>Daniel and Florence Guggenheim Foundation Postdoctoral Fellowship, Smithsonian Institution, Washington, DC</td>
</tr>
<tr>
<td>Maria Liston</td>
<td>2010</td>
<td>$20,000</td>
<td>US</td>
<td>College of William &amp; Mary, New Faculty Starting Grant</td>
</tr>
<tr>
<td>Jennifer Liu</td>
<td>2011</td>
<td>$4,000</td>
<td>US</td>
<td>College of William &amp; Mary, Faculty Summer Research Grant</td>
</tr>
<tr>
<td>Goetz Hoeppe</td>
<td>2011</td>
<td>$1,000</td>
<td>Cdn</td>
<td>Institute for Aegean Prehistory (Tiskalario, Greece Excavations) – Principal Investigator: Xenia Xarambalidou</td>
</tr>
<tr>
<td>Barrickman</td>
<td>2012</td>
<td>$5,500</td>
<td>Cdn</td>
<td>SSHRC Seed Grant, University of Waterloo</td>
</tr>
<tr>
<td>Liston</td>
<td>2012</td>
<td>$1,000</td>
<td>Cdn</td>
<td>Institute for Aegean Prehistory (Tiskalario, Greece Excavations) Research Travel</td>
</tr>
<tr>
<td>Liu</td>
<td>2012</td>
<td>$5,500</td>
<td>Cdn</td>
<td>UW Faculty of Arts laboratory teaching collections development grant</td>
</tr>
<tr>
<td>Park</td>
<td>2012</td>
<td>$256,140</td>
<td>Cdn</td>
<td>SSHRC Insight Grant – Principal Investigator: S. Brooke Milne</td>
</tr>
</tbody>
</table>

### 2.2 - Quality of faculty

With respect to the proposed program in Public Issues Anthropology, the quality of the core faculty can be measured by standard indicators such as quality, quantity and diversity of publication records—much of this information can be found in detail in the CVs in Volume 2 but is summarized here.

Starting with quality, each of the core faculty members has published in prestigious refereed journals in his/her subdiscipline (e.g., *American Journal of Physical Anthropology; Journal of Human Evolution; Anthropos; Hesperia; Medical Anthropology; New Genetics and Society; Antiquity; American Antiquity; Archaeological Papers of the American Anthropological Association*). Calibrated to career stage and administrative responsibilities, the quantity of their output (see Table 6) represents a group of active and productive scholars.

<table>
<thead>
<tr>
<th>Name</th>
<th>Nancy Barrickman</th>
<th>Götz Hoeppe</th>
<th>Maria Liston</th>
<th>Jennifer Liu</th>
<th>Robert Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books authored</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Chapters in books</td>
<td>1</td>
<td>9</td>
<td>5</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Papers in refereed journals</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Papers in refereed conference proceedings</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Technical reports</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Abstracts and/or papers read</td>
<td>12</td>
<td>28</td>
<td>40</td>
<td>34</td>
<td>31</td>
</tr>
</tbody>
</table>
In terms of diversity, the core faculty members’ publications or ongoing research cover a very wide range of research topics including environmental Anthropology; the Anthropology of science and technology; medical Anthropology; emergent biotechnologies; cross-cultural bioethics; healthcare incentives; science governance and policy; primatology; human evolution; the relationship between conservation efforts, community welfare, and processes of globalization; skeletal biology and bioarchaeology; mortuary archaeology; forensic Anthropology; the archaeology of childhood; the archaeology of culture contact; Arctic exploration; climate change and the archaeological record. The three most recent tenure-track appointments to the department (Barrickman, Liu and Hoepppe) were explicitly recruited to deepen the department’s Public Issues Anthropology focus; all the core faculty members are committed to carrying out research from that perspective and to sharing it with our graduate students.

Thus, students enrolled in this Master of Arts in Public Issues Anthropology will be able to benefit from the wide breadth of expertise and varied topics of ongoing research to be found in the department, supplemented by the additional breadth provided by the non-core faculty members.

3 - Physical and financial resources

3.1 - Report on Library Resources for Anthropology as of May, 2012

The following is a summary of University of Waterloo Library information resources and services in Anthropology, prepared by Tim Ireland, Liaison Librarian for Anthropology, and reviewed by Susan Routliffe, Associate University Librarian, Information Resources and Services for Mark Haslett, University Librarian.

3.1.1 - Information Resources

Material is collected to support learning, teaching, and research for undergraduate classes and graduate research in Anthropology with emphasis on:

- Socio-Cultural Anthropology
- Archaeological Anthropology
- Biological (Physical) Anthropology.

The decision to purchase Library materials for Anthropology is the responsibility of the Liaison Librarian, in consultation with the Faculty Library Representative. Selection is guided by the Collection Development Policy, which is developed by the Liaison Librarian in consultation with faculty members in the department of Anthropology. Materials are obtained in a variety ways including firm orders, open orders, approval plans, and subscriptions.

The Library obtains resources in electronic format whenever it is possible and practical to do so. Some electronic resources are obtained directly by the Library and some are obtained through membership in the Ontario Council of University Libraries (OCUL) and the Canadian Research Knowledge Network (CRKN). Access to and use of electronic resources is generally governed by license agreements with the publisher or vendor.

The Library, along with the libraries of the University of Guelph (UG) and Wilfrid Laurier University (WLU), is a member of the Tri-University Group of Libraries (TUG) consortium. Collections from the University of Guelph and Wilfrid Laurier University enhance the depth and breadth of local materials available in subject areas of interest to Anthropology.

3.1.2 - Print Collections

The Library’s print collections for Anthropology are housed primarily in the Dana Porter Library. Access to the entire Library collection, as well materials held by UG and WLU, is available through the Web accessible tool known as PRIMO (http://primo.lib.uwaterloo.ca).

The Library’s automated circulation system allows users to charge out materials during the hours that the Library is open (every day most weeks, with some closures between terms and during the Christmas break) and to renew items online anytime. With the exception of the current issues of print journals and reference materials, most of the material in the Library’s collection circulates. Faculty, graduate students, and staff may borrow most monographs for a term at a time. The usual loan period for undergraduates is two weeks.
Books and journal articles not owned by the Library, but held by UG or WLU, may be requested by faculty, students and staff through Primo. Items will be delivered to the University of Waterloo within three working days. The cost of these services is absorbed by the Library.

In partnership with UG and WLU, the Library owns a facility, known as the Annex, which is used to house low-use research material. In keeping with the University’s research intensive status, the TUG libraries ensure that a last copy is maintained in perpetuity, through the Preservation of Last Copy Agreement. Items housed in the Annex will be delivered to the University of Waterloo within three working days. The cost of these services is absorbed by the Library.

3.1.3 - *Electronic Resources*

The primary tool for accessing electronic resources selected by the Library is its Web site (http://www.lib.uwaterloo.ca). This site organizes and provides access to licensed resources available to only the University of Waterloo faculty, students, and staff, as well as select Internet resources freely available to anyone. The site also provides access to electronic resources hosted by the OCUL Scholars Portal program (http://www.scholarsportal.info/index.html) and available to the University of Waterloo community through the Library’s participation in consortia purchasing through OCUL.

In addition, many of our electronic resources can be found through a search of Google Scholar (http://scholar.google.com/).

The Library uses linking technology (SFX) to enable users to link directly from research databases to the Library’s full text electronic journal subscription or to the catalogue record for holdings and call number information. The Library also provides access to bibliographic management software (RefWorks).

University of Waterloo faculty, students and staff may access electronic research databases and full text electronic journals from off-campus via the Library’s Proxy Server / Connect from Home feature.

The Library has purchased, or subscribes to, a range of electronic resources including research databases, full text journals, monographs, numeric data, and government publications. In addition, the Library identifies and provides access to select material freely available through the Internet. Such material includes open access journals, catalogues of libraries around the world, dictionaries, encyclopaedias, and style guides.

The following are some of the electronic resources of particular interest to Anthropology:

- Anthropology Plus
- AnthroSource
- Bibliography of Native North Americans
- e-HRAF
- JSTOR
- PrimateLit

3.1.4 - *Statistics and Numeric Data*

Also available to members of the University of Waterloo academic community are the data holdings of <odesi>, OCUL’s digital repository for social science data (http://odesi.ca). <odesi> provides web access to resources such as the Statistics Canada surveys and datasets, including the Canadian Census, through the Library’s membership in the Data Liberation Initiative (DLI) and Canadian public opinion polls. Access is also available to the data holdings of the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan, in Ann Arbor, Michigan (http://www.icpsr.umich.edu/icpsrweb/ICPSR/).

3.1.5 - *Resources from Institutions other than TUG*

The Interlibrary Loan/Document Delivery (ILL) service provides faculty, students, and staff with books, copies of journal articles, theses, and government documents from libraries within Canada and elsewhere. The Library uses OCUL’s RACER Web based interlibrary loan system (http://racer.scholarsportal.info/vdx/index.html) to facilitate ILL access and service for users. With minor exceptions, the cost for this service is absorbed by the Library.
Most Canadian university libraries extend, at no charge, in-person borrowing privileges to faculty, students and staff from across the country. Faculty, students, and staff are entitled to borrowing privileges at participating libraries (http://www.coppul.ca/rb/rbindex.html).

3.1.6 - Information Services

**Information Literacy: Research Skills, Critical Appraisal, Ethical Use**

Drawing from the Ontario Council of Academic Vice-Presidents’ Guidelines for University Degree Level Expectations and the Association of College and Research Libraries’ Information Literacy Competency Standards for Higher Education the Liaison Librarian for Anthropology develops information literacy-related activities and materials, in consultation with faculty. These include the development of online modules, research guides, and screencasts as well as the preparation of classroom sessions and outcomes-based workshops for students in the program. It is intended that the sessions and workshops may complement, or take the form of, assignments students complete as part of their course requirements. Depending on the nature of the assignments and the instructors’ expectations, these activities focus on introducing, reinforcing, or mastering key aspects of information research.

**Additional Information Services**

The Liaison Librarian for Anthropology is available for consultation with individuals or small groups of students. He may be contacted directly in person, by phone, and by e-mail if a personal visit to the Library is not convenient. The Librarian also develops and maintains an online subject guide for Anthropology (http://subjectguides.uwaterloo.ca/content.php?pid=98456&hs=a).

Reference assistance is available in person or by telephone at the Library’s Information Desks, which are staffed by professional librarians and specially trained library associates. Alternatively, faculty, students, and staff may get reference assistance via e-mail and online chat available through the Ask a Librarian service (http://www.lib.uwaterloo.ca/asklib/index.html).

The Library also offers general orientation programs including tours, workshops on research skills, and seminars for students. In addition, each Fall, the Library participates in a campus-wide orientation program for incoming students, including programs specific to international students and students with disabilities.

Faculty, students, and staff may keep abreast of new services and developments in the Library by reading news @ your library (http://www.lib.uwaterloo.ca/newsatlib/), an electronic newsletter prepared periodically.

3.1.7 - Financial Support

Table 7 provides information on expenditures for Anthropology resources. The drop in total expenditures in 2008/09 was the result of purchasing electronic material over print material, moving the funds to the Electronic Resources library fund.

**Table 7. Library Expenditures for Anthropology Resources**

<table>
<thead>
<tr>
<th>Year</th>
<th>Journal Expenditures</th>
<th>Book Expenditures</th>
<th>Approval Plan Support</th>
<th>Total Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2006</td>
<td>$5,630</td>
<td>$8,215</td>
<td>$8,950</td>
<td>$22,795</td>
</tr>
<tr>
<td>2006-2007</td>
<td>$7,420</td>
<td>$3,265</td>
<td>$9,330</td>
<td>$20,020</td>
</tr>
<tr>
<td>2007-2008</td>
<td>$6,355</td>
<td>$7,280</td>
<td>$10,000</td>
<td>$23,640</td>
</tr>
<tr>
<td>2008-2009</td>
<td>$5,490</td>
<td>$3,555</td>
<td>$6,790</td>
<td>$15,835</td>
</tr>
<tr>
<td>2009-2010</td>
<td>$5,855</td>
<td>$5,400</td>
<td>$6,990</td>
<td>$18,250</td>
</tr>
<tr>
<td>2010-2011</td>
<td>$4,930</td>
<td>$5,500</td>
<td>$6,625</td>
<td>$17,060</td>
</tr>
<tr>
<td>2011-2012</td>
<td>$5,845</td>
<td>$6,500</td>
<td>$5,965</td>
<td>$18,310</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$41,530</td>
<td>$39,725</td>
<td>$54,655</td>
<td>$135,910</td>
</tr>
</tbody>
</table>

Electronic resources, such as JSTOR and e-HRAF, are purchased from the Electronic Resources library fund. Materials acquired for other departments, such as Psychology, Sociology and Classical Studies, are also of interest to Anthropology.
3.1.8 - Conclusion

High-level support for Anthropology has been provided by the Library, both in information resources and services. More detailed information, including lists of print and electronic journals purchased for Anthropology and the number of monograph titles in subject areas of interest to Anthropology can be provided on request.

3.2 - Laboratory resources

The Anthropology Department has three laboratories used for teaching and research. These are Robert Park’s archaeology lab (PAS 1293, 1293A, and 1257), Nancy Barrickman’s Primate and Human Evolution lab (PAS 1098D), and Maria Liston’s Human Osteology and Paleopathology lab (PAS 2214). In addition, our smallest office space, PAS 2008, is used as an archaeological laboratory by departmental adjunct professors David Lubell and Mary Jackes.

PAS 1293 and 1293A

PAS rooms 1293 (9.38 NASM) and PAS 1293A (17.47 NASM) are two conjoined sub-triangular rooms that were equipped in the 1980s as a darkroom and which were minimally altered to serve as Robert Park’s original archaeology lab in 1994. Together they serve as his “wet” or “dirty” lab for the processing of archaeological materials upon their arrival at the university from the excavation site, and for the identification and analysis of dirty/dusty material such as faunal bones. Park has had students use this lab for research projects using his archaeological materials. Paid research assistants and volunteers regularly work in this room on his archaeological materials during the Fall and Winter terms.

PAS 1257

PAS room 1257 (29.73 NASM) is a rectangular archaeology research and teaching lab used by Robert Park. It has counters with storage cabinets and drawers below, and glass-fronted display cabinets above, along two of its walls. Movable tables are present in the center of the room. This room serves as Park’s research lab during terms when it is not used for teaching. During terms when Park is teaching the seminar/laboratory course Anthropology 440 (Archaeological Analysis and Interpretation), PAS 1257 is used for the scheduled seminar meetings of the class and is also used by the students for their hands-on assignments.

PAS 1098D

PAS 1098 D (49.9 NASM) houses the department’s teaching and research collection of fossil casts and non-human primate skeletons. These specimens allow for hands-on engagement with materials in Biological Anthropology that are crucial in instruction in osteology, comparative anatomy, and human evolution. Cabinets line two walls, and contain the specimens and instructional materials used in class. There are several tables and chairs that can be arranged in multiple ways to allow for several types of class configurations. The space can hold a maximum of 24 students, though it more comfortably seats about 20 students. The lab is also equipped with a LCD projector and Ethernet connection, which facilitate audio-visual reinforcement of key concepts.

The specimens in the lab include:

- An extensive collection of extant primates, including humans and several nonhuman primates. Most of the specimens are cranial, but there are postcranial specimens of humans, chimpanzees, and macaques.
- A collection of non-primate mammals, and an alligator.
- An extensive collection of hominin fossil casts spanning from the Miocene through the late Pleistocene, as well as primate fossil casts from the Oligocene, Miocene, and Pliocene.
- The lab also has materials for instruction in genetics, evolutionary theory, and primate feeding ecology. These materials include:
  - An instructional kit for the construction of DNA and RNA molecules, and the process of protein synthesis and mutation.
  - An instructional kit for the simulation of processes of natural selection, genetic drift, and gene flow.
  - An instructional kit for the simulation of an ecological environment and the process of food selection in a pseudo-primate species.

This lab also provides space for small seminar classes, including graduate seminars. The lab space and the corresponding undergraduate curriculum provide graduate students the opportunity to gain experience teaching course
material. The graduate teaching assistants affiliated with ANTH 260 (Human Evolution) are the sole instructors for half of the lab sessions, allowing them extensive opportunities to hone their teaching abilities. Also, the lab allows the graduate students in Biological Anthropology to thoroughly review some of the foundational principles in the sub-discipline.

**PAS 2214**

The human osteology laboratory (PAS 2214, 29.7 NASM) assigned to Maria Liston is used for both research and teaching. It contains mounted and free standing cabinets, a sink, and tables and stools used by students in courses. The lab is also equipped with a LCD projector, a 3-D projector and Ethernet connection. ANTH 355, Human Osteology, and ANTH 455 Skeletal Biology and Forensics are taught in this lab. In addition, the collections are regularly used by students conducting research. The room is kept locked, but students enrolled in lab courses can access it using a key kept in the departmental office. A graduate student office (PAS 2203, 10.8 NASM) is attached to the lab, and provides some additional lab storage, as well as convenient access for TAs and other graduate students needing the lab.

The osteology laboratory houses a number of collections. These collections include the Anthropology Department Human Osteology collection:

- 11 complete disarticulated human skeletons
- One complete articulated human skeleton
- Six partial disarticulated human skeletons
- 21 human skulls
- 24 human skull casts representing human variation in sex and ancestry
- 29 human skeletal pathology casts

There is also a small collection of unprovenienced archaeological human skeletal fragments, originally in the possession of J. Lawrence Angel and transferred to Maria Liston by the National Museum of Natural History (Smithsonian Institution). We have permission to use these fragments for teaching purposes. The lab also now curates J. Lawrence Angel’s collection of Mediterranean bone samples for chemical analysis.

Finally, the lab also houses a portion of the Anthropology Department’s zooarchaeology comparative collection. The collection comprises approximately 50 complete and partial skeletons of common domestic animals and a variety of common North American wild species, including birds, fish, and mammals.

**PAS 2008**

The space assigned to Drs. Lubell and Jackes in PAS 2008 (10.5 NASM) is used both as an office and a laboratory. It currently houses the >60,000 lithic and bone artifacts as well as some faunal material from their excavations at Kef Zoura D (Algeria). In addition, there are soil samples from their excavations at Fais in Portugal, comparative faunal materials, samples of human bone for microscopic and chemical analyses, some books and excavation records, various items of equipment etc. Due to lack of space, the human skeletal materials from the University of Minnesota 1930 excavations at Aioun Berriche in Algeria and the Universidade de Cantabria excavations at La Garma in the 1980s, both on long-term loan to Jackes for analysis, are kept off campus.

### 3.3 - Computer facilities

The computer facilities available to graduate students in Anthropology include the same resources available to all students in the Faculty of Arts. These include drop-in computer labs equipped with networked Windows PCs and Macintosh computers; two of these labs (PAS 1080 and 1098) are located in our building and are open 24 hours a day, seven days a week, except during Christmas holidays when the entire university is closed. Using these systems the students have access to file storage, email, a wide range of software, and printing. Students who bring their own laptop computers to campus have access to wireless connectivity in all campus buildings, and the University of Waterloo’s participation in Eduroam means that our students travelling to the campuses of other participating institutions automatically have wireless connectivity there as well.

At the Anthropology Department’s request the Arts Computing Office has also installed one desktop networked computer in each graduate student office for the use of the graduate students assigned to that office. These computers are normally the four-year-old models returned by faculty members or staff when they receive new machines.
Computing resources are also made available to faculty and staff in the Anthropology Department in their capacity as members of the Faculty of Arts. Staff members, including our administrative assistant, are provided with a desktop computer, replaced every four years, as well as a printer. Regular faculty members (tenured, tenure-track, and definite-term appointees whose appointment is for at least two years) are eligible to receive a new computer every four years—they have the choice of a desktop or laptop computer running the Windows operating system, or a desktop or laptop Macintosh computer. Sessional instructors and other members of the department (e.g., adjunct faculty members; postdoctoral fellows) are also eligible to receive a computer for their own use—these are also normally the four-year-old models returned by regular faculty members or staff when they receive new machines.

### 3.4 - Space

Table 8 lists the space controlled or shared by the Department of Anthropology.

<table>
<thead>
<tr>
<th>Room Use</th>
<th>Quantity</th>
<th>Average Size (Assignable Square Metres)</th>
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</thead>
<tbody>
<tr>
<td>Faculty Offices for regular faculty members</td>
<td>6</td>
<td>10.1</td>
</tr>
<tr>
<td>Faculty Offices shared by adjunct faculty members</td>
<td>2</td>
<td>10.5</td>
</tr>
<tr>
<td>Sessional instructor office</td>
<td>1</td>
<td>8.2</td>
</tr>
<tr>
<td>Department Mail/Copy Room</td>
<td>1</td>
<td>10.7</td>
</tr>
<tr>
<td>Department Office</td>
<td>1</td>
<td>10.1</td>
</tr>
<tr>
<td>Graduate student shared offices</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Undergraduate Student Lounge</td>
<td>1</td>
<td>8.2</td>
</tr>
<tr>
<td>Post-Docs &amp; Researchers laboratory space</td>
<td>1</td>
<td>10.7</td>
</tr>
<tr>
<td>Seminar/meeting room (shared with Sociology and Arts Computing Office)</td>
<td>1</td>
<td>40.4</td>
</tr>
<tr>
<td>Archaeology Research/Storage Space</td>
<td>2</td>
<td>10.7</td>
</tr>
<tr>
<td>Faculty research laboratories</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

The Anthropology Department has no dedicated classroom teaching space of its own. Teaching space is allocated by the Registrar’s Office with the goal of optimizing use of limited classroom space. The department shares dedicated space for seminars and faculty meetings with both the Department of Sociology and Legal Studies, and the Arts Computing Office. Barrickman’s laboratory is also frequently used for departmental meetings, seminars, guest lectures, and similar events.

All full-time Anthropology faculty members and the departmental office are in identical rooms of 10.1 NASM (Net Assignable Square Metres) which are reasonably spacious and pleasant. The sessional instructors, however, share an office of 8.9 NASM. There is also a faculty workroom with mailboxes and a photocopier, 10.7 NASM in size.

We have three offices for graduate student use. Because some of our students need to work with collections, some need access to more space than others who are doing library or other non-material-based research. The allocation of three offices to graduate student use allows us to allocate adequate space to those students whose research requires it.

The department has three teaching and research laboratories, controlled by Barrickman, Park and Liston, described above.

### 3.5 - Financial support

Masters students accepted into the Faculty of Arts are not automatically guaranteed any funding. However, the typical student in a typical year does receive $12,000-$15,000 of departmental/Faculty of Arts money if the student does not arrive with external funding. These monies are considered to be divided between Teaching Assistant duties and UW Graduate Scholarships. In addition, students have access to support from the following sources:
3.5.1 - *Department of Anthropology funding sources*

The Anthropology Department receives annual donations from the University’s fund-raising campaign. From these donations the department has accumulated a modest endowment that is used to fund graduate and undergraduate student research travel, normally in amounts of $500-$1,000.

3.5.2 - *University of Waterloo funding sources*

- President’s Graduate Scholarship (additional $10,000 to OGS and SSHRC recipients)
- University of Waterloo Graduate Scholarships
  - Entrance
  - Merit (variable)
- University of Waterloo International Master’s Student Award
- Graduate Studies Office Research Travel Assistantship
- Graduate Student Maternity or Adoption Bursary
- Graduate Student Support by New Faculty Member Award
- University of Waterloo Day Care Bursary (awarded by financial need)

3.5.3 - *External funding sources***

- Social Sciences and Humanities Research Council of Canada (SSHRC) ($17,500)
- Natural Sciences and Engineering Research Council of Canada (NSERC) ($17,500)
- Ontario Graduate Scholarship (OGS) ($15,000)
- Commonwealth Scholarship

4 - *Curriculum*

4.1 - *The intellectual development and the educational experience of the student*

The curriculum has as its centerpiece the course in Public Issues Anthropology (ANTH 600) that all students are required to take. This course will normally be team-taught, with each contributing faculty member providing instruction on how aspects of their particular area of anthropological expertise (i.e., cultural, biological or archaeological) are of relevance to specific issues of public concern or interest. Such a broad-based approach will ensure that all students graduating from the program will be well prepared to identify issues in the public realm for which anthropological knowledge or techniques are relevant. The other two required courses, ANTH 608 (Anthropological Theory) and ANTH 614 (Research Methods), are standard graduate seminar courses that provide necessary theoretical and methodological expertise to allow the students to design and carry out their thesis research. The knowledge from these three courses can then be applied first to the Masters Thesis and later, for doctoral research or other professional training.

The department hosts guest speakers each year in order to supplement our course offerings and to facilitate collegial interaction among guests, students and faculty. Since 2010-11 the Dean of Arts Office has provided funding for speakers, allowing us to increase the number of speakers. In addition, there are two special events in the academic year in which we recognize student achievement with a lecture by a guest speaker, and dinner or reception. In the Fall term the Sally Weaver Award and Lecture, given in memory of our late colleague, honours the graduate student whose academic record and future plans in Anthropology best reflect the ideals of Professor Weaver’s career (which demonstrated a deep commitment to the ideals which underlie Public Issues Anthropology). In the Winter term we also host the Anthropology Silver Medal Award Lecture (which honours an undergraduate student with an outstanding record of academic achievement and departmental participation/service). In addition to these two annual lectures we normally host two to four additional lecturers per year, choosing speakers across the range of areas represented by the department’s teaching and research. All of these events offer opportunities for informal contact between students and the scholar-participants, both in organized discussion groups and socially, which helps with their socialization within the discipline.

In Fall 2011, the department inaugurated a series of professionalization workshops for students. These were strongly encouraged for the graduate students and upper-level undergraduates. The program has been well received by the graduate students. The intent is to address explicitly issues and skills that too often are left to students to acquire informally. The topics offered include:
The Academic CV vs. the Business Résumé
Digital Presentations
The Academic Hiring Process
Library and On-line Research Tools
Grant Application Writing
Field Research Site Set-up
Career opportunities in Cultural Resource Management
Public speaking and managing stage fright

The Graduate Studies Office sponsors an annual Research Conference that provides opportunities for students to present their research to the campus community, and we actively encourage the students in our current program to attend and contribute and will continue to do so.

Faculty members also encourage graduate students to attend conferences in their discipline (e.g., CASCA [the Canadian Anthropology Society/Société Canadienne d’Anthropologie]). Graduate students are encouraged to present their work at such gatherings and/or to submit it for consideration for publication as part of a process of professional mentoring and socialization. Travel bursaries are available for students through the Graduate Studies Office. The department has also earmarked funds from its small endowment fund to defray some of the expenses of student travel, including for the presentation of papers at appropriate conferences.

In addition to the Anthropology-focused intellectual environment that our program fosters, various additional opportunities for personal and professional development are available at the University of Waterloo. The Centre for Career Action offers workshops and seminars to help students at any and all levels with their job search skills as well as provide one-on-one career advising and information about further training opportunities (e.g., advice on teachers’ colleges, Library and Information Sciences programs, law schools). The Centre for Teaching Excellence provides extensive and well-researched assistance via seminars and one-on-one advising to members of the UW community who are involved in teaching, including graduate student TAs, on how to be more effective teachers and communicators. The Graduate Studies Office offers help via seminars on applying for grant monies for graduate students. Students are kept informed about these opportunities via email, posters, pamphlets and personal reminders from advisors.

All of the above opportunities are also highlighted at the beginning of the students’ program during Orientation Day. Students attend the Faculty-organized information session on academic integrity (mandatory), are given a tour of the department, meet with their advisors, and are invited to a meet-and-greet social event with the faculty members. Finally, students are also given a Student Handbook (the current version for our joint Master of Arts in Public Issues Anthropology program is included as Appendix A) that spells out in detail what is expected of them, and provides them with some additional useful information.

As part of the process of approving applications for admission to the Master of Arts in Public Issues Anthropology, we assign an Advisor to each incoming student. This person is the professor with the most expertise in the particular aspect of Anthropology in which they expressed interest in their application. This professor will also have confirmed that he/she is willing and has enough time in his/her schedule to supervise that student. However, it is possible for students, before the end of their first term in the program, to switch advisors should they wish to do so as long as another professor has formally confirmed that he/she is willing to become their advisor. We have designed the courses in the program to give students a good chance to familiarize themselves with the research interests of all of the department’s professors during their first term in the program.

4.2 - Program regulations

Students are expected to meet the standards and follow all the regulations established in UW’s Graduate Calendar (available on the Graduate Studies Office website) plus program-specific requirements, which are:

- Four term courses, including ANTH 600, 608 and 614
- A supervisory committee consisting of the advisor and two additional committee members, one of whom must be from outside the Department of Anthropology
- A thesis proposal, approved by the student’s advisor
- Thesis (a maximum of 100 pages, excluding appendices if any)
- Oral defense
4.3 - Part-time studies

The program does not plan to accommodate part-time enrolments in the foreseeable future. There has been minimal demand for part-time studies in our current program. Further, we believe that the experience of ongoing interactions with their cohort, who will have differing subdisciplinary interests within Anthropology, is an important component of the students’ educational experience of Public Issues Anthropology. For part-time students in our 16-month program such interactions would not be possible.

4.4 - Curriculum

No new courses or milestones are required for the proposed program—all of the new program’s courses/milestones have already received approval and been in place for several years as parts of the existing joint Master of Arts in Public Issues Anthropology program.

4.4.1 - Courses

ANTH 600 Public Issues Anthropology (0.50) SEM Course ID: 012727

An examination of the application of anthropological knowledge to public issues. The issues studied will vary from year to year; they may include such topics as race and ethnicity, citizenship and the state, marriage and sexuality, conservation and the environment, and the ownership, interpretation and display of artifacts and human remains. Students will present their research in forms appropriate to both academic and general audiences.

ANTH 604 Human Development in a Cross-Cultural Perspective (0.50) SEM Course ID: 012968

Seminar in current issues in the anthropology of the life cycle. This course will deal with child rearing, young adulthood, aging and the female and male life cycles, among other topics, from the perspective of various cultures.

ANTH 605 Selected Topics in Theory and Research (0.50) LEC,SEM Course ID: 012732

This course will be offered with varying content focusing on theory or research.

Instructor Consent Required

ANTH 608 Anthropological Theory (0.50) LEC,SEM Course ID: 012729

An examination of classical and contemporary anthropological theory, including an emphasis on the most recent directions in the discipline.

ANTH 614 Research Methods (0.50) LEC,SEM Course ID: 012728

An examination of the methods of qualitative research, including participant observation and unstructured interviews, as well as the ethical considerations of fieldwork. Other topics, such as comparative and historical methods, may be included.

ANTH 655 Skeletal Biology and Forensics (0.50) LAB,LEC,SEM Course ID: 012730

This laboratory course will focus on the evaluation of human skeletal remains in archaeological and forensic contexts. Topics will include determination of basic biological categories, e.g., age, sex, race, evaluation of paleopathological conditions, and aspects of forensic anthropology.

Instructor Consent Required

ANTH 659 Conservation, Communities and Globalization (0.50) SEM Course ID: 013815

Biological anthropology has a long history of examining our closest living relatives, the nonhuman primates. Increasingly, these species are threatened by extinction, which brings to light larger questions regarding our place in the natural world. Anthropology is uniquely positioned to examine the interaction between efforts to conserve biodiversity and natural resources, community rights, and globalization. This course will focus on attempts to balance the preservation of nature within the health and socioeconomic well-being of neighbouring communities, and how these
relationships are affected by processes of globalization. Other topics such as the effects of climate change, heritage management, and indigenous rights may be addressed.

**ANTH 660 Reading Course (0.50) RDG Course ID: 012737**

A program of directed reading, complemented with the writing of papers or participation in research. Reading courses are arranged by students through their advisors or advisory committees and must be approved by the graduate chair of the department. This course may be repeated provided different content is involved.

Department Consent Required

**ANTH 661 Research Seminar in Public Issues Anthropology (0.50) SEM Course ID: 013807**

The objective is to write a research paper in Public Issues Anthropology. In this course, you will learn how to craft a research statement, construct a theoretical model, and interpret, analyse and communicate your results.

**ANTH 662 Human Adaptation and Evolution (0.50) SEM Course ID: 012731**

An examination of the Principles of Variation in human evolution past and present. This will include the development of the genus Homo, adaptation of modern populations to heat, cold, altitude and stress, and the continuing micro-evolutionary development of humans.

Instructor Consent Required

**4.4.1 - Milestones**

Masters Thesis

**4.5 - Collateral and supporting departments**

None

**4.6 - Organizational structure**

The proposed program is fully housed within the Department of Anthropology and does not need a separate organizational structure beyond the usual Departmental service roles. The department’s Graduate Officer is responsible for the graduate program and reports to the Department Chair. Both are assisted in their tasks by the department’s full-time administrative assistant.

**5 - Projected enrolment**

**5.1 - Historical numbers**

Since the Fall term of 2007, 33 students have been admitted into the University of Waterloo’s portion of the existing joint Master of Arts in Public Issues Anthropology program. Of those 33, 29 were Canadian Citizens, one was a permanent resident, and three were from the United States. Of the 33, 17 had been undergraduate students at the University of Waterloo; the remaining 16 included 13 with undergraduate degrees from other Canadian universities and three with degrees from universities outside Canada.

Of the 33 students admitted into the University of Waterloo’s portion of the existing joint Master of Arts in Public Issues Anthropology program, five are presently in the first term of their program, three are in their fourth term, four have withdrawn, and 21 have successfully completed the program. Of the 21 graduates, nine chose the Major Research Paper option; the remaining 12 completed theses. All seven students presently enrolled in the existing program have chosen the thesis option. Of the 21 graduates, nine completed all of their requirements within 17 months of beginning the program (i.e., by January of their second year). A further 10 completed all of their requirements within 20 months of beginning the program (i.e., by April of their second year). Only two students took longer than that to complete
their requirements (23 and 35 months respectively). Completion times for students choosing the Major Research Paper option were comparable with those for students choosing the Thesis option, with the latter taking slightly less time. Improvements in our program and procedures have reduced the median completion time from 20 months for students admitted in the 2007 and 2008 cohorts to 17 months for students admitted in the 2009 and 2010 cohorts.

The program’s graduates’ subsequent careers include doctoral studies elsewhere, a museum curator, a detective in the Hamilton Police Service, and employment with government and private industry.

5.2 - Projected numbers

Given the newness of the existing program and its scope, we believe that these historical numbers are a good indicator that the new program will be attractive to a diverse range of students and that most of them will be able to complete the program on time. Given the size constraints of our small department, balanced by the need to have a “critical mass” of students in the program at any given time to ensure a good student experience, we anticipate being able to admit either three or four students per year over the first seven years of the new program, as shown in Table 9.

Table 9. Projected intake and enrollments

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<td>Enrollment</td>
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<td>6-8</td>
</tr>
</tbody>
</table>
Appendix 1

MA in Public Issues Anthropology

GRADUATE HANDBOOK

2012-2013

Department of Anthropology

University of Waterloo
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Acknowledgments
This guidebook is a work in progress. If you find any errors or if you can think of any additional information that might usefully be included in future versions, please inform the Graduate Officer. We are presently working on a section on Teaching Assistantships.
Part 1: The University of Waterloo’s Masters Program in Public Issues Anthropology

Introduction

Public Issues Anthropology represents a unique approach to graduate studies in anthropology and encompasses cultural, archaeological and biological anthropology. It is an approach that is based on two principles: (1) There are themes and issues that are fundamentally anthropological and which therefore cross-cut and integrate the traditional subdisciplines of anthropology—cultural, archaeological, biological and linguistic—even at the level of advanced research; and (2) Anthropological findings, theory, practices, experiences, and methodologies have relevance for many topics that show up today in the public sphere. Public Issues Anthropology thus brings anthropological knowledge and approaches to bear on issues that are of interest to society generally. The Public Issues Anthropology MA program at the University of Waterloo seeks to conjoin anthropological theory and data with application, and emphasizes anthropology’s relevance to, and engagement with, a wide swath of social issues that impact diverse publics.

The following are examples of themes that frequently show up in discourse beyond academia, and which demonstrate the relevance of a Public Issues Anthropology approach:

- Perceptions of non-Western and/or small scale societies as expressed in public discourse, as opposed to what anthropological research reveals
- The use of inferences concerning our prehistoric past, drawn from archaeology or from paleoanthropology, to explain characteristics of human culture or behaviour today
- The use of inferences concerning contemporary non-human primates to explain characteristics of human culture or behaviour
- The use of the concept of race in public discourse, as opposed to what has been revealed by anthropological studies of human biology, genetics, and evolution
- The way the concepts of family and marriage are used in popular discourse, as opposed to what cross-cultural ethnographic research and/or anthropological theory suggests
- The production of scientific knowledge specifically related to topics of anthropological interest, and its public dissemination, interpretation, and application
- Intersections of biological and cultural determinations of sex and gender, and their impacts on such issues as competitive sports eligibility, citizenship, employment, and civil benefits
- The tensions and synergies between the production of expert knowledge in the formal sciences, and community-based knowledge; e.g., environmental health, development, biodiversity conservation, climate change, emergent and traditional technologies
- Global and local impacts of transnationalism and globalization, including diasporic and immigrant communities, transnational biotech communities, and identity-formation

Students in the Masters program in Public Issues Anthropology are encouraged to identify the relevance of anthropological finding and approaches for topics within public discourse. A unique feature of the program is that, unlike most Masters programs in Anthropology, the required
coursework is designed to incorporate and have relevance for all of the traditional subdisciplines of Anthropology. The research that you will carry out for your Thesis or Major Research Paper may focus on a topic specific to just one of the traditional subdisciplines, but you will be expected to adopt a Public Issues Anthropology approach to that topic.

Program Logistics

People

During your time in the program there are several people that you will need to consult with regularly. These include your Advisor, the Anthropology Graduate Officer, and the Anthropology Department Administrative Assistant.

Your Advisor

As part of the process of approving applications for admission to the Public Issues Anthropology Masters program, we provisionally assign an Advisor to each incoming student. This person will normally be the professor with the most expertise in the particular aspect of Anthropology in which you expressed interest in your application. This professor will also have confirmed that he/she is willing to supervise you, and has enough time in his/her schedule to do so. However, it is possible for you, before the end of your first term in the program, to switch supervisors should you wish to do so as long as another professor has formally confirmed to you that he/she is willing to become your advisor. It is therefore important that you take the time to get to know your assigned advisor during your first term, and that you also get to know the other professors in the department. We have designed the courses in the program to give you a good chance to familiarize yourself with the research interests of all of the department’s professors.

The Department Administrative Assistant and the Graduate Officer

The Department Administrative Assistant is the staff person who actually knows the most about Anthropology Department policies and procedures, and will often be the first person you should contact when you have questions. Allyson Rowat is the Anthropology Department Administrative Assistant. You should also feel free to contact the Anthropology Graduate Officer, who is a professor who has responsibility for administrative procedures within the program. Robert Park is the Anthropology Graduate Officer for 2012-13.

Thesis or Major Research Paper?

One of the most important choices that you will need to make by early in the second term of your program is whether you will write a Masters Thesis or a Major Research Paper (MRP). These two options have different requirements with respect to the number of courses that you will need to take, the length and nature of the document that you will write, how that document will be evaluated, and by whom. Read the following sections carefully in order to understand the implications of your choice.
Courses

Core (Required) Courses
All students in the Public Issues Anthropology Masters program are required to take the following three courses:

- ANTH 600 - Public Issues Anthropology
- ANTH 608 - Anthropological Theory
- ANTH 614 - Research Methods

Elective Courses
All students in the Public Issues Anthropology Masters program are required to take at least one elective course. The following table provides a list of potential elective courses offered by the Anthropology department. Please note that your advisor should be consulted and will assist you with your choice of electives. You should also explore with your advisor the possibility of taking elective courses from other departments, especially if you choose the MRP option. Not all of the following courses will be offered each year. In addition to the courses listed below, there will be special topics courses offered from time to time as resources permit.

- ANTH 604 - Human Development in a Cross-Cultural Perspective
- ANTH 655 - Skeletal Biology and Forensics
- ANTH 659 - Conservation, Communities and Globalization
- ANTH 662 - Human Adaptation and Evolution

Directed Studies or Reading Courses
The Program recognizes that the course offerings in any given year may be insufficient to provide adequate coverage of all fields of Public Issues Anthropology. In certain circumstances, individual students may seek to augment their programs of study with reading courses (directed, independent study) arranged with willing and qualified faculty members.

- ANTH 660 - Directed Reading Course
- ANTH 661 - Research Seminar in Public Issues Anthropology

A student wishing to take a Reading Course should consult appropriate faculty members as early as possible before the term begins. The arrangements must be completed no later than two weeks after the beginning of the term. Due to other faculty workload commitments, not all requests, even when otherwise justified, will be granted.

Program Timetable
The MA program is designed to be completed in four terms, which equals 16 months—i.e., by the end of December in the second year of the program. However, your precise schedule starting in your third term depends on whether you elect to write a Thesis or a Major Research Paper:

Term 1 (September through December)

- ANTH 600 - Public Issues Anthropology
- ANTH 608 - Theory
Term 2 (January through April)
- ANTH 614 - Research Methods
- One elective course
- Your Thesis or MRP Proposal

Term 3 (May through August)
- Two additional elective courses and library research (MRP stream only)
- Field or library research, and writing (Thesis stream only)

Term 4 (September through early December)
- Thesis writing (Thesis stream only; September through mid-November)
- MRP research and writing (MRP stream only; September through the first week of December)
- Thesis defense in late November or early December (Thesis stream only)
- MRP presentation in the second week of December (MRP stream only)

Guidelines for Completing a Masters Thesis

Students choosing to write a Masters Thesis should anticipate that their thesis will be a maximum of 100 pages long. Completion of a Masters thesis involves the following steps:

1. Production of an acceptable Thesis Proposal by mid-March (see below)
2. Selection of two additional committee members. One of them must be from outside the Department of Anthropology.
3. Researching and writing the thesis, resulting in a draft that your committee agrees is acceptable for defense
4. The thesis defense, during which you will make a short presentation (approximately 20 minutes in length) describing your research, followed by questioning from your committee.

The Masters Thesis Proposal

Masters Thesis Proposal due date: The third Monday in March.

1. Title (up to 25 words)
   The title can be a working title—in other words, it can be changed at a later date. However, it should reflect the essence of your proposed research topic.

2. Background (two-three pages)
   Here you should summarize the general area of knowledge within which you will be doing your research. You should be sure to cite important books/articles in this area (and thus include them in your bibliography). Your goal in writing this section is to provide context—in other words, you should provide your reader with enough information to understand the research problem/question that you will present in the following section.

3. Research Problem/Question (one page)
   This section will identify the specific objective(s) of your research, stated in the form of a problem or a question. Your research problem/question should be directly related to gaps or inadequacies in existing knowledge that you identified in the previous section.
4. **Significance of the Research** (up to one page)

This should be a statement of why this research is important or interesting in the context of Public Issues Anthropology.

5. **Research Methodology** (up to two pages)

Outline the specific kind(s) of research that you intend to do. You should mention the methodology that you plan to employ (e.g., interviewing; archival research; library research; study of an assemblage of archaeological specimens) and identify the particular group of people, or body of literature, or archaeological assemblage, etc., that you plan to study. You may need to make reference to ethical issues or issues with access to data. You should state how the specific kinds of research that you propose to do will help to solve this problem or answer this question.

6. **Tentative Chapters List** (one page)

You should provide a list of the chapters that you anticipate including in your thesis, with a short description (one or a few sentences) of the content of each. This list can change as you do your research and start writing your thesis, but it is important to try to think ahead about the specific information that you will need to present and how it will need to be organized. Also, it makes sense to organize your research and writing timetable (below) by chapter.

7. **Research and Writing Timetable** (one page)

You should plan on defending your thesis no later than the first week of December in your second year in the program. Because your thesis will need to be approved by your advisor and your committee and then be made available in the department office at least a week prior to your defense date, you should plan on submitting a final draft of your entire thesis to your advisor by early November at the latest. Therefore, assuming that you start your thesis research in May, you should design a timetable of research and writing that spans the six months from May through October. Your timetable should include specific dates for the submission of first drafts and revised drafts of each chapter, as well as dates for the submission of a first draft and then a revised draft of your entire thesis, all within that six month period.

Your timetable may change. However, if you miss any deadlines, you will be required to submit to your advisor a revised timetable that must be designed to get you back on track to meet the final deadline.

8. **Bibliography** (as long as necessary)

A list of references should be provided in any format consistent with current anthropological literature.

**Guidelines for Completing a Major Research Paper**

Students choosing to complete a Major Research Paper (MRP) should plan to write an MRP that is between 40 and 60 pages long.

Completion of a MRP involves the following steps:

1. Completion of two additional courses, over and above the four courses required in the thesis option
2. Production of an acceptable MRP proposal by mid-March (see below)
3. Selection of a second reader, normally another professor from the Anthropology department.
4. Researching and writing the MRP
5. The evaluation of your MRP by your advisor and your second reader, who will together agree on pass/fail grade.
6. A final presentation, which should provide an overview of the MRP (approximately 30 minutes in length). This presentation should take place in the 2nd week of December.

The MRP Proposal

MRP Proposal due date: The third Monday in March.

1. Title (up to 25 words)

   The title can be a working title—in other words, it can be changed at a later date. However, it should reflect the essence of your proposed research topic.

2. Background (one-two pages)

   Here you should summarize the general area of knowledge within which you will be doing your research. You should be sure to cite important books/articles in this area (and thus include them in your bibliography).

3. Research Problem/Question (one paragraph)

   This section will identify the specific objective(s) of your research, stated in the form of a problem or a question.

4. Significance of the Research (two-three paragraphs)

   This section should be a statement of why this research problem/question is important or interesting in the context of Public Issues Anthropology.

5. Research Methodology (up to two paragraphs)

   Outline the specific kind(s) of research that you intend to do. You should mention the methodology that you plan to employ (e.g., archival research; library research) and identify the particular body of literature that you plan to study.

6. Research and Writing Timetable (up to two paragraphs)

   You should plan on completing your MRP no later than the first week of December in the fourth term of the program. You should plan on submitting a final draft of your MRP to your advisor by mid-November at the latest, to allow enough time for them to recommend any final changes before your advisor and the second reader receive the final version. Therefore, assuming that you start your MRP research in mid-May, while you are taking your two additional elective courses, you should design a timetable of coursework, research and writing that spans the six months from the proposal deadline through mid-November when your initial completed draft is due. Your timetable should include specific dates for the completion of different aspects of your research, specific dates for the submission of drafts of sections of your paper, and should take into account the fact that you will be taking courses during at least part of that period.
Your timetable may change but if you miss any of its deadlines you will be required to submit a revised timetable to your advisor that must be designed to get you back on track to meet the final deadline.

7. Bibliography (as long as necessary)

A list of references should be provided in any format consistent with current anthropological literature.

8. Additional Course Selection

Here you should indicate which two additional elective courses you will be taking, and when you will be taking them, to fulfill the requirements for the MRP.

Reporting on Your Progress Throughout the Program

All students are required to complete a Performance Evaluation Form one month after the end of each term, including the Spring/Summer term. These forms are available at: http://anthropology.uwaterloo.ca/MAforms.html.

The forms are to be submitted to your advisor and it is recommended that you use this opportunity to meet with your advisor to discuss your progress in the program. Your advisor will complete the form and send it on to the Graduate Officer. The completed and signed form will be placed in your official file in the department. These evaluations are due one week after the last day of finals for the Fall and Winter terms; evaluations for the Spring/Summer term are due by the second week of classes in the Fall term.

Other Student Responsibilities

Participation

All students are expected to participate in departmental events, including events such as the visiting speakers series and honours thesis presentations by our undergraduate students. Graduate students will be given notice of events as soon as they are known to the department. Failure to attend without cause will be noted in the student’s performance review.

Academic Integrity

All students must attend the Academic Integrity Workshop which is offered during orientation week by the Faculty of Arts and the Faculty of the Environment. See also the following resource: Avoiding Academic Offences (http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html).

All students in the program are expected to know what constitutes academic integrity, avoid committing academic offences (such as plagiarism), and take responsibility for their actions. When the commission of an offence is established, disciplinary penalties will be imposed in accord with Policy #71 (Student Academic Discipline). For information on categories of offences and types of penalties, students are directed to consult the summary of Policy #71 which is supplied in the Graduate Calendar on the Web at http://gradcalendar.uwaterloo.ca/page/GSO-Policies.

Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance.
Tuition Fees and other Financial Issues

Students in the PIA program pay tuition for each term they are in the program—normally for the four terms from September through December of the following year. Most students in the program receive a teaching assistantship and/or scholarships, and your tuition fees will normally be paid straight out of any scholarship monies that you receive, or you can make special arrangements with Finance to pay your tuition on a monthly basis in terms when you are in receipt of your TA monthly funding.

Detailed information on how to arrange payment of your tuition fees, and on other financial issues can be found on the following web pages:

- [http://www.adm.uwaterloo.ca/infofin/students/stdfees.htm](http://www.adm.uwaterloo.ca/infofin/students/stdfees.htm)
- [http://gradcalendar.uwaterloo.ca/page/GSO-Fee-Arrangements-and-Payments](http://gradcalendar.uwaterloo.ca/page/GSO-Fee-Arrangements-and-Payments)

You should also feel welcome to consult with Anthropology Department Administrative Assistant regarding tuition and the financial details of your teaching assistantship or scholarship.
Part 2: Resources

Connecting to the University’s Computing Network

As a UW student you are entitled to an email account, computing account and other computing services, including access to the university’s wifi network via Eduroam. Your Eduroam credentials will also provide you with free access to wifi at other participating universities in Canada and elsewhere.

Go to the following websites to learn about your email account:

- [http://artsonline.uwaterloo.ca/aco/student-accounts](http://artsonline.uwaterloo.ca/aco/student-accounts)
- [http://artsonline.uwaterloo.ca/aco/frequently-asked-questions](http://artsonline.uwaterloo.ca/aco/frequently-asked-questions)

IMPORTANT NOTE: All program information and email correspondence from the program administration will be directed to students’ Waterloo Account (xxxx@uwaterloo.ca). It is the responsibility of all students to check these accounts regularly and/or to have the email from this account forwarded to another account. Any problems arising from the failure of a student to check their email in this account will be the full responsibility of the student.

WATcard

Get a student WATCard. The WatCard is your one card to access many facilities and services both on and off-campus. You will likely use it almost every day for food, photocopying, Physical Activities Complex access, libraries, and computer labs. Visit the WatCard Office (Student Life Centre, Lower Level, Room 0107) at the beginning of your academic term to pick up your card. You will need to show a valid piece of photo ID. For more information refer to:

- [www.watcard.uwaterloo.ca](http://www.watcard.uwaterloo.ca)

Libraries

Collections at UW are housed as follows: Dana Porter Library (Arts, Humanities, Social Sciences); Davis Centre Library (Engineering, Mathematics, Sciences); University Map and Design Library (maps, atlases, gazetteers, aerial photographs, architectural design materials); Optometry Learning Resource Centre (Optometry, Physiological Optics).

Visit the library’s webpage for up-to-date information: [www.lib.uwaterloo.ca](http://www.lib.uwaterloo.ca)

Requests for orientation and information should be directed to Tim Ireland, Liaison Librarian for Anthropology at extension 35061 or by e-mail at tireland@library.uwaterloo.ca. The Liaison Librarian will be delighted to assist you find resources for your coursework and for your research so please do take advantage of this wonderful service.

Photocopying and Supplies

Supplies required for TA assignments are available from our Administrative Assistant located in PAS 2012. When requesting supplies please identify yourself and the number of the course to which you have been assigned. Please note supplies and photocopying are provided for TA
assignments only; not for personal use. Administrative photocopying assigned by the Instructor falls under these rules.

**Graduate Student Association (GSA)**

The Graduate Student Association presents and promotes the common interests of graduate students, represents student interests on a variety of University committees and boards, and participates in conferences. The GSA is governed by a Board of Directors and has committees which cover a range of interests (e.g. International Students, Women’s Issues, Day Care). In addition the GSA publishes a newsletter, hosts many social events, operates Association offices and a (licensed) living room at the Graduate House. Their web address is [www.gsa.uwaterloo.ca](http://www.gsa.uwaterloo.ca).

**Other Sources of Helpful Information**

- **Public Issues Anthropology**: [anthropology.uwaterloo.ca/MAprogram.html](http://anthropology.uwaterloo.ca/MAprogram.html)
- **Graduate Studies Office**: [www.grad.uwaterloo.ca](http://www.grad.uwaterloo.ca)
- **Quest** (student information system, registration, grades): [www.quest.uwaterloo.ca](http://www.quest.uwaterloo.ca)
- **UW Graduate Calendar**: [www.grad.uwaterloo.ca/acms](http://www.grad.uwaterloo.ca/acms)
- **Student Services** (athletics, counseling, food, health): [www.studentservices.uwaterloo.ca](http://www.studentservices.uwaterloo.ca)
- **Office of Research** (research experts, ethics, grants): [www.research.uwaterloo.ca](http://www.research.uwaterloo.ca)
- **University Policies**: such as Policy 33 (Ethical Behavior), Policy 70 (Student Grievance), and Policy 71 (Student Academic Discipline): [www.adm.uwaterloo.ca/infosec/Policies/Policies.index.htm](http://www.adm.uwaterloo.ca/infosec/Policies/Policies.index.htm)
Program Proposal Brief

for

Integrated Water Management

Collaborative Research Master and Doctoral Programs

(MA, MES, MMath, MSc, MASc, PhD)

VOLUME I: PROGRAM BRIEF

February 26, 2013
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1. INTRODUCTION: LEARNING OBJECTIVES AND OUTCOMES

1.1 BRIEF LISTING OF THE PROGRAM

The Faculties of Engineering, Environment, Mathematics and Science propose to establish an inter-faculty collaborative Integrated Water Management program. The proposed program will be an extension to existing thesis- or major research paper-based Masters and PhD degree programs. That is, students will register in existing Masters or PhD programs and will be required to meet all of the requirements of the existing, “parent” program. Students that have a strong water specialization in their parent program will have the option of registering in the collaborative Integrated Water Management program. The proposed program will be available to full-time or part-time students, will be delivered in person on the University of Waterloo campus, and will have no additional fees associated with it. It is anticipated that the Integrated Water Management program will be launched in September 2013.

Students of the Integrated Water Management program will be required to take two one-term courses (2 courses x 0.5 credit/course) designed specifically to meet the goals of the program. By taking the courses coincident with other degree requirements, the program should add no more than one-half term to the normal completion time, and even less if the course(s) can be used as electives in the parent program. It is expected that most Master’s students will take collaborative courses concurrently with parent degree courses, gaining an inter-disciplinary perspective in parallel with completion of specialist courses. PhD students will have more flexibility in terms of course timing, but could be encouraged to complete the collaborative requirements early in their programs in order to apply new knowledge and perspectives in their research work. The degree conferred will be that of the parent program, with the completion of the collaborative program indicated by a transcript notation to the degree and adjunct qualification to the degree (eg, Master of Applied Science in Civil and Environmental Engineering (Integrated Water Management)).

Table 1 lists seventeen Waterloo departments/schools with research programs in water. These departments/schools are therefore potential participants in the Integrated Water Management program.

<table>
<thead>
<tr>
<th>Table 1: Academic Departments with Water-related Research Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faculty</strong></td>
</tr>
<tr>
<td>Applied Health Sciences</td>
</tr>
<tr>
<td>Arts</td>
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<tr>
<td>Engineering</td>
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<td>Environment</td>
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<tr>
<td></td>
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<tr>
<td>Mathematics</td>
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<td></td>
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<tr>
<td>Science</td>
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<td></td>
</tr>
</tbody>
</table>
Table 1: Academic Departments with Water-related Research Programs

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. Earth and Environmental Sciences</td>
<td></td>
</tr>
</tbody>
</table>

1.2 METHOD USED FOR PREPARATION OF THE BRIEF

The proposal for the Integrated Water Management program was prepared by the Water Institute of the University of Waterloo on behalf, and in support, of Waterloo faculties and departments/schools with active water-related teaching and research programs. The Water Institute was approved by the Waterloo Senate in 2009, with “promote and support development of multidisciplinary and interdisciplinary teaching programs at both the undergraduate and graduate levels” as one of the stated goals. The role of the Water Institute in undertaking this initiative is supported by the July 2011 Report of the Committee on Senate-approved Centres and Institutes, Recommendation 8: “Centres and Institutes should serve as catalysts for new interdisciplinary collaborations, which might develop into university-sanctioned academic programs based in one or more academic units.”1 Indeed, care has been taken to ensure that development of the proposal and delivery of the program are consistent with the recommendations of that report.

The Water Institute established an Education Committee for the purpose of identifying and evaluating various education and training options and recommending priority initiatives to the Institute. In early-2012, the Committee recommended development of a collaborative graduate Integrated Water Management program. The recommendation was based on i) the published need for water specialists with a broader interdisciplinary background, ii) the existing strengths of Waterloo’s graduate water programs, iii) the potential to build on existing water programs through a collaborative approach, and iv) the expectation that a highly effective new program could be developed with minimal new resources. The recommendation of the Water Institute Education Committee was supported by the Institute’s Strategic Planning Committee (SPC) in March 2012. The Water Institute SPC includes members from all Waterloo academic faculties, representatives of centres and institutes focused on water and a graduate student representative, and is therefore broadly representative of the various sectors of the University with an interest in water. The Senior Management Committee (SMC) of the Water Institute, which includes the Deans of the four faculties with the strongest commitments to water, subsequently supported the Education Committee’s recommendation in June 2012. Though a formal survey was not undertaken, the graduate student representative on the Water Institute SPC indicated very strong support for the program from the graduate students.

Based on the support of the Water Institute’s SPC and SMC, a formal Statement of Intent to develop the Integrated Water Management program was distributed on June 20, 2012 to the:

- Associate Provost, Graduate Studies;
- Faculty Associate Deans;
- Waterloo Librarian;
- Waterloo Centre for Teaching Excellence;
- Waterloo Institutional Analysis and Planning.

In July and August 2012, the Executive Director and Managing Director of the Water Institute met with ten departments to discuss various aspects of the proposed Integrated Water Management program (Table 2). While faculty members of the Water Institute come from 17 departments/schools, meetings were requested with departments/schools with the largest number of members and/or strongest commitment to water. Without exception, the department representatives with whom the Institute met were supportive of the program and, based on the draft information available, expressed an interest in participating. Letters (e-mail) were sent to the remaining 7 departments/schools, outlining the program and offering to meet upon request.

---

1 University of Waterloo, Report: Committee on Senate-approved Centres and Institutes, July 19, 2011. p. 22.
Table 2: Departmental Consultations

<table>
<thead>
<tr>
<th>Date (2012)</th>
<th>Department</th>
<th>Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 17</td>
<td>Earth and Environmental Sciences</td>
<td>Barry Warner, Chair Tony Endres, Graduate Officer</td>
</tr>
<tr>
<td>July 17</td>
<td>Civil and Environmental Engineering</td>
<td>Don Burn, Chair (Acting) Bruce Hellinga, Graduate Officer</td>
</tr>
<tr>
<td>July 18</td>
<td>Environment and Resource Studies</td>
<td>Stephen Murphy, Chair Bob Gibson, Associate Chair</td>
</tr>
<tr>
<td>July 19</td>
<td>Biology</td>
<td>David Rose, Chair Trevor Charles, Associate Chair</td>
</tr>
<tr>
<td>July 19</td>
<td>Economics</td>
<td>Anindya Sen, Associate Chair</td>
</tr>
<tr>
<td>July 20</td>
<td>Geography and Environmental Management</td>
<td>Richard Kelly, Chair (Acting) Brent Doberstein, Associate Chair</td>
</tr>
<tr>
<td>July 23</td>
<td>Public Health and Health Systems</td>
<td>Paul McDonald, Director Phil Bigelow, Associate Director</td>
</tr>
<tr>
<td>July 24</td>
<td>Chemical Engineering</td>
<td>Eric Croiset, Chair Xianshe Feng, Associate Chair</td>
</tr>
<tr>
<td>July 30</td>
<td>Applied Mathematics</td>
<td>Sue Ann Campbell, Chair Kirsten Morris, Graduate Officer</td>
</tr>
<tr>
<td>August 10</td>
<td>Systems Design Engineering</td>
<td>Paul Fieguth, Chair David Clausi, Associate Chair</td>
</tr>
</tbody>
</table>

In early-September 2012 and early-January 2013 respectively, an initial and revised Program Proposal Brief for Integrated Water Management Collaborative Research Master and Doctoral Programs, Volume 1: Program Brief, including and Senate Graduate and Research Council New Course Forms for the proposed new WATER 601 and WATER 602 courses, were distributed to potential participant departments/schools for approval. Table 3 provides a summary of departments/schools that have agreed to participate in the collaborative program.

Table 3: Status of Integrated Water Management Program Approvals

<table>
<thead>
<tr>
<th>Unit</th>
<th>Approval Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Biology</td>
<td>January 18, 2013</td>
</tr>
<tr>
<td>Department of Environment and Resource Studies</td>
<td>January 21, 2013</td>
</tr>
<tr>
<td>School of Environment, Enterprise and Development</td>
<td>January 21, 2013</td>
</tr>
<tr>
<td>Department of Geography and Environmental Management</td>
<td>January 21, 2013</td>
</tr>
<tr>
<td>Department of Applied Mathematics</td>
<td>January 25, 2013</td>
</tr>
<tr>
<td>Department of Earth and Environmental Sciences</td>
<td>January 28, 2013</td>
</tr>
<tr>
<td>Department of Civil and Environmental Engineering</td>
<td>February 4, 2013</td>
</tr>
<tr>
<td>Faculty of Environment</td>
<td>January 28, 2013</td>
</tr>
<tr>
<td>Faculty of Science</td>
<td>February 15, 2013</td>
</tr>
<tr>
<td>Faculty of Engineering</td>
<td>February 26, 2013</td>
</tr>
<tr>
<td>Faculty of Mathematics</td>
<td>February 26, 2013</td>
</tr>
</tbody>
</table>
The proposed Integrated Water Management program will be administered and managed by the Lead Academic Unit, Program Director and Program Committee (Section 4.6). The Program Committee will be comprised of one representative from each of the participating departments/schools, one graduate student representative and one representative of the Water Institute, and will be chaired by a Program Director appointed by the Lead Academic Unit. The Program Committee is currently being established; however membership will be incomplete until all the participating departments/schools have been identified. While the Water Institute has been facilitating proposal development, the approvals process and establishment of the Program Committee on behalf of departments/schools/faculties, it will transition these roles to the Lead Academic Department, Program Director and Program Committee when all participating academic units have been confirmed.

1.3 OBJECTIVES OF THE PROGRAM

The objective of the Integrated Water Management program is to provide students with a broad, multi-disciplinary foundation in water science and engineering, technology and management. Students will gain discipline expertise from their parent departments. The parent and collaborative programs combined will provide Masters and PhD students with a specialist area of focus and level of understanding of other water-related disciplines such that they can be effective in multidisciplinary or interdisciplinary settings and will prepare i) Masters students for the workforce or further graduate study and research leading towards a PhD, or ii) PhD students for a career as scholars, researchers or practitioners. The interdisciplinary objective of the collaborative program will be achieved through successful completion of one graduate course on the key principles, concepts, tools and terminology of multiple water-related disciplines covering science and engineering, technology and management aspects and one course where students work in teams to address water issues from an interdisciplinary perspective.

The Integrated Water Management program has been developed to support the University of Waterloo’s mission and strategy. Waterloo’s 6th Decade Plan establishes goals, objectives and benchmarks for the university for the 2007 to 2017 period. The overall priority of the plan is academic excellence. The collaborative Integrated Water Management program supports the 6th decade plan in the following areas:

- **Academic Programs**
  - Expected to attract excellent students.
  - Offers unique, world-class program.
  - Committed faculty from multiple disciplines.
  - Supports a core, strategic Waterloo strength – water.
  - Interdisciplinary perspective.
  - Addresses a major gap in the training of water specialists.

- **Teaching and Research**
  - Combination of “knowing” (ie, knowledge-leveling through multi-disciplinary classroom-based study) and “learning” (ie, applying knowledge as interdisciplinary teams to “real world” issues in project- or field based work).

- **Internationalization**
  - Support international recognition of Waterloo and the Water Institute.
  - Attract top international students.
  - Offer opportunity to students to enhance knowledge of international issues and approaches in the water sector.

As a consequence of demographics, increasing urbanization, intensification of agricultural production, climate change, and a host of other pressures, issues concerning the management of water are becoming increasingly complex. Multidisciplinary and interdisciplinary approaches are therefore often required in order to arrive at sustainable solutions. While our educational institutions are very good at training discipline specialists, the need for water specialists and managers with a broader multidisciplinary and interdisciplinary background is well documented (Section 1.6). Because of the exceptional breadth in research and teaching programs, the University of Waterloo is particularly well positioned to serve this need.

February 26, 2013
The purpose of the collaborative Integrated Water Management program is not to graduate generalists, but to graduate specialists with a reasonable understanding of the principles, perspectives, tools and vocabulary of the associated water-related disciplines. In essence, the goal is to facilitate communication across disciplines. In particular, the program will:

- Maintain focus on discipline expertise by requiring students to complete all degree requirements in their parent department (ie, MA, MES, MMath, MSc, MASc, PhD);
-Expose students to principles, concepts, terminology and tools of other disciplines or interdisciplinary topics through additional course and project requirements.

Anticipated benefits of the proposed program include:

**Students**
- Exposure to concepts, terminology, methods and tools of other disciplines.
- Support integration or synthesis of other disciplines in addressing water resources management issues.
- Promote multi- and inter-disciplinary teamwork.
- Increase employment options and opportunities.

**Faculty Members**
- Increase the pool of talented graduate students.
- Support the development of new interdisciplinary teaching and research teams.
- Stimulate greater interdisciplinary activity among faculty.

**Faculties / Departments**
- Builds on existing strengths, programs and degrees.
- Increase graduate student numbers in water-related programs.
- Increase the quality, retention and level of dedication of graduate students.

**University**
- Increase recognition nationally and internationally as a leader in water research and education.
- Leverage Water Institute’s infrastructure to promote and support the program.

### 1.4 ADMISSION REQUIREMENTS

Admission to the Integrated Water Management program requires that:

1. The student be admitted to a Masters or Doctoral thesis- or research paper-based research program of one of the participating departments/schools;
2. The student’s program of study has a substantial focus on water (as determined by the department/school/supervisor).

Interested students will apply directly to the academic unit of their choice within the participating departments/schools, specifying an interest in the collaborative program. The requirements for the departmental degree are those stipulated by the parent programs. Following acceptance to the parent program, admissibility to the Integrated Water Management program will be determined by the academic unit, with the assistance of the academic unit’s representative on the Program Committee. Though it is anticipated that most students will register in the Integrated Water Management program at the time they enter their Masters or PhD programs, in fact, with the approval of their parent department/school, students can enter the program at any time over the course of their parent degree program. Similarly, students can withdraw from the program at any time, with no penalty attached to their parent degree program.

### 1.5 A) STRUCTURE

Students participating in the Integrated Water Management program will be registered in existing degree programs in their parent departments and will be required to complete all degree requirements of that program. As a consequence there will be no dilution of “degree level expectations”. Specific learning outcomes of the Integrated Water Management program will be achieved through the two one-term courses (2 courses x 0.5 credit/course) developed specifically for the program, and perhaps of equal importance, through their application in the thesis/major research
project and through the interdisciplinary associations formed during the courses. The following requirements form the basis of the collaborative portion of the Integrated Water Management program:

1. **Admissions Requirement:** Departments/Program Committee representatives only accept students into the program that i) are registered as a graduate student in a participating department/school, and ii) are deemed to have a substantial focus on water in their parent program of study.

2. **Collaborative Requirements:** In addition to fulfilling all requirements of their parent program, students are required to complete:
   - WATER 601: *Introduction to Integrated Water Management* (team-taught, lecture, 1 term, 0.5 credit);
   - WATER 602: *Integrated Water Management Project* (team-taught, project-based, 1 term, 0.5 credit).

Specific learning outcomes for students completing specialist parent degree programs, together with the Integrated Water Management collaborative program, are:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Masters</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>By the end of the collaborative program, students will:</td>
<td>By the end of the collaborative program, students will:</td>
</tr>
<tr>
<td></td>
<td>• Understand principles, concepts, terminology and tools of water-related disciplines;</td>
<td>• Understand the principles, concepts, terminology and tools of water-related disciplines;</td>
</tr>
<tr>
<td></td>
<td>• Have a broad, multi-disciplinary foundation in water science and engineering, technology and management;</td>
<td>• Have a broad, multi-disciplinary foundation in water science and engineering, technology and management;</td>
</tr>
<tr>
<td></td>
<td>• Understand key inter-disciplinary issues in water management;</td>
<td>• Understand key inter-disciplinary issues in water management;</td>
</tr>
<tr>
<td></td>
<td>• Have formed associations with a substantial number of students in other disciplines.</td>
<td>• Have formed associations with a substantial number of students in other disciplines.</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td>By the end of the collaborative program, students will:</td>
<td>By the end of the collaborative program, students will:</td>
</tr>
<tr>
<td></td>
<td>• Be able to effectively communicate with other water-related discipline experts;</td>
<td>• Be able to effectively communicate with other water-related discipline experts;</td>
</tr>
<tr>
<td></td>
<td>• Be able to understand and use basic data from other disciplines;</td>
<td>• Be able to understand and use basic data from other disciplines;</td>
</tr>
<tr>
<td></td>
<td>• Be able to effectively apply their disciplinary knowledge in a multi- or interdisciplinary setting;</td>
<td>• Be able to effectively apply their disciplinary knowledge in a multi- or, inter-disciplinary setting;</td>
</tr>
<tr>
<td></td>
<td>• Effectively communicate project analyses and results to classmates and faculty.</td>
<td>• Effectively communicate project analyses and results to classmates and faculty;</td>
</tr>
<tr>
<td><strong>Values</strong></td>
<td>By the end of the collaborative program, students will:</td>
<td>By the end of the collaborative program, students will:</td>
</tr>
<tr>
<td></td>
<td>• Be able to work cooperatively with experts from other disciplines;</td>
<td>• Be able to work cooperatively with experts from other disciplines;</td>
</tr>
<tr>
<td></td>
<td>• Understand the importance of multi- or inter-disciplinary approaches in the water sector;</td>
<td>• Understand the importance of multi-, inter- or trans-disciplinary approaches in the water sector;</td>
</tr>
</tbody>
</table>

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• Be able to identify the role of their discipline expertise in multi- or inter-disciplinary problem solving.

The number and length of Integrated Water Management program courses have been chosen to meet multiple objectives, including:

– Ensure students meet learning outcomes;
– Consistent with requirements for other graduate level collaborative programs at Waterloo;
– Flexible to meet elective requirements of a number of participating departments;
– Achievable by students within a reasonable length of time and without adding unreasonable academic burden.

1.5 B) EFFECT OF STRUCTURE ON QUALITY

Students will meet all the program requirements and achieve all the learning outcomes of the parent program. In addition, through the two courses required by the Integrated Water Management program, students will gain a much greater appreciation of the breadth of water-related disciplines and issues and an ability to communicate effectively in interdisciplinary settings. While the lecture course is intended to transmit a great deal of information, the project course is intended to encourage interaction and to stimulate discussion and analysis of a broadly interdisciplinary nature, and equip students to research or work effectively in multi-disciplinary settings.

1.6 PROGRAM CONTENT

Water is essential to human and environmental health and supports major economic sectors such as agriculture and energy. The breadth and complexity of water resources issues and challenges are increasing due to factors such as population growth, urbanization, agricultural intensification, desertification and climate change. “Water management is now recognized as a socio-economic, institutional and ethical challenge as much as it is a biophysical and engineering challenge”. Several authors have discussed how graduate education might better prepare water professionals to manage these challenges. A clear distinction is made between disciplinary research that produces new knowledge for a discipline and interdisciplinary studies that synthesize or integrate knowledge across disciplines to address real-world problems.

“The difference here is critical – between multi-disciplinary problem-solving and synthesis and inter-disciplinary education and training. Multi-disciplinary teams are essential to the basic nature of most water resources management problems – whether it’s agricultural irrigation planning, watershed management, or reservoir allocation or regulation studies. But multi-disciplinary teams are comprised of individuals with specialized disciplines – they are experts in their individual fields – whether hydrology, economics, or ecology. In my experience, I’ve dealt with and led both types of teams – the multi-disciplinary team wins hands down. Naturally, as the disciplinary “experts” (hydrologists, economists, environmental engineers, etc.) mature, they acquire a fair degree of on the job practical interdisciplinary training. Most team leaders become the interdisciplinary synthesizers, by virtue of their experience in the field of water resources management”.

Kirshen et al. argue that graduate education in integrated water resources education should be open to all relevant disciplines and focus on educating discipline specialists to use multi-disciplinary perspectives. “Graduate programs must emphasize the need for teamwork to develop solutions jointly using the rigorous methods and tools that come from the array of disciplines...” In the early 2000’s, the United States Army Core of Engineers developed an advanced degree

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program in integrated water resources management noting that “there are few educational options available that provide an integrative curriculum that touches upon various types of water resources management objectives in a practical and balanced way”. The Corps thus began development, with five university partners, of a curriculum to provide a multi-disciplinary education foundation to their leaders.

Clearly, as we address increasingly complex water issues, highly trained technical experts are required. As noted above, it is generally the case that technical experts are required from several different disciplines. Unfortunately it is also the case that the technical experts frequently do not have an appropriate appreciation of each other’s abilities and contributions, making multidisciplinary or interdisciplinary efforts difficult. The proposed Integrated Water Management program is novel in that it retains the disciplinary expertise of existing programs, while introducing an appreciation of the associated disciplines and an ability to converse in an interdisciplinary forum.

The proposed collaborative “Introduction to Integrated Water Management” lecture course (WATER 601) would impart generalist knowledge (e.g., terminology, principles, concepts, tools) of multiple water-related disciplines. The course will be team taught, but will be led by a faculty course co-ordinator who will ensure continuity and promote interdisciplinary perspectives and discussion. Potential themes and modules might include:

<table>
<thead>
<tr>
<th>Water Science and Engineering</th>
<th>Aquatic and Terrestrial Systems</th>
<th>Water Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Climate</td>
<td>- Aquatic ecosystems</td>
<td>- Human activities/impacts</td>
</tr>
<tr>
<td>- Hydrologic cycle</td>
<td>- Wetlands</td>
<td>- Water and health</td>
</tr>
<tr>
<td>- Surface water hydrology</td>
<td>- Terrestrial systems</td>
<td>- Water economics</td>
</tr>
<tr>
<td>- Groundwater hydrology</td>
<td>- Ecohydrology</td>
<td>- Water policy</td>
</tr>
<tr>
<td>- Water budgets</td>
<td>- Coastal systems</td>
<td>- Water governance</td>
</tr>
<tr>
<td>- Water chemistry</td>
<td></td>
<td>- Management or planning approaches</td>
</tr>
<tr>
<td>- Modelling (hydro(geo)logic, hydraulic)</td>
<td></td>
<td>- Stakeholder participation</td>
</tr>
<tr>
<td>- Water quality</td>
<td></td>
<td>- Gender perspectives</td>
</tr>
<tr>
<td>- Soils/soil erosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ocean and lake dynamics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Stream processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Water treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wastewater treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Stormwater management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Irrigation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The particular course content for WATER 601 will be determined by the Program Committee, with perhaps eight modules to be delivered over the twelve-week course.

For the proposed “Integrated Water Management Project” course (WATER 602) students enrolled in the course will be organized into multidisciplinary groups of perhaps 5 to 6 students. Each group will apply discipline expertise and multidisciplinary learning from the WATER 601 course in the analysis of interdisciplinary water themes or issues. Each team will be supervised and mentored by a faculty member assigned by the faculty course co-ordinator, with the course co-ordinator also ensuring overall consistency. Examples of themes or issues might include:

- Integrated management of the Grand River watershed;
- Construction of a freshwater pipeline from the Great Lakes to supply the Region of Waterloo;
- Management and contamination of Walkerton’s water supply;
- Management of freshwater resources in low-lying island states impacted by climate change;
- Access to clean water and sanitation in poor rural communities;
- Water management in developing world mega-cities.

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Some departments/schools or supervisors may choose to recognize one or both of the collaborative courses as electives in the parent program; while in other situations the collaborative courses may be additional to the parent program requirements. Whether or not the collaborative courses can be used as electives in the parent program will be determined by the parent department/school, and may differ from department to department. Table 4 summarizes course requirements of thesis- or research paper-based Masters or Doctoral research programs in the 7 departments/schools potentially collaborating in the Integrated Water Management program.

<table>
<thead>
<tr>
<th>Department/School</th>
<th>Research Degree</th>
<th>Course (1 term, 0.5 credit)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Required</td>
<td>Elective</td>
</tr>
<tr>
<td>Civil and Environmental Engineering</td>
<td>MASc (thesis)</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Environment and Resource Studies</td>
<td>MES (thesis)</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Environment, Enterprise and Development</td>
<td>MES (under development)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography and Environmental Management</td>
<td>MA (thesis)</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MA (research paper)</td>
<td>8</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>MES</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>MSc</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Applied Mathematics</td>
<td>MMath (thesis)</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Biology</td>
<td>MSc (thesis)</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Earth and Environmental Sciences</td>
<td>MSc (thesis)</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MSc (research paper)</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Notes:
1. Listed required and elective courses are often subject to additional program and/or supervisor requirements not detailed in this table.

Significant additional discussion and work remains in developing the WATER 601 and 602 curriculum and content. Following program approval, the Program Committee, Program Director and Lead Academic Unit will be responsible for designing, developing and maintaining detailed curriculum and course content as these matters should be considered by a body with academic authority and broad representation of the participating departments/schools and faculties.

### 1.7 MODE OF DELIVERY

The core “Introduction to Integrated Water Management” course (WATER 601) will be a team-taught, lecture course. The core “Integrated Water Management Project” course (WATER 602) will be a team-taught, project-based course, and will include a symposium where the student teams will present project results. Faculty will co-ordinate, supervise and assess both courses. Both courses will be led by a Course Co-ordinator. The Course Co-ordinator will be responsible for maintaining teaching continuity, promoting inter-disciplinary perspectives and discussion, and ensuring consistency in student assessments and grading. Both courses, including milestones, will be designed to achieve the learning outcomes (Section 1.5a).

Following program approval and detailed course design, the Integrated Water Management Program Committee, Program Director and Lead Academic Unit will be responsible for identifying and securing course co-ordinator(s) and instructors from participating departments/schools (Section 2.1).
1.8 ASSESSMENT OF TEACHING AND LEARNING

Assessment of teaching and learning will be at the student and program level. Students will be subject to normal assessment procedures of the parent unit for courses or milestones in the parent degree program. In the Integrated Water Management program (ie, WATER 601, 602), students will be assessed a grade based on typical methods such as papers, tests, projects and presentations.

The Integrated Water Management program will be assessed at the program level by the Program Committee and Program Director. A key responsibility of the Program Committee will be to review statistics such as program performance versus learning objectives, student success rates and teaching evaluations. The Program Committee will identify opportunities to improve performance, such as enriching course content or teaching.
2. HUMAN RESOURCES

2.1 RESOURCES FOR GRADUATE PROGRAMS ONLY

Teaching resources for the Integrated Water Management program will be provided by participating departments/schools. Following program approval, the Integrated Water Management Program Committee and Program Director will be responsible for the development and maintenance of detailed curriculum and course content. Based on course content, the Program Committee, Program Director and Lead Academic Unit will identify and secure appropriate course co-ordinator(s) and instructors. The Water Institute is prepared, if necessary, to provide two teaching offsets, one each in support of WATER 601 and 602 (Section 6.).

While the detailed course content will be determined by the Program Committee and Program Director, it is unlikely that WATER 601 will include more than eight modules some of which will be one-week in duration with others being two-weeks in duration, for a total of twelve weeks of instruction. Thus it is very unlikely that any individual instructor could be responsible for more than two weeks of instruction, and the most water-intensive departments would be asked to provide no more than three to four weeks of instruction. Though the primary goal will be to provide the most effective course possible, distributing the teaching load across faculties should also be a consideration. Clearly, with seventeen potential participating departments/schools, all academic units will not have an opportunity to contribute to WATER 601 each year.

The individual student groups of WATER 602 will be expected to be self-motivated and to be largely self-directed. The faculty mentor assigned to each group will be responsible for ensuring that the group progresses at a reasonable pace, for ensuring that they do indeed function in an interdisciplinary manner, and will provide advice and encouragement as needed. It is expected that the mentors will meet with the respective groups for no more than one hour every other week.

As noted in Section 1.3, departments/schools and faculties can gain several benefits from the program, and the two courses provide an exceptional opportunity to promote their particular programs and expertise. As no direct compensation will be provided to departments/schools that contribute to the instruction of WATER 601 and 602, departments/schools may decide to give teaching recognition to their contributing faculty members.

2.1 A) LIST OF FACULTY BY FIELD

Core faculty of the Integrated Water Management program are listed in Table 5, including their departmental affiliation, gender, rank and supervisory privileges. Core faculty agreed to participate in the proposed program in response to a Water Institute solicitation to all faculty members in the Institute. Appendix A includes a listing of core faculty research interests. Volume II of this submission includes curriculum vitae for core faculty.

<table>
<thead>
<tr>
<th>#</th>
<th>Faculty</th>
<th>Department</th>
<th>Gender</th>
<th>Rank</th>
<th>Supervisory Privileges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Donald Burn</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Professor, Chair (acting)</td>
<td>PhD</td>
</tr>
<tr>
<td>2</td>
<td>James Craig</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Associate Professor</td>
<td>PhD</td>
</tr>
<tr>
<td>3</td>
<td>Monica Emelko</td>
<td>Civil &amp; Environmental Engineering</td>
<td>F</td>
<td>Associate Professor</td>
<td>PhD</td>
</tr>
<tr>
<td>4</td>
<td>Peter Huck</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
</tr>
<tr>
<td>5</td>
<td>Hyung-Sool Lee</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Assistant Professor</td>
<td>Masters</td>
</tr>
<tr>
<td>6</td>
<td>Bruce MacVicar</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Assistant Professor</td>
<td>Masters</td>
</tr>
<tr>
<td>7</td>
<td>Sheree Pagsuyoin</td>
<td>Civil &amp; Environmental Engineering</td>
<td>F</td>
<td>Assistant Professor</td>
<td>Masters</td>
</tr>
<tr>
<td>8</td>
<td>Neil Thomson</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Professor, Chair</td>
<td>PhD</td>
</tr>
</tbody>
</table>
Table 5: Core Faculty

<table>
<thead>
<tr>
<th>#</th>
<th>Faculty</th>
<th>Department</th>
<th>Gender</th>
<th>Rank</th>
<th>Supervisory Privileges</th>
<th>Supervisory Privileges</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Bryan Tolson</td>
<td>Civil &amp; Environmental Engineering</td>
<td>M</td>
<td>Associate Professor</td>
<td>Masters</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Rob de Loë</td>
<td>Environment &amp; Resource Studies</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Stephen Murphy</td>
<td>Environment &amp; Resource Studies</td>
<td>M</td>
<td>Professor, Chair</td>
<td>PhD</td>
<td></td>
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<tr>
<td>12</td>
<td>Maren Oelbermann</td>
<td>Environment &amp; Resource Studies</td>
<td>M</td>
<td>Associate Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Sarah Wolfe</td>
<td>Environment &amp; Resource Studies</td>
<td>F</td>
<td>Assistant Professor</td>
<td>Masters</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Larry Swatuk</td>
<td>Environment, Enterprise &amp; Development</td>
<td>M</td>
<td>Associate Professor</td>
<td>PhD</td>
<td></td>
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<tr>
<td>15</td>
<td>Christopher Fletcher</td>
<td>Geography &amp; Environmental Management</td>
<td>M</td>
<td>Assistant Professor</td>
<td>Masters</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Merrin Macrae</td>
<td>Geography &amp; Environmental Management</td>
<td>M</td>
<td>Associate Professor</td>
<td>Masters</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Bruce Mitchell</td>
<td>Geography &amp; Environmental Management</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Jonathan Price</td>
<td>Geography &amp; Environmental Management</td>
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<td>Professor</td>
<td>PhD</td>
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</tr>
<tr>
<td>19</td>
<td>Kevin Lamb</td>
<td>Applied Mathematics</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Francis Poulin</td>
<td>Applied Mathematics</td>
<td>M</td>
<td>Associate Professor</td>
<td>PhD</td>
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<tr>
<td>21</td>
<td>Marek Stastna</td>
<td>Applied Mathematics</td>
<td>M</td>
<td>Associate Professor</td>
<td>PhD</td>
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<tr>
<td>22</td>
<td>Michael Waite</td>
<td>Applied Mathematics</td>
<td>M</td>
<td>Assistant Professor</td>
<td>Masters</td>
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<tr>
<td>23</td>
<td>Brian Dixon</td>
<td>Biology</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
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<tr>
<td>24</td>
<td>Michael Power</td>
<td>Biology</td>
<td>M</td>
<td>Professor</td>
<td>PhD PhD</td>
<td></td>
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<tr>
<td>25</td>
<td>Mark Servos</td>
<td>Biology</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Raoul-Marie Couture</td>
<td>Earth &amp; Environmental Sciences</td>
<td>M</td>
<td>Assistant Research Professor</td>
<td>Masters</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Hans Duerr</td>
<td>Earth &amp; Environmental Sciences</td>
<td>M</td>
<td>Assistant Research Professor</td>
<td>Masters</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Emil Frind</td>
<td>Earth &amp; Environmental Sciences</td>
<td>M</td>
<td>Distinguished Professor Emeritus</td>
<td>Co-supervise^1</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Robert Gillham</td>
<td>Earth &amp; Environmental Sciences</td>
<td>M</td>
<td>Distinguished Professor Emeritus</td>
<td>Co-supervise^1</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>David Rudolph</td>
<td>Earth &amp; Environmental Sciences</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Sherry Schiff</td>
<td>Earth &amp; Environmental Sciences</td>
<td>F</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Philippe Van Cappellen</td>
<td>Earth &amp; Environmental Sciences</td>
<td>M</td>
<td>Professor</td>
<td>PhD</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Require departmental permission to be lone supervisor for Masters; can co-supervise Masters or PhD.

2.1 B) EXTERNAL OPERATING RESEARCH FUNDING

Table 6 presents cumulative external research funding secured by the Integrated Water Management program core faculty over the past 7 years.
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tri-Agency Awards</th>
<th>Public Sector and Non-Profit Funding</th>
<th>Private Sector Funding</th>
<th>Internal Awards</th>
<th>Equipment Awards</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005/06</td>
<td>$1,378,000</td>
<td>$2,421,000</td>
<td>$571,000</td>
<td>$0</td>
<td>$606,000</td>
<td>$4,976,000</td>
</tr>
<tr>
<td>2006/07</td>
<td>$1,642,000</td>
<td>$1,664,000</td>
<td>$539,000</td>
<td>$0</td>
<td>$488,000</td>
<td>$4,333,000</td>
</tr>
<tr>
<td>2007/08</td>
<td>$2,892,000</td>
<td>$2,264,000</td>
<td>$515,000</td>
<td>$0</td>
<td>$341,000</td>
<td>$6,012,000</td>
</tr>
<tr>
<td>2008/09</td>
<td>$2,316,000</td>
<td>$2,438,000</td>
<td>$939,000</td>
<td>$1,000</td>
<td>$203,000</td>
<td>$5,897,000</td>
</tr>
<tr>
<td>2009/10</td>
<td>$1,830,000</td>
<td>$1,791,000</td>
<td>$694,000</td>
<td>$0</td>
<td>$289,000</td>
<td>$4,604,000</td>
</tr>
<tr>
<td>2010/11</td>
<td>$1,972,000</td>
<td>$2,123,000</td>
<td>$577,000</td>
<td>$0</td>
<td>$240,000</td>
<td>$4,912,000</td>
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<tr>
<td>2011/12</td>
<td>$2,616,000</td>
<td>$4,883,000</td>
<td>$1,269,000</td>
<td>$0</td>
<td>$15,000</td>
<td>$8,783,000</td>
</tr>
<tr>
<td>Totals</td>
<td>$14,646,000</td>
<td>$17,584,000</td>
<td>$5,104,000</td>
<td>$1,000</td>
<td>$2,182,000</td>
<td>$39,517,000</td>
</tr>
</tbody>
</table>

Notes:
1. Data is reported on the primary investigator only. Table includes research awards for primary investigators identified in Table 5.
2. The fiscal year used when reporting research awards is the fiscal year used by the government. The government fiscal year runs from April 1st until March 31st, thus the 2010/11 fiscal year runs from April 1st, 2010 until March 31st 2011.
3. Excludes equipment grants (e.g. NSERC RTI).
4. Excludes equipment grants and internal awards (e.g. CFI, UW-RIF, UW-SSHRC).
5. Includes funding received from Industry partners.
6. Includes UW-RIF and UW-SSHRC.
7. Includes NSERC-RTI and CFI.

**2.1 C) GRADUATE SUPERVISION**

Table 7 lists completed and ongoing supervision of Masters and PhD candidates, as well as Post-Doctoral fellows, by core faculty of the *Integrated Water Management* program.

<table>
<thead>
<tr>
<th>#</th>
<th>Faculty</th>
<th>Department</th>
<th>Career</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Masters</td>
<td>PhD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Masters</td>
<td>PhD</td>
</tr>
<tr>
<td>1.</td>
<td>Donald Burn</td>
<td>Civil &amp; Environmental Engineering</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>James Craig</td>
<td>Civil &amp; Environmental Engineering</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Monica Emelko</td>
<td>Civil &amp; Environmental Engineering</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Peter Huck</td>
<td>Civil &amp; Environmental Engineering</td>
<td>39</td>
<td>18</td>
</tr>
<tr>
<td>5.</td>
<td>Hyung-Sool Lee</td>
<td>Civil &amp; Environmental Engineering</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>Bruce MacVicar</td>
<td>Civil &amp; Environmental Engineering</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>Sheree Pagsuyoin</td>
<td>Civil &amp; Environmental Engineering</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8.</td>
<td>Neil Thomson</td>
<td>Civil &amp; Environmental Engineering</td>
<td>33</td>
<td>8</td>
</tr>
<tr>
<td>9.</td>
<td>Bryan Tolson</td>
<td>Civil &amp; Environmental Engineering</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>10.</td>
<td>Rob de Loë</td>
<td>Environment &amp; Resource Studies</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>11.</td>
<td>Stephen Murphy</td>
<td>Environment &amp; Resource Studies</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>12.</td>
<td>Maren Oelbermann</td>
<td>Environment &amp; Resource Studies</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>Sarah Wolfe</td>
<td>Environment &amp; Resource Studies</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>14.</td>
<td>Larry Swatuk</td>
<td>Environment, Enterprise &amp; Development</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

February 26, 2013
Table 7: Core Faculty Supervisorships

<table>
<thead>
<tr>
<th>#</th>
<th>Faculty</th>
<th>Department</th>
<th>Career</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Masters</td>
<td>PhD</td>
</tr>
<tr>
<td>15</td>
<td>Christopher Fletcher</td>
<td>Geography &amp; Environmental Management</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Merrin Macrae</td>
<td>Geography &amp; Environmental Management</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>Bruce Mitchell</td>
<td>Geography &amp; Environmental Management</td>
<td>26</td>
<td>56</td>
</tr>
<tr>
<td>18</td>
<td>Jonathan Price</td>
<td>Geography &amp; Environmental Management</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>Kevin Lamb</td>
<td>Applied Mathematics</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>20</td>
<td>Francis Poulin</td>
<td>Applied Mathematics</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>Marek Stastna</td>
<td>Applied Mathematics</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>22</td>
<td>Michael Waite</td>
<td>Applied Mathematics</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>Brian Dixon</td>
<td>Biology</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>24</td>
<td>Michael Power</td>
<td>Biology</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>Mark Servos</td>
<td>Biology</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>26</td>
<td>Raoul-Marie Couture</td>
<td>Earth &amp; Environmental Sciences</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>Hans Duerr</td>
<td>Earth &amp; Environmental Sciences</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>Emil Frind</td>
<td>Earth &amp; Environmental Sciences</td>
<td>33</td>
<td>11</td>
</tr>
<tr>
<td>29</td>
<td>Robert Gillham</td>
<td>Earth &amp; Environmental Sciences</td>
<td>73</td>
<td>23</td>
</tr>
<tr>
<td>30</td>
<td>David Rudolph</td>
<td>Earth &amp; Environmental Sciences</td>
<td>43</td>
<td>9</td>
</tr>
<tr>
<td>31</td>
<td>Sherry Schiff</td>
<td>Earth &amp; Environmental Sciences</td>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>32</td>
<td>Philippe Van Cappellen</td>
<td>Earth &amp; Environmental Sciences</td>
<td>7</td>
<td>22</td>
</tr>
</tbody>
</table>

2.1 D) COMMITMENT OF FACULTY FROM OTHER GRADUATE PROGRAMS/OTHER INSTITUTIONS

It is not expected that faculty from other institutions will be involved in the Integrated Water Management program.

2.2 QUALITY OF FACULTY

Integrated Water Management program core faculty provide expertise over a wide range of water-related disciplines, including:

- Water Science and Engineering;
- Water Technology;
- Aquatic and Terrestrial Systems;
- Water Management.

As shown in Tables 5, 6 and 7, and evidenced from Appendix A and curriculum vitae compiled in Volume II of this submission, core faculty of the Integrated Water Management program have an outstanding record of research, scholarship, teaching and service to the University of Waterloo, the broader academy, and local, national and international organizations and partners. Core faculty have collectively obtained water-related research funding of over $39M over the past seven years, have authored over 2,500 peer-reviewed journal articles, over 220 book chapters, and have been invited to present at hundreds of conferences and other water-related events.

Several Integrated Water Management program core faculty currently hold prestigious research chairs or other designations, including:

- Philippe Van Cappellen, Canada Excellence Research Chair, Ecohydrology
- Brian Dixon, Canada Research Chair, Fish and Environmental Immunology
- Mark Servos, Canada Research Chair, Water Quality Protection
– Peter Huck, Industrial Research Chair, Water Treatment
– Rob de Loë, University Research Chair, Water Policy and Governance
– Sherry Schiff, University Research Chair, Watershed Biogeochemistry
– Robert Gillham, Member of Order of Canada, Groundwater Science

The core faculty represents the breadth of water research and education at the University of Waterloo and includes senior researchers and educators across the spectrum of water-related disciplines. Core faculty is comprised of professors from 4 Waterloo faculties:

- Engineering → 9 core faculty
- Environment → 9 core faculty
- Mathematics → 4 core faculty
- Science → 10 core faculty
3. PHYSICAL AND FINANCIAL RESOURCES

3.1 LIBRARY RESOURCES

A “Report for the Ontario Universities Council on Quality Assurance on Library Resources for the Proposed Masters and PhD Integrated Water Management program” is attached as Appendix B.

3.2 LABORATORY RESOURCES

The Integrated Water Management program does not impose additional research requirements beyond those of the parent program, thus access to laboratory resources is not required to complete the collaborative program.

3.3 COMPUTER FACILITIES

Each Integrated Water Management program student will have a university computer account and access to the standard computing facilities (including email and internet access, standard software packages and hardware) normally offered through their parent department.

3.4 SPACE

Each Integrated Water Management program student will have a space (eg, office, laboratory) normally allocated by their parent unit. Collaborative courses will be held in appropriate university lecture/meeting rooms.

3.5 FINANCIAL SUPPORT

All graduate students engaged in research Masters and PhD studies at the University of Waterloo receive financial support. The university provides guaranteed minimum funding for the first three years of full time enrollment in a PhD program, and all participating departments provide funding guarantees at the research Masters level.

The proposed Integrated Water Management program also will be supported through a generous donation from RBC. The RBC donation, which was approved in September 2012, amounts to $1.75M over 8 years and will be used for Integrated Water Management entrance scholarships, a visiting fellows program, and program enrichment activities. It is anticipated that up to eleven $5,000 entrance scholarships for Masters students and seven $10,000 entrance scholarships for PhD students registered in the program will be available per year until 2020/21. Eligibility for RBC scholarships will be limited to students that are entering the Integrated Water Management program and are enrolled in, or are entering, Departments/Schools that are participating members of the Integrated Water Management program. It is proposed that the Program Committee determine the method by which scholarships are allocated to the participating academic units, and the academic units will then be responsible for determining scholarship recipients within their units. Entrance scholarships are expected to be incremental to university/department funding guarantees.
4. CURRICULUM

4.1 THE INTELLECTUAL DEVELOPMENT AND THE EDUCATIONAL EXPERIENCE OF THE STUDENT

The Integrated Water Management program will provide graduate students a unique experience to broaden their understanding and perspectives across a wide spectrum of water-related disciplines and issues. The program will provide a fundamental understanding of the key principles, concepts, tools and terminology of multiple water-related disciplines covering science and engineering, technology and management aspects and will address water issues from an interdisciplinary perspective. Graduates of the program will not only have a parent, specialist degree, but will also be able to effectively communicate and collaborate with experts from other disciplines. The program will also help to recruit first-rate students.

The intellectual development of students in the Integrated Water Management program will largely be provided by departments/schools offering the parent degree. Activities might include new student orientation workshops, an introduction to library resources, Centre for Teaching Excellence workshops or Teaching Assistant training. Specific additional opportunities provided by the collaborative program will include:

- Access to dedicated entrance scholarships;
- Access to multidisciplinary and interdisciplinary water courses;
- Opportunity to work in multidisciplinary teams;
- Development of cross-faculty/department cohort of graduate students in water;
- Exposure to teaching and expertise from disparate faculties and departments;
- Presentation of interdisciplinary projects at a Program symposia.

Faculty and students of the Integrated Water Management program will also have the opportunity to collaborate through Water Institute programming, such as its seminar series, Institute workshops, graduate students chapter, annual research symposium or annual world water day celebration, which promotes interdisciplinary learning and dialogue.

4.2 PROGRAM REGULATIONS

Admission to the Integrated Water Management program will require that students be admitted to a thesis- or research paper-based Masters or Doctoral research program of one of the participating departments/schools and have a substantial focus on water. Associated admission standards and policies will be those of the parent department and program. Students accepted into participating departmental degree programs may choose to apply to the Integrated Water Management program.

4.3 PART-TIME STUDIES

Students will be allowed to complete the Integrated Water Management program on a part-time basis subject to the policies and procedures of the parent department and program.

4.4 CURRICULUM

Students must fulfill requirements of the parent degree program, and successfully complete the following Integrated Water Management courses:

- WATER 601: Introduction to Integrated Water Management (team-taught, lecture, 1 term, 0.5 credit);
- WATER 602: Integrated Water Management Project (team-taught, project-based, 1 term, 0.5 credit).

Appendix C contains the University of Waterloo Senate Graduate and Research Council New Course form for WATER 601; while Appendix D contains the form for WATER 602.

February 26, 2013
4.5 COLLATERAL AND SUPPORTING DEPARTMENTS

Integrated Water Management program core faculty have recent and long-standing collaborative relationships with researchers in other Waterloo departments, as well as with researchers and other water professionals from local, national and international universities and institutions. Through these experiences and associations faculty will convey a greater international and interdisciplinary perspective to the students.

The Water Institute will support the Integrated Water Management program in several areas, including:

– Program marketing and promotion;
– Supplying teaching offset for course co-ordinators (as required);
– Access to other Water Institute programming (e.g., seminars, workshops, symposia, graduate students chapter).

4.6 ORGANIZATIONAL STRUCTURE

The Integrated Water Management program will be governed by a faculty-level Lead Academic Unit, Program Director and Program Committee. The Lead Academic Unit will be rotated every two years among the Faculties of Engineering, Environment and Science as they comprise a significant majority of core faculty and graduate students focused on water, and have the largest water research programs. Centralizing administrative responsibility is important to ensure appropriate resources are committed for program management and delivery. The Program Director will be appointed by the Lead Academic Unit, in consultation with the other participating faculties. The Lead Academic Unit, through the Program Director, will report to the Associate Deans, Graduate Studies of all faculties with participating departments/schools.

The Integrated Water Management Program Committee, chaired by the Program Director, will include one representative from each participating department/school, one graduate student representative and one representative from the Water Institute. Respective department/school representatives on the Program Committee will:

– Facilitate communication between the program administration and their department/school;
– Ensure that the requirements for acceptance and program completion have been met in their department/school;
– Serve as an advisor to students in the program from their department/school.

Figure 1 shows schematically the proposed Integrated Water Management governance structure. Specific responsibilities of the Lead Academic Unit, Program Director and Program Committee are described below.

4.6.1 Lead Academic Unit

The Lead Academic Unit will rotate among the faculties of Engineering, Environment and Science every two years. Primary responsibilities of the Lead Academic Unit will include:

a) Appoint the Program Director (in consultation with the other participating Faculties);
b) Manage overall program administration and reporting;
c) Ensure effective program management and delivery.
4.6.2 Program Director

The Program Director will be appointed by the Lead Academic Unit in consultation with the other participating faculties. Primary responsibilities of the Program Director will include:

a) Chair and administer the Program Committee;
b) Report to the Associate Deans, Graduate Studies;
c) Maintain communications and positive working relationships with the Graduate Studies Office, Associate Deans, Graduate Studies and departments/schools;
d) Manage development of course content;
e) Secure commitment of program co-ordinator(s) and instructors;
f) Manage course scheduling, logistics and delivery;
g) Manage teaching assignments and, if required, remuneration;
h) Manage and co-ordinate program administration;
i) Manage and co-ordinate program promotions and marketing;
j) Promote and market the program.

4.6.3 Program Committee

The Program Director, in consultation with participating departments/schools, will establish the Program Committee. Program Committee members will be appointed with 2 to 4 year terms renewable once such that replacement members are staggered.

Program Committee membership will consist of:

- Program Director (Chair);
- Representative from each participating department/school;
- the Water Institute Executive Director;
- the Water Institute Graduate Students chapter representative.

Primary responsibilities of the Program Committee include:

a) Establish strategies to identify and recruit top students;
b) Establish and maintain program policies and procedures;
c) Review and maintain program admissions criteria;
d) Manage development and maintenance of course curriculum and content;
e) Identify and secure commitment of program co-ordinator(s) and instructors;
f) Conduct annual program review, including recommendations for improvements;
g) Develop program promotional and marketing materials (eg, website, brochures);
h) Identify need to establish subcommittees or task forces.
Table 8 estimates projected full-time student admissions into, and enrollment of, the Integrated Water Management program for the next 7 years. Estimates have been based on the following information and assumptions:

- “Baseline” or Year 1 admissions were provided by respective department graduate officers based on estimates of recent admissions of graduate students with a water focus;
- It was assumed that Year 1 admissions would grow by 10% per year due to recent and anticipated faculty hiring, and increased recognition of Waterloo’s water programs because of initiatives such as the Water Institute and the RBC scholarship program;
- It was assumed that 70%, 75%, and 80% of graduate water students would choose to enter the Integrated Water Management program in its first, second and third through seventh years respectively;
- Enrollment estimates are based on admissions less estimates of students graduating each year (i.e., Masters graduate after 2 years, PhD after 4).

It should be noted that in addition to modest increases in overall enrollment attributable to the Integrated Water Management program, a key objective of the program is to increase the quality of Waterloo’s water students by increasing the applicant pool.

### Table 8: Projected Full-time Program Admissions and Enrollment

<table>
<thead>
<tr>
<th>Year</th>
<th>Admissions</th>
<th></th>
<th></th>
<th>Enrollment</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Masters</td>
<td>PhD</td>
<td>Masters</td>
<td>D</td>
<td>I</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Domestic</td>
<td></td>
<td></td>
<td>International (visa) students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013/14</td>
<td>26</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>2014/15</td>
<td>31</td>
<td>10</td>
<td>9</td>
<td>11</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>2015/16</td>
<td>36</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td></td>
<td>66</td>
</tr>
<tr>
<td>2016/17</td>
<td>38</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td></td>
<td>74</td>
</tr>
<tr>
<td>2017/18</td>
<td>41</td>
<td>13</td>
<td>13</td>
<td>15</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>2018/19</td>
<td>44</td>
<td>14</td>
<td>14</td>
<td>16</td>
<td></td>
<td>86</td>
</tr>
<tr>
<td>2019/20</td>
<td>47</td>
<td>15</td>
<td>15</td>
<td>17</td>
<td></td>
<td>92</td>
</tr>
</tbody>
</table>
The Integrated Water Management program does not require new resources, thus a financial plan is not required for this submission. Table 9 summarizes financial support available to support the program from the Water Institute and/or the RBC donation (see Section 3.5).

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New Course Development</td>
<td>$10,000</td>
<td>One-time, course development support.</td>
<td>the Water Institute</td>
</tr>
<tr>
<td>2. Marketing and Promotion</td>
<td>$3,000</td>
<td>Development of program brochure.</td>
<td>the Water Institute</td>
</tr>
<tr>
<td>3. Co-ordinator/Instructor Stipend</td>
<td>$14,000/year</td>
<td>Support teaching offsets for Course Co-ordinator and/or instructor stipends.</td>
<td>the Water Institute</td>
</tr>
<tr>
<td>4. Program Director Stipend</td>
<td>$2,000/year</td>
<td></td>
<td>the Water Institute or RBC Donation</td>
</tr>
<tr>
<td>5. Student Symposium</td>
<td>$5,000/year</td>
<td>Symposium to share WATER 602 results included in RBC proposal.</td>
<td>RBC Donation</td>
</tr>
<tr>
<td>6. Program Enrichment</td>
<td>$5,000/year</td>
<td>Activities (eg, course maintenance) to be determined by the Program Committee.</td>
<td>RBC Donation</td>
</tr>
<tr>
<td>7. Program Administration</td>
<td>$12,000/year</td>
<td>Support to the Lead Academic Unit (based on 0.25 FTE).</td>
<td>the Water Institute or RBC Donation</td>
</tr>
</tbody>
</table>
## APPENDIX A: CORE FACULTY RESEARCH INTERESTS

<table>
<thead>
<tr>
<th>#</th>
<th>Faculty</th>
<th>Department</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Donald Burn</td>
<td>Civil &amp; Environmental Engineering</td>
<td>Floods; droughts; climate change; flood frequency analysis; extreme event hydrology.</td>
</tr>
<tr>
<td>2</td>
<td>James Craig</td>
<td>Civil &amp; Environmental Engineering</td>
<td>Groundwater modelling; surface water modeling; numerical methods; regional flow modelling.</td>
</tr>
<tr>
<td>3</td>
<td>Monica Emelko</td>
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<td>Drinking water treatment; environmental microbiology.</td>
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<td>Drinking water treatment; emerging contaminants.</td>
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<td>Maren Oelbermann</td>
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<td>Governance and policy aspects of water management; integrated resource and environmental management.</td>
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<td>Michael Power</td>
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<td>Aquatic toxicology; ecosystem remediation; integrated water resources management.</td>
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<td>Raoul-Marie Couture</td>
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<td>Earth &amp; Environmental Sciences</td>
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<td>Emil Frind</td>
<td>Earth &amp; Environmental Sciences</td>
<td>Groundwater modeling.</td>
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<td>Robert Gillham</td>
<td>Earth &amp; Environmental Sciences</td>
<td>Contaminant transport; groundwater remediation; permeable reactive barriers.</td>
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<td>31.</td>
<td>Sherry Schiff</td>
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<td>Biogeochemistry; wetlands; isotope markers.</td>
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<td>32.</td>
<td>Philippe Van Cappellen</td>
<td>Earth &amp; Environmental Sciences</td>
<td>Ecohydrology; surface water-groundwater.</td>
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</table>
APPENDIX B: LIBRARY RESOURCES

Report on Library Resources for the Proposed Integrated Water Management collaborative research Master and Doctoral programs

October, 2012

The following is a summary of University of Waterloo (uWaterloo) Library information resources and services in support of the proposed graduate program in Integrated Water Management, prepared by Douglas Morton, Liaison Librarian for Civil & Environmental Engineering, Management Sciences, and Mechanical & Mechatronics Engineering with assistance from Laura Bredahl, Anne Fullerton, Sandra Keys, Leeanne Romane, Jackie Stapleton, Kathy Szegi, Margaret Yuen, liaison librarians in the departments with research interest in the program.

Information Resources

Interest in Integrated Water Management has been expressed by the departments of Applied Mathematics, Biology, Chemical Engineering, Civil and Environmental Engineering, Earth & Environmental Sciences, Economics, Environmental & Resource Studies, Geography & Environment Management, Public Health & Health Systems, and Systems Design Engineering. Material is collected to support learning, teaching and research to the PhD level in all of these departments.

The decision to purchase Library materials for Water Management would be shared among Liaison Librarians for each of the ten disciplines noted above, in consultation with the Faculty Library Representatives for the discipline in question. If, for example, a new resource related primarily to Water Management and Biology, the Liaison Librarian for Biology would take the lead. Selection is guided by Collection Development Policies which are developed by Liaison Librarians in consultation with faculty members in the relevant department.

In response to user preference, the Library obtains resources in electronic format whenever it is possible and practical to do so. Some electronic resources are obtained directly by the University of Waterloo Library and some are obtained through membership in the Ontario Council of University Libraries (OCUL) and the Canadian Research Knowledge Network. Access to and use of electronic resources is generally governed by licence agreements with the publisher or vendor.

The ten department library funds support the cost of current journal subscriptions relating to Water Management. The Library collection also includes a considerable number of electronic journals which are part of large e-journal packages paid for through a central Electronic Resources library fund.

The collection also includes print monographs, government documents and e-books in subject areas of interest to Water Management.

The uWaterloo Library, along with the libraries of the University of Guelph (UG) and Wilfrid Laurier University (WLU), is a member of the Tri-University Group of Libraries (TUG) consortium. The collections of both UG and WLU enhance the depth and breadth of local materials available in subject areas of interest to the Integrated Water Management program.

The Library has purchased or subscribes to a range of electronic resources including research databases, full text journals, monographs, numeric data, and government publications. In addition, the Library identifies and provides access to select material freely available through the Internet. Such material includes open access journals, catalogues of libraries around the world, dictionaries, encyclopaedias, and style guides.

The following are some of the electronic resources of particular interest to the Integrated Water Management program:

- Compendex
- Environmental Science & Pollution Management
- Elsevier Science Direct
Statistics and Numeric Data

The Library provides access to GIS/mapping data for areas such as the Grand River Watershed and Southwestern Ontario. Also available to members of the uWaterloo academic community are the data holdings of <odesi>, OCUL’s digital repository for social science data (http://odesi.ca). <odesi> provides web access to resources such as the Statistics Canada surveys and datasets, including the Canadian Census, through the Library’s membership in the Data Liberation Initiative (DLI) and Canadian public opinion polls. Access is also available to the data holdings of the Inter-university Consortium for Political and Social Research (ICPSR) at the University of Michigan, in Ann Arbor, Michigan (http://www.icpsr.umich.edu/icpsrweb/ICPSR/).

Services

Access to Print Collections

The Library’s print collections related to Integrated Water Management are housed in both Davis Centre and Dana Porter Libraries. Access to the entire Library collection, as well materials held by UG and WLU, is available through the web accessible union catalogue known as Primo (http://primo.tug-libraries.on.ca).

The Library’s automated circulation system allows users to charge out materials during the hours that the Library is open (every day most weeks, with some closures between terms and during the Christmas break) and to renew items online anytime. With the exception of reference materials, most of the material in the Library’s collection circulates. Faculty, graduate students and staff may borrow most monographs for a term at a time.

The Library also delivers to faculty, students and staff copies of print journal articles from any of the uWaterloo library locations, and from the libraries of the uWaterloo affiliated and federated colleges and universities. Faculty, students and staff can also place holds on books from any of these libraries for pickup at any of the uWaterloo libraries’ circulation desks. Books and journal articles not owned by the uWaterloo Library but held by UG or WLU may be requested through TRELIS. Books and copies of journal articles are delivered to faculty, students and staff within three working days. The cost is of these services is absorbed by the Library.

In partnership with UG and WLU, the Library owns a facility, known as the Annex, which is used to house low-use research material. In keeping with the University’s research intensive status, an agreement among the TUG libraries ensures that a last copy is maintained in perpetuity. The Preservation of Last Copy Agreement can be found at: http://www.lib.uwaterloo.ca/staff/irmc/last_copy_agreement_sept06.html. As with material from UG and WLU, books and copies of journal articles housed in the Annex are made available to faculty, students and staff within three working days. The cost is absorbed by the Library. Books and copies of articles from print journals will be sent, upon request, to students living some distance from the campus. With the exception of return postage for books, the cost is absorbed by the Library.

Access to Electronic Resources

The primary tool for accessing electronic resources selected by the Library is its web site (http://www.lib.uwaterloo.ca). This site organizes and provides access to licensed resources available to only uWaterloo faculty, students and staff, as well as select Internet resources freely available to anyone. The site also provides access to electronic resources hosted by the OCUL Scholars Portal program (http://www.scholarsportal.info) and available to the uWaterloo community through the Library’s participation in consortia purchasing through OCUL.

February 26, 2013
In addition, many of our electronic resources can be found through a search of Google Scholar (http://scholar.google.com).

The Library uses linking technology (SFX) to enable users to link directly from research databases to the uWaterloo Library full text electronic journal subscription or to the TRELLiS catalogue record for holdings and call number information. The Library also provides access to bibliographic management software (RefWorks). uWaterloo faculty, students and staff may access electronic research databases and full text electronic journals from off-campus via the Library’s Proxy Server / Connect from Home feature.

**Access to Resources from Institutions other than TUG**

The Interlibrary Loan/Document Delivery (ILL) service provides faculty, students and staff with books, copies of journal articles, theses, and government documents from libraries within Canada and elsewhere. The uWaterloo Library uses OCUL’s RACER web-based interlibrary loan system (http://racer.scholarsportal.info/vdx) to facilitate ILL access and service for users. With minor exceptions, the cost for this service is absorbed by the Library.

Canadian university libraries extend in-person borrowing privileges to faculty students and staff from across the country. Faculty, students and staff are entitled to borrowing privileges at participating libraries (http://www.coppul.ca/rb/rbindex.html).

**Information Services**

Reference assistance is available in person or by telephone at the Library’s Information Desks which are staffed by professional librarians and specially trained library associates. Alternatively, uWaterloo faculty, students and staff may get reference assistance via e-mail and on-line chat available through the Ask a Librarian service (http://www.lib.uwaterloo.ca/asklib).

The Library also offers general orientation programs including tours, workshops on database searching and using the web, and seminars for graduate students. In addition, each fall the Library participates in a campus-wide orientation program for international students.

The Liaison Librarians for all departments involved are available for consultation with individuals or small groups of students. They may be contacted directly in person, by phone, and by e-mail if a personal visit to the Library is not convenient.

The Liaison Librarians are also available to work with faculty to develop course integrated library instruction in the form of lectures, hands-on instruction, web pages, or online courseware modules. Graduate students may keep abreast of new services and developments in the Library by reading news @ your library (http://www.lib.uwaterloo.ca/newsatlib) an electronic newsletter prepared periodically and distributed to graduate students via the University’s Graduate Studies listserv.

**Financial Support**

As the expenditures in Water Management are charged to any of over ten Library funds, the usual listing of the past seven years of expenditures in relevant funds has been omitted. While it would be impossible to extricate what has been spent, questions may be directed to any of the liaison librarians involved.

**Conclusion**

We believe that the library needs of students and researchers in the areas of Water Management are currently being well met by material at uWaterloo Library and complemented by what can be obtained through InterLibrary Loan.
More detailed information including lists of journals related to Water Management and the number of monograph titles in subject areas of interest to Water Management is available upon request.

I would be pleased to discuss the Library's holdings and services with the appraisers at the time of a campus visit.

Reviewed by Susan Routliffe, Associate University Librarian, Information Resources and Services for Mark Haslett, University Librarian.
Faculty: Collaborative Program (Engineering, Environment, Mathematics, Science)
Effective date: Fall 2013

Course ☒ Milestone ☐ Milestone title:
New ☒ Revision ☐ Inactivation ☐

Subject code (applicable for courses only): WATER  Course number: 601
For course revision, indicate the type(s) of changes e.g. consent, description, title, requisites:

Course title: Introduction to Integrated Water Management
Course short title: Integrated Water Management
Grading Basis: NUM
Consent Required: Department
Credit Weight: 0.50

Course description:
This course will provide an overview of various water-related disciplines, including fields within water science and engineering, water technology, aquatic and terrestrial systems and water planning and management. Lectures will cover key concepts, methods, tools and terminology from a wide variety of perspectives providing students with a multi-disciplinary foundation for communicating and problem solving in the water resources sector. A variety of water-related interactions within, and between, natural and human systems will be discussed.

Meet type(s): LECTURE READING Choose an item.
Primary meet type: LECTURE
Requisites:

Special topics course: Yes ☐ No ☒
Cross-listed: Yes ☐ No ☐

Course subject(s) to be cross-listed with and approval status:
Sections combined/heldwith:
Rationale:
As the breadth and complexity of water resources issues and challenges increases, the need for researchers and professionals who understand key concepts and terminology of various water-related disciplines, and who can effectively communicate in multi- or inter-disciplinary forums, has been widely recognized. Waterloo’s collaborative Integrated Water Management program provides a broad, multi-disciplinary foundation in water science and engineering, technology and management. The collaborative program is an extension to existing thesis- or major research paper-based Masters and PhD degree programs where students continue to obtain important specialist water knowledge. Students of the Integrated Water Management program are required to complete two 0.5 credit courses designed specifically to meet the goals of the program. WATER 601 teaches the basics of multiple water-related disciplines and identifies key interrelationships, while WATER 602 requires students to work in teams to analyze and evaluate current water issues from an integrated, inter-disciplinary perspective.
Faculty: Collaborative Program (Engineering, Environment, Mathematics, Science)
Effective date: Fall 2013

Course  ☒ Milestone  ☐ Milestone title:
New  ☒ Revision  ☐ Inactivation  ☐

Subject code (applicable for courses only): WATER  Course number: 602
For course revision, indicate the type(s) of changes e.g. consent, description, title, requisites:

Course title: Integrated Water Management Project
Course short title: Integrated Water Project
Grading Basis: CR/NCR
Consent Required: Department
Credit Weight: 0.50

Course description:
This course will address current local, national or international water issues from an integrated, inter-disciplinary perspective. Building on WATER 601 (Introduction to Integrated Water Management), students will work in multi-disciplinary teams under the supervision of a faculty member to identify issues, challenges and opportunities to effectively address current water problems integrating knowledge from a variety of perspectives.

Meet type(s): SEMINAR    READING    Choose an item.
Primary meet type: SEMINAR
Requisites: WATER 601 Introduction to Integrated Water Management

Special topics course: Yes  ☐  No  ☒
Cross-listed: Yes  ☐  No  ☐

Course subject(s) to be cross-listed with and approval status:
Sections combined/heldwith:
Rationale:
As the breadth and complexity of water resources issues and challenges increases, the need for researchers and professionals who understand key concepts and terminology of various water-related disciplines, and who can effectively communicate in multi- or inter-disciplinary forums, has been widely recognized. Waterloo’s collaborative Integrated Water Management program provides a broad, multi-disciplinary foundation in water science and engineering, technology and management. The collaborative program is an extension to existing thesis- or major research paper-based Masters and PhD degree programs where students continue to obtain important specialist water knowledge. Students of the Integrated Water Management program are required to complete two 0.5 credit courses designed specifically to meet the goals of the program. WATER 601 teaches the basics of multiple water-related disciplines and identifies key interrelationships, while WATER 602 requires students to work in teams to analyze and evaluate current water issues from an integrated, inter-disciplinary perspective.
Proposals Reviewed: September 2011 to August 2012 (September 2010 to August 2011 in parentheses)

UARC reviewed a total of 87 (79) proposals for regular faculty appointments. Of these [32 (29) females, 55 (50) males], 13 (10) were for tenured, 62 (56) were for probationary, and 12 (13) were for definite-term appointments. More detail is provided in the table in this report. For comparison purposes, the total number of proposals reviewed in recent years was: 86 (2005-06), 90 (2007-08), 58 (2008-09), 58 (2009-2010) and 79 (2010-11).

Administration
The Summary of Recruiting Efforts for UW Faculty Positions form which chairs / directors are required to complete can be found at: http://www.secretariat.uwaterloo.ca/forms/facultyappts.htm

UARC Members during 2011 - 2012
Jack Callaghan (AHS), Jennifer Clapp (Env), Kenneth Davidson (Math), Andrew Faulkner (Arts), Doreen Fraser (Arts), David Fuller (Eng), Mario Gauthier (Science), Ellsworth LeDrew (Env, chair), Catherine Rosenberg (Eng), Gerry Schneider (Eng), Keith Warriner (Arts)
SUMMARY OF PROPOSALS FOR REGULAR FACULTY APPOINTMENTS
of duration two years or more
REVIEWED BY UARC
September 2011 to August 2012

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</table>

Of the 77 who accepted offers, 28 were female, 49 were male. Of the 10 who declined offers, four were female, six were male.

5 March 2013

Ellsworth LeDrew
Chair, UARC
Striking the Right Balance

Pathways to happier and more productive faculty members at the University of Waterloo

PREPARED BY THE UNIVERSITY OF WATERTO WORKING GROUP ON WORK LIFE BALANCE FOR THE PROVOST AND THE PRESIDENT OF THE FACULTY ASSOCIATION

October 31, 2012
Committee: David DeVidi (Chair)
Diana C. Parry
Tara Collington
Jennifer Clapp
Steve Brown
Striking the Right Balance
Pathways to happier and more productive faculty members at the University of Waterloo

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<td>SITTING CHAIRS AND ASSOCIATE DEANS RECEIVING OPAS, BY FACULTY AND YEAR</td>
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<td>FEMALE WINNERS AND TOTAL WINNERS OF OPAS, BY FACULTY AND YEAR</td>
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Executive Summary

The University of Waterloo has as its mission “the pursuit of learning through scholarship, teaching and research within a spirit of free enquiry and expression.” This makes it clear that the University cannot succeed without dedicated and productive faculty members, for it is the faculty members who have primary responsibility for the scholarship, teaching and research the University does—though, obviously, the University’s staff and both graduate and undergraduate students also play an essential role. A job offer from a university to a faculty member is often the beginning of a relationship that will span decades. It is clearly in the interests of both the University and individual faculty members that faculty work in conditions that allow them to become productive early in their careers and maintain this productivity over the long term. Doing so entails putting in place policies and practices that will allow faculty members to maintain a satisfactory balance between their work and the rest of their lives at every stage of their careers.

Since both the University and the Faculty Association recognize the importance of such issues, they agreed at the Faculty Relations Committee that the Provost, in consultation with the President of the Faculty Association, should implement the recommendations of two earlier working groups that reported in 2009: that a Working Group should be struck to investigate two related matters, namely work/life balance issues for faculty members, and whether there are structural features of the methods used to determine compensation for faculty members which give rise to salary anomalies.

The resulting Working Group reviewed the research literature on work/life balance, particularly as it applies to faculty at research intensive universities and other similar professions, and investigated policies and practices at other universities similar to Waterloo. We provided several opportunities for individual faculty members to have input, including an opportunity to react to some of what we heard in earlier rounds of consultation. We sought input from those able to provide the perspective of colleagues serving in academic administrative roles, especially Chairs and Deans, and sought detailed feedback in focus groups with faculty members. From this feedback and research, we identified recurring themes and developed a number of recommendations that the committee feels would make an important contribution to enabling faculty members to combine productive careers with satisfactory lives away from work.

We have organized our discussion and recommendation into several sections. First, we consider work/life issues particularly relevant to particular stages in the relationship between faculty members and the University: recruiting, early career, and later career stages; we then examine particular challenges to satisfactory work/life balance at Waterloo, namely workload, the tenure process, and interlocking issues to do with the service component of faculty work, the merit review process and promotion to Professor. We then consider more purely administrative matters that will help the institution provide a workplace conducive to work/life balance: how academic administrators are selected, trained and supported and specific recommendations for policy and practice. We also include a section dealing with the other aspect of the Working Group’s mandate, salary anomalies and related issues.

We have made a significant number of recommendations. Some require a modest investment of resources. Several others involve reorganizing how some things are funded (e.g., replacement teaching for faculty who take compassionate care leave). Many would require no investment beyond what it would take to change a policy or practice. We think all of them are cost-effective and of benefit both to faculty members and the university.

We gather all our recommendations into a single list as Appendix B, for convenience of reference.
1. Introduction

A job offer from a university to a prospective faculty member is often the beginning of a relationship that will span decades. In a collegially governed institution like a university, one expects that faculty members will adopt the interests of the institution as their own to a significant degree, and that the university will see its faculty as something more than replaceable working parts. Nevertheless, it is useful to consider this long-term relationship in terms of what each party hopes to attain from it.

- The university wants faculty members who will help it to accomplish its mission of providing scholarship and teaching of a high order for the good of society. Faculty members also play an essential role in the governance and management of the university. The faculty members are, in a sense, the front-line workers in any university, since it is they who actually carry out the teaching and research---with, of course, the essential support of staff and students, especially graduate students. It is therefore in the interest of the university to make investments and put in place policies and practices that will make these essential contributors as productive as they can be, and do so in a way that will allow them to have the greatest productivity as teachers and scholars over the entire span of this decades-long career.

- For most faculty members, partnership with the university provides an opportunity to pursue what are usually personally rewarding activities, including a research program over which they have considerable control and teaching in a field meaningful enough to them that they spent many years earning a PhD in it, and by doing this work to make an important contribution to society, and perhaps to the world.

There are many aspects of the work of a faculty member that make it rewarding, but it is also demanding and stressful. It's a job that can be part of a satisfying and productive life but it threatens to become the whole of a miserable one.1 It is therefore entirely appropriate that a Working Group on work/life issues and salary anomalies should be jointly appointed by the University of Waterloo and the Faculty Association.

The ability to maintain a satisfactory balance between one's work and the rest of one's life is a pressing one in many professions, and has become an increasing topic of discussion in the academic world.2 There is a growing body of evidence that suggests that it is the perception that it is impossible to have a satisfactory balance between work and the rest of one's life that drives many talented young people, but especially young women, away from academia.3 This not only pushes talent away from academic careers, it perpetuates a situation in which highly remunerative and prestigious careers are more available to one group than another based on a factor, gender, that should be irrelevant. As organizations committed to fairness and social progress, neither the University of Waterloo nor its Faculty Association should want to have any part in allowing this to continue and should be committed to taking steps to do their part in changing it. But the importance of addressing these issues is clear even apart from a general commitment to justice. The importance of such balance to individual faculty members we think obvious, since it clearly has an

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1 Miserable? Some may suspect overstatement in support of a turn of phrase here. But the effects of poor work/life balance on quality of life are real. As a major Canadian study on the matter states, what the report calls “work/life conflict” “impairs an employee’s health (both physically and mentally), reduces participation in and enjoyment of family roles, negatively impacts family members’ abilities to enjoy and nurture their families, is associated with reduced fertility, and significantly increases health care costs.” (Work-Life Conflict in Canada in the New Millennium: Executive Summary, available on the Health Canada web site, http://www.hc-sc.gc.ca/ewh-semt/pubs/occup-travail/balancing_six-equilibre_six/sum-res-eng.php.)

2 See Anne-Marie Slaughter’s recent article, “Why Women Still Can’t Have It All” (The Atlantic Magazine, July/August 2012); see also the report “The Problems Faced by Academics at Various Stages in Their Careers – The Need for Active Institutional Involvement”, by COU Academic Colleagues Patrick Oosthuizen, Linda McKay and Bob Sharpe (2005).

influence on job satisfaction and quality of life, not just for the faculty member but also for their families. Addressing balance is important to the University because of its importance to its ability to recruit desirable faculty, and to meeting its goals by boosting the long-term research and teaching productivity of faculty. Serious attention to these issues by an institution like a university sends the message that it cares about its employees as people, and not merely as means to some larger goals, and gives substance to the idea that we are a community of scholars working together in the pursuit of important goals. Such a view is the sort of motivation that can make a person productive in the long term in a way that will more than repay the short-term financial costs that might be involved in providing the support a faculty member needs at some stage in her or his career.

It is tempting when hearing about work/life balance issues to think of early-career faculty members with young children. But such issues can and do arise at every stage of an academic career. After a brief description of the process that culminated in this report, we address some of the challenges that arise at different stages in the faculty-university relationship, and recommend some actions for each. We then consider issues that makes work/life balance a challenge for faculty members at every career stage, namely the sheer volume of work involved in being a successful academic, the changing nature of academic work, and the tendency of the job to encroach ever further outside the bounds of “the normal work week.” We then turn to issues of a more procedural nature relevant to the mandate of this working group, including tenure and promotion, performance reviews, the salary structure, the recruiting and selecting of academic leaders, and specific policy recommendations.

To keep our report to a manageable length, we have provided only a brief description of some of the thinking that has led us to our recommendations. Our view is that there is little profit in presenting a wish list of recommendations that might be possible at an institution without the resource constraints currently facing a publicly funded university in Ontario. We feel that the recommendations below are plausible and indeed would be good investments that will enhance the long-term productivity of faculty members by: increasing job satisfaction and decreasing stress-related illnesses; resulting in better decisions about tenure and promotion; and making better appointments to academic leadership positions.

2. Process

The Faculty Relations Committee passed a motion in May of 2011 that the Provost and the President of the Faculty Association (FAUW) should set up a Working Group to investigate both work/life balance issues for faculty and issues surrounding salary anomalies, particular for female faculty. (See Appendix C). The then Provost and FAUW President, Geoff McBoyle and George Freeman, met to agree on a list of faculty members to serve on the committee, and the Provost approached them in October 2011. The Provost arranged for Institutional Analysis and Planning (IAP) to provide research support to the committee, while the FAUW President arranged for office and supplementary research support to be provided by FAUW staff.

The Working Group met for the first time in early November 2011 to determine the processes it would use. The Group agreed that its report should be informed by: existing research literature, information about what is in place at other universities (and in other relevantly similar organizations) and whether it is working; and feedback from the University of Waterloo community. The Group therefore decided to begin by working on two fronts. First, a list of issues identified by Working Group members as in need of attention was divided into broad categories. Each category was assigned to a faculty member of the Working Group, who was assigned the task of researching the issues in that category, with particular attention to whether other universities had approaches to the issues that were worth emulating. The research was facilitated by support from IAP. Supplementary research support was provided by the FAUW office, which has other sources of information about practices at other Canadian universities and how well
they work. Secondly, all regular faculty members and academic librarians were asked to complete an electronic survey. The primary purpose of the survey was to uncover other pressing issues Working Group members were not aware of and to gather information about local priorities. The survey received about 160 responses. (The questions are listed in Appendix C.)

After this preliminary research stage, the Working Group met a number of times and held electronic discussions. As a next step, the Working Group decided to seek more in-depth feedback from people well-positioned to have informed perspectives on particular issues. This phase of the research had three parts. First, from among the respondents to the electronic survey who said they were interested in providing further input, faculty members were selected for participation in three focus groups. The focus groups took place in early June 2012. Each was devoted to a different set of issues relevant to the work of the committee: early career issues; compassionate care and late career issues; and workload and policy issues. Second, department chairs were asked to participate in an electronic survey. Twenty-two Chairs responded. Third, in-person interviews were carried out with all six Deans. (The starter questions for the focus groups and the meetings with Deans, as well as the questionnaire for Chairs, are included in Appendix C.)

After considering the information gathered through these avenues, the Working Group identified some likely recommendations and some areas for which further research would be useful. The further research included working with IAP to gather data about merit scores in order to produce better-informed recommendations about salary anomalies. It also included one more electronic survey in the summer of 2012 in which all regular faculty and academic librarians were asked for reactions to some claims we had heard during our earlier consultations. In spite of the awkward timing of this survey (August), over 70 people responded. Finally, a number of drafts, several meetings and many electronic discussions among committee members have resulted in this report.

3. Recruiting-related issues

Both because the University of Waterloo prides itself on being a leader among academic institutions and in order to be competitive for the best available research and teaching talent, it should ensure that its policies and practices are competitive and progressive. The research literature shows that younger PhD students, especially women, assign a higher priority to work/life balance than was the case with earlier generations of scholars, so some Waterloo policies inadvertently may be harming our ability to recruit candidates if they do not enable the kind of balance that candidates are seeking. To take a concrete example, members of the Working Group have had to discuss the financial implications of Waterloo’s requirement that employees be employed at UW for six months before they are eligible for parental leave top ups with job candidates who were pregnant when they were interviewed or discovered they were pregnant at the same time they received their job offers. For some of these candidates, who were at a career stage where they were not yet earning large salaries, these dollar amounts involved would have constituted a real hardship, so this policy provided the candidates with a strong incentive to stay where they were. On the other hand, the dollar amounts involved were small by the standards of the University, being for instance a mere fraction of the pay the same professor would be earning two decades later.

Young scholars often base decisions about what jobs to take on the employment prospects available to their spouses. It is very common for young academics to have academics as partners. A recent study puts the percentage of tenure track faculty who are married to another academic researcher at 36%–34% of men and 40% of women. The same study finds that 20% of tenure track men and 5% of tenure track women have stay-at-home partners, while 21% of

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4 This is a point emphasized by Anne-Marie Slaughter, “Why Women Still Can’t Have it All”, The Atlantic, July/August 2012.
women and 10% of men are single, and 36% have partners who work in non-academic fields. For a significant portion of candidates, then, a decision about whether to accept an academic position includes consideration of whether it is possible to find work for both partners in the new location, and in about half of those cases the obvious potential workplace is the same university.

The issue of spousal hiring is extremely divisive, judging by the responses in our consultations. There is a common view that spousal hiring involves hiring on grounds other than merit. There is concern that an “accompanying spouse” will not be treated as an equal by colleagues, and that such hiring makes it impossible to have sensible hiring plans since it is not always predictable what field the spouse of a desirable candidate works in. On the other hand, some recently hired faculty expressed unhappiness with the support provided to them by the University regarding finding spousal employment. Some who managed to secure a spousal appointment under the University’s policy expressed dismay specifically with the three year contract provided to their spouse, suggesting that the effect was that both partners had to stay on the job market. This had a deleterious effect on both their ability to do their jobs and their ability to settle into a stable life away from work. Others felt the University could have done more to help their spouse find non-academic jobs locally or could have provided more help with immigration issues. Finally, the strict provisions of the current spousal hiring policy make it very difficult for the University to recruit high profile couples to Waterloo, raising the temptation to misuse or overuse the "exceptional candidate" provisions of the hiring policy.

The difficulty of acquiring daycare spots, especially for infants and toddlers, was a frequent source of complaint in the Working Group’s consultations. While the plan to build a daycare on campus with more spaces is a very welcome development, there are many other low-cost initiatives the University could take to improve the work/life balance for many faculty members. The Bright Starts daycare cooperative that will operate the new daycare centre is a natural partner for these initiatives.

Recommendation 3.1: (a) The requirement that one be employed at Waterloo for six months prior to receiving the family leave top up should be eliminated. Serious consideration should be given to whether the requirement for remaining employed at Waterloo for six months after a leave serves any purpose. (b) Costs of replacement teaching for faculty on parental leave should be centrally funded, since the requirement for departments to fund the teaching disadvantages both the members of small departments and the departments themselves, because these units have less flexibility to make special arrangements.

Recommendation 3.2: While the new daycare building and partnership with Bright Starts Child Care to increase the number of infant and toddler spaces at Waterloo is an important step, it should be seen only as a first step. The University should work with Bright Starts or find other partners that will enable it to provide flexible child care options: access to short-term, emergency care when a caregiver is sick and part-time spots, short term places when university business requires being away from campus, etc. For these to be viable, they will need some subsidy from the University. Parking services should provide preferred spots to parents of young children who are likely to have to come and go frequently from campus.

Recommendation 3.3: Improve the support available to newly recruited faculty and their families, providing better support on immigration issues and with helping non-academic spouses find suitable local employment.

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6 Though the same research shows that over 60% of academic couples work in the same general field of inquiry. See Shielinger et al., p. 30.
Recommendation 3.4: Deans’ Council and the Faculty Relations Committee should carefully reconsider the merits of the current spousal hiring policy as a mechanism for recruiting early career faculty. They should consider in particular whether the restriction to three year limited-term contracts is in the University’s interests or whether a more flexible policy that enhanced the ability to recruit and retain couples would have more benefits than costs overall.

Recommendation 3.5: The University and Faculty Association should negotiate a more flexible spousal appointment policy suitable for recruiting couples where both members are already established scholars. Safeguards should be written into the policy and the practice for its implementation to ensure that such appointments are in the interest of the University and of the academic units involved. For instance, requiring that such positions result in an additional line for the "receiving department" (i.e., in effect, that the spousal appointment be centrally funded) would ensure that the Provost approved such appointments with due caution, and ensure that such appointments are not only a realistic possibility in large departments. Requiring that the DACA of the "receiving" department be able to interview the candidate, and evaluate the candidate’s qualifications to ensure consistency with the department’s research direction and expectations for quality of colleagues should ameliorate concerns about being "force-fed" a candidate.

4. Early Career Success

It is important to recruit high quality faculty members. But it is equally important to ensure that the University gives them the best possible opportunity to succeed once the effort and money has been invested in recruiting them. Some issues here are complex, but it is especially important that the University address the problems faced by faculty, especially female faculty, on the tenure clock. To not do so is to risk losing the important contributions talented faculty members might have made to the University either because they leave academia of their own accord or because they did not get tenure because the tenure rules were insufficiently flexible to deal with the complications of their lives over a few years early in their careers.

While hard data is not available, it is certainly the impression of many people who spoke to us that having a parental leave while on the tenure clock can have a negative impact on a professor’s productivity (and so on prospects of achieving tenure), especially for female faculty who still, on average, are more heavily impacted by parental duties than males. Various mechanisms were suggested to us that might plausibly be part of the explanation of why this is so. Particularly (but not exclusively) in disciplines where research is laboratory based, it can take considerable time to get research projects running in a way that produces publications in significant numbers, so a year’s leave while on the tenure clock can mean that publications that are on their way have not been published by the time tenure decisions are made. It was an important step when the University changed its maternity leave policy to a parental leave policy. However, the Working Group heard from some faculty members than they felt that some fathers used parental leave as a way to have non-teaching research time, which was less likely to be possible for mothers. The result, it was suggested, is that Chairs sometimes wondered why female faculty returning from parental leave had not published anything during their “time off,” and that external referees for the tenure process might not take their leaves sufficiently into account when evaluating research output. We heard from some faculty that the key to research success, in the eyes of their departments, was participation in research teams; however, these teams often met at times convenient for senior members (whose families were grown, for instance) but impossible for those with the obligations that come with having a young family. Similarly, the effect of a leave on the research of faculty members whose research involves setting up a lab and keeping it running can be dramatic, and the time-crunch involved in setting up a lab while on a reduced load upon returning to work after a leave can be impossible to sustain.
We have framed this discussion in terms of family leaves, but the modifications suggested here will also address related concerns the Working Group has for those who, for instance, become ill while on the tenure clock.

**Recommendation 4.1:** (a) The University should make more effective use of the flexibility in its existing policies to make suitable arrangements for faculty who take family leaves while on the tenure clock, and should centralize funding for such options so that their availability does not depend on the size or wealth of the department; (b) The University should modify key policies and create new programs that will improve the ability of those with young families to achieve tenure while maintaining Waterloo’s existing research and teaching standards; (c) The University should clarify some existing policies where ambiguous wording sometimes creates unnecessary barriers to sensible arrangements for those on the tenure clock.

We have listed examples for all these sorts of recommendations in Appendix A.

### 5. Other career stages

It is common for discussions of Work/Life Balance to focus on the challenges faced by those with young children. But the difficulty of maintaining a healthy balance between a demanding professional job and a satisfying life away from work exists throughout people’s careers. There are other events that have occurred or can be expected to occur for most faculty members which will make work/life balance as acute a challenge as it was when their children were young.

The Working Group heard from many faculty members about such things as the lack of fitness facilities available to faculty on campus that are not shared with undergraduate students, the lack of adequate facilities for parking bicycles, and so on. To stick with the fitness facilities example, the Working Group agrees that the opportunity to include fitness activities into a busy work schedule is important for maintaining health and to work/life balance. Without intending to suggest these are less important issues, which have surely become more acute with the recent decision to close the Columbia Lake Health Club in the Research and Technology Park, we think that they are not best dealt with by specific recommendations from us. Instead, we draw the attention of both the University and the Faculty Association to the importance of these issues as matters for negotiation over working conditions: there should be more to collective bargaining than discussions of salaries.

While not every faculty member faces the challenge of balancing career pressures with raising children, most at some point in their careers face the complications that come with the need to care for aging parents. Some of these issues will be predictable but protracted: decisions about parents moving to assisted living facilities, the complications of a parent giving up driving, and so on. Such events involve significant time commitments for faculty members. They are also a source of stress, the reaction to which is hard to predict but which will sometimes result in acute episodes that will affect performance and judgement. Other events, such as health crises, can arise without notice. These are difficult to work through for faculty members, who often live far away from their parents. And, of course, crises need not only involve aging parents, but can involve such matters as accidents or sudden illness for grown children or spouses, or sudden marital breakdown. There are no limits on the complications and heartaches life can generate.

There is currently a six week eldercare leave available to faculty members through the Canadian government. However, the paperwork for it is burdensome and the requirements for accessing it make it useful only in a very restricted range of situations: it is available only in the case of a spouse or parent who is within six months of dying (which itself also a hard matter to predict).

It is the opinion of the Working Group that the single most important factor for helping faculty members cope successfully with this sort of issue is that the “managers” involved, i.e. the Chair and the Dean, be people of good will
and good sense. Similarly, within academic units, it is important that there be a spirit of willingness to pitch in within departments to help colleagues in distress. We have made recommendations in Section 9 about attracting and selecting Chairs with the appropriate qualities. We have also made recommendations about ensuring that the reward structure on campus is not one that encourages a culture of selfishness in Sections 8 and 10. But there are some concrete steps the university could take to enable Chairs of good will and good sense to make good arrangements.

**Recommendation 5.1:** The University should implement a “top up” policy, similar to its current maternity leave policy, to provide one term of salary replacement for faculty members on compassionate leave. Accessing it should be straightforward, since people need it in times of high stress.

**Recommendation 5.2:** The University should have centralized money to pay for short term, short notice teaching replacements for faculty who must take compassionate leaves on an emergency basis, so that the flexibility of Chairs is not dependent on the size and resources of the department. When the level of need in a particular term is unpredictable, money should be invested in creative ad hoc arrangements, e.g. TAs whose assigned duties include covering classes when necessary but are otherwise defined by the Chair, so this labour can be used to accomplish something else in the department.

Faculty members with small children or those with other dependants who need care sometimes must pass up research opportunities, such as trips to important conferences, because they cannot afford or cannot arrange care for those dependants while they are away. For those with Tri-Council grants, it is possible to claim some expenses related to child care when traveling, but coverage is not uniform. Moreover, the people who most need or might most benefit from such support are often those who have not yet managed to acquire a Tri-Council grant, and in any case with recent changes of approach to funding by the Tri-Council agencies, especially NSERC—awarding fewer, larger grants—a greater number of faculty members are likely to find themselves without tri-council funding.

**Recommendation 5.3:** The Provost should establish a small working group to investigate what sorts of dependant care claims in support of research activity are supported by various granting agencies and at other universities. This working group should (a) recommend the terms of a pilot project that enables all Waterloo faculty members to have access to dependent care at a level the group judges to be “best practice”; (b) recommend metrics by which the success of the program will be judged when a decision is made about its continuation.

**Recommendation 5.4:** The Faculty Relations Committee and the Pension and Benefits Committee should regularly compare the provisions of Waterloo’s parental and compassionate care policies to those of competitor universities and make changes to ours to ensure competitiveness.

### 6. Workload Issues

The ability to balance one’s work commitments with the rest of one’s life is largely determined by objective factors such as the availability of child or elder care when you need it, and the expectations of one’s job. It can be a source of stress for faculty that job expectations are not clearly defined—for instance, the amount of research productivity that amounts to satisfactory, excellent or outstanding performance is not (and, given the importance of quality and not just quantity in such evaluations, perhaps cannot) be explicitly stated, and the number of hours that counts as "enough" is nowhere specified. A recent study published by the Organization for Economic Cooperation and Development defines “long working hours” to be anything over 50 hours per week, and notes a strong negative
correlation between long working hours and the satisfaction with elements of work-life balance. Most of the faculty that the working group consulted with reported an average work week exceeding this number. In this respect, Waterloo faculty members are typical of faculty members at research intensive universities, and of those in many other professional occupations.

In addition to these objective factors, perceptions of fairness are also important and cannot be ignored. For example, if expectations for service fall disproportionately on some faculty, but time spent on service activities draws less recognition and is less valued than time spent, for instance, on research, the effect is that those faculty face a difficult choice: accept slower career progress than that achieved by colleagues who are working no more hours or spend more hours than their colleagues in order to progress at the same rate. Either choice will be a source of anxiety for a typically ambitious faculty member. It is important that the distribution of duties not only be fair and equitable, but also that it be seen to be fair and equitable.

The job of a professor is a well-compensated professional position. It is no surprise to anyone that it is hard work, and we heard no feedback at all that suggested anyone expected to work less than very hard indeed. On the other hand, faculty members greatly value the considerable flexibility that the job provides to arrange their various work tasks. In our consultations many people voiced concerns that the workload expectations were reaching excessive levels and the ability to arrange one’s many working hours in a reasonable way are under threat. The expectation that one should be available to students and to respond to emails from administrators in evenings and on weekends and a perceived increase in the number of “events” (meetings, recruiting fairs, etc.) that take place outside the normal work day were often mentioned.

There is widespread, deep concern about the implications of the implementation of the new scheduling software system, in part because it threatens to lessen the ability of faculty members to arrange their schedules in ways that suit their many obligations. Many faculty perceive that an increasing amount of administrative work is being downloaded to them---extra (arguably unnecessary) committee meetings, and more onerous financial reporting requirements and increasing amounts of routine paperwork, for instance. This work increasingly fills their days, and the inevitable spread of formal and semi-formal work duties into evenings and onto weekends is problematic, since evenings and weekends are already being spent on research and marking duties that no longer fit into “normal business hours.” There is a growing sense that there are not enough hours in the day to complete all the tasks that are required of faculty members if they wish to be perceived as excellent at what they do.

The issue of rewarding some sorts of work more than others, even though all are officially part of every professor’s job, was a consistent theme in faculty feedback. As noted above, this was especially pronounced with respect to service work, and there was widespread perception of a gendered component to these issues. A number of respondents mentioned that women are expected to be nurturing, cooperative, and team players by their chairs and so are simply expected to carry a heavier service load which is not suitably compensated. This is consistent with

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8 The sociologist Jerry Jacobs and his collaborators have written extensively about the workload of faculty members. A useful, readable summary of some of his findings is his presidential address to the Eastern Sociological Society in 2003, published as “The Faculty Time Divide” in Sociological Forum (March 2004) 3-27. Their findings are that full-time faculty members at all institutions work an average 53 hours for female faculty and 55 hours for males per week, which is longer than the average professional or manager in other fields (e.g., 46 hours per week for males). At research intensive universities the averages were 54 and 56 hours per week. Over 70 per cent of full professors work more than 50 hours per week, and about 40 per cent work more than 60 hours per week. They found little variation in the average work week by rank. For professional occupations in general, a 2006 study by Sylvia Ann Hewlett and Carolyn Buck Luce found that 62% of “high-earning individuals” in the U.S. worked over 50 hours per week, and 35% worked more than 60. (“Extreme Jobs: The Dangerous Allure of the 70-Hour Workweek,” Harvard Business Review, Dec. 6, 2006).
research about differential expectations by managers in many fields based on gender.\(^9\) But even aside from these differential expectations, it is unquestionable that many women faculty, especially but not only Professors,\(^10\) are vulnerable to high service expectations simply due to the existence of many policies at the university that many important committees have representation of both men and women. Female faculty members---especially Professors---are in short supply at Waterloo. The shortage is especially acute in three of our large Faculties, which puts a great demand on the few female Professors in them. But in the other large Faculty, Arts, which has many small units, and in the smaller Faculties, even though the percentage of female faculty is somewhat higher the ratio of committees to faculty members is higher, so it is also a significant problem there.\(^11\) There are two obvious approaches to solving this problem. The University can either ensure compensation and recognition for this important work, or it can reduce the requirements for gender representation. The Working Group does not recommend the latter option, in part because some of the feedback we received made it clear to us that at the University of Waterloo we are far from being in a position to assume that female representation on committees won’t make an important difference. We note, as one instance from many we might have selected, a respondent to one survey---from a Faculty where 85% of regular faculty are male---who referred, apparently without irony, to men as “the invisible sex” at Waterloo.

**Recommendation 6.1:** Where policy now requires gender representation on committees, those provisions should be maintained. For other committees, (e.g. Tenure and Promotion Committees) where representation of both genders is merely called “desirable”, the policies should be modified by the Faculty Relations Committee to make it a requirement. At the same time, the Provost and Deans’ Council should ensure that they and the Chairs take steps to ensure that: these tasks are distributed widely among women faculty; these important roles are recognized and rewarded in the Annual Performance Review process; women who take on such roles are compensated by having other service jobs assigned to male faculty instead.

**Recommendation 6.2:** Ensure that, apart from occasional teaching of evening classes, the scheduled activities that are part of the job for faculty members can be met during normal business hours. For instance, other than exceptional and voluntary activities, service activities (including meetings) should take place during normal business hours, and attention should be paid to finding ways to ensure proper consultation while minimizing the number of meetings people must attend. Lunch hours should also be respected when scheduling meetings, as research indicates that a proper break for lunch improves productivity.\(^12\) The new scheduling system should take into account the needs

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\(^9\) This is not the place for a comprehensive review of the literature, of course. But a useful review of one approach to the question, via so-called “impression management” theory, is Rosanna E. Gudagno and Robert B Cialdini, “Gender Differences in Impression Management in Organizations: A Qualitative Review,” *Sex Roles*, 2007. The authors’ view is that “women are expected to be more communal and men are expected to be more agentic.” The article includes useful references to other literature that documents, for instance, the “Backlash effect” according to which females who engage in self-presentation methods that are successful for males in professional contexts can be punished for doing so because it violates gender norms, and that women are more likely to be punished for violating gender norms than men.

\(^10\) While it is common at Waterloo to use the expression “Full Professor,” Waterloo’s official regular faculty ranks are Lecturer, Assistant Professor, Associate Professor and Professor. (The qualifier “Clinical” can be applied to any of these ranks.) We will usually use the official name for the rank in this report, and count on capitalization and context to distinguish references to (full) Professors from references to faculty of professorial rank.

\(^11\) As is made clear in the University’s Annual Performance Indicators. In Chapter 4 of the 2011 Indicators http://analysis.uwaterloo.ca/pubs/pi/2011%20Performance%20Indicator%20Report.pdf, Waterloo’s rate of about 25% female faculty members is by far the lowest of the U15 research universities in Canada (McGill is second lowest, at over 30%). The percentage of women faculty members in Engineering, Mathematics and Science at Waterloo are 14%, 19% and 23%, respectively. Across campus, only 15% of Full Professors are female.

of faculty members to be able to carry out all aspects of their jobs (e.g. by preserving days without in-class commitments so it is possible to do some research during the day); set reasonable expectations for availability to students (e.g., set a normal time for responding to an email), and do not provide additional rewards for (and so incentivize) being more accessible than those reasonable standards.

Most Ontario universities have contractually determined normal teaching loads for all faculty members, often the same across the university (as at Laurier, Carleton, UOIT, Lakehead) or at the unit level (Western, Queen's, Ottawa). This certainly aids transparency. Of course, teaching load is not the entire story. There are many factors that go into determining an equitable distribution of duties within a department. Moreover, what those factors are varies considerably between Faculties and departments. To take one example, some junior faculty members in some Faculties feel disadvantaged because they are consistently assigned large enrolment courses, which are more work to teach and for which student evaluation scores are typically lower. But faculty members in some other Faculties prefer the larger courses, because they come with TA support, or because they involve using different evaluation metrics (exams instead of essays to mark, for instance) and so are actually less work. But unfair distribution of assigned tasks, or even perceived unfairness, is something the University must address. [We note that the previous Working Group on the APR process made recommendations designed to ensure that Chairs and merit committees have relevant evidence about how class size (and other factors besides teaching quality) affects student evaluation scores. We encourage the University and the Faculty Association to work to ensure that those recommendations are implemented.]

**Recommendation 6.3:** In departments that do not already have them, establish normal teaching loads. Where graduate supervision varies considerably among faculty members, ensure that this activity is taken into account when determining workloads, in a manner acceptable to the regular faculty in the department. Ensure that assignments are transparent, and that faculty members are entitled to an explanation of why their assignment is as it is.

### 7. Tenure

For many faculty members, their time as probationary faculty members is the most stressful of their careers. The period of probation for faculty members is longer than for professionals in most other fields. This, combined with the fact that failure to be awarded tenure at the end of the probationary period often means an end to a person’s academic career is in and of itself stress-inducing. For beginning faculty, these pressures are combined with the challenges associated with learning to balance the demands of: 1) full-time teaching, 2) establishing a research profile (which often also involves building infrastructure, such as a lab) quickly enough to have results published in time for tenure review, and 3) participating in university service. For many faculty members, there are also the heavy demands of starting or raising a family while on the tenure clock. Work/life balance is both very important and very difficult when juggling the various aspects of one’s personal and professional life.

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11 Whether these faculty members are right about this claim is not obvious. In a review of the literature about teaching evaluations for the Higher Education Quality Council of Ontario, “Student Course Evaluations: Research, Models and Trends,” Pamela Gravestock and Emily Gregor-Greenleaf note that while some studies show that smaller courses often receive higher evaluations there is some dispute about whether the difference is significant and about whether it results from faculty doing a better job of teaching in smaller classes. In spite of these caveats, they conclude that “because instructors may not have much agency over class size, care should be taken to either contextualize class size in evaluation data reports or to make sure that instructors whose results are being compared also have comparable average class sizes” (p.40). This conclusion certainly seems like the least that should be done at Waterloo, where there is evidence that class size does correlate with scores, at least in some Faculties. For instance, in the Faculty of Arts in Fall 2009, the average score on course questionnaires (out of 5) in classes of 4-10 students was 4.51, while in classes of over 100 students it was 4.05.
During our consultations, there was considerable discussion of the idea of extending the tenure clock at Waterloo, a suggestion supported by five of the six Deans (though, interestingly, only 3 of the 22 Chairs who responded to our survey). As we describe below in our discussion of leave policies [see Section 10], in our consultations we heard that, especially for female faculty, a parental leave while on the tenure clock was related to a reduced likelihood of achieving tenure. This echoes the important research of people like Mary Ann Mason, including in her well-known paper “Do Babies Matter,” which showed that having children, particularly early in a career, can severely damage the academic job prospects of women, but it can be a boon for men, and that the worst time to have a baby for women hoping to acquire a tenure track job and eventually receive tenure is within five years of earning a PhD. The gap is especially pronounced in Science and Engineering, where there is a 24% gap between women PhDs who have “early babies” and eventually receive tenure compared to male PhDs who do so.14

The question of whether or not to extend the tenure clock is particularly complex. We heard two main arguments in favour of extending the clock. First, in our consultations we heard some suggestions that doing so would improve work/life balance for pre-tenure faculty, presumably by providing more time for the impact of the break induced by takingleave (e.g., loss of research momentum) to be overcome. The second argument related to the fact that Waterloo’s tenure clock is shorter than that at many research universities, especially in the United States, and that this disadvantages Waterloo faculty since we often approach professors at those schools for referee letters as part of the tenure process.

The Working Group also heard from many other faculty members that increasing the normal time-to-tenure would have (or would have had) a significant negative impact on their work/life balance. As mentioned, time on the tenure clock is perceived by many as the most stressful time of one’s career. Many faculty members make decisions about when to have children based on the timing of tenure and, given the age at which academic careers typically start, an extra year of waiting can have fertility implications. Moreover, the suggested work/life benefits of extending the tenure clock are more effectively addressed directly by adjusting policy and practice. We suggest some possible adjustments in Appendix A

Likewise, some of the worry about American referees not understanding that the tenure clock is different at Waterloo could be alleviated by adjusting the letters sent by the Deans to external referees in the tenure process. How much of the problem is that we ask referees whether the candidate would receive tenure at their home institution? How sensible a question is that when the referee might be at a school where, for instance, a classical studies professor teaches two courses a year while such a professor teaches five courses a year at Waterloo, and when the dossier the referee sees includes almost no information about the candidate’s teaching or service activity?

Recommendation 7.2 therefore addresses matters less directly related to work/life issues in order to make sure our tenure processes are as fair and effective as they can be, as the committee repeatedly heard that concern regarding the tenure process were the greatest contributor to work-related stress. For instance, rather than merely sending a copy of the tenure policy to referees, key details such as the length of the tenure clock, or, in the case of clinical faculty or others with unusual research profiles, the flexible definition of scholarship in Waterloo’s policies, should be indicated in the Dean’s letter; the letter could also include Faculty or Department or candidate-specific information relevant to evaluating a candidate’s research output, such as standard teaching loads, number of new courses prepared, etc.

Recommendation 7.1: The tenure clock should not be extended across the board on the basis of purported work/life balance benefits. Even if the tenure clock is extended for other reasons, changes to increase the flexibility of the timing before tenure should be implemented.

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Recommendation 7.2: The Faculty Relations Committee, with input from Deans’ Council and the Faculty Tenure and Promotions Committees, should update the template used by Deans for letters they send to external referees as part of the Tenure and Promotion Process. Work/life balance related issues such as developing standard wording to ensure that a year of leave does not simply result in referees expecting an extra year’s worth of research output should be one important part of a larger review of existing policies and practices.

8. Service, Merit and Promotion

As noted in the discussion of workload (Section 6), issues surrounding the differential expectations for service between different faculty members and the lack of rewards for those actively participating in service were the most common source of dissatisfaction expressed in our survey of faculty. An important subset of these complaints had to do with the evaluation of service, both as part of the merit process and for tenure and promotion.

There are several complicating factors for this discussion. First, it is important to note that in the feedback to the Working Group there was a significant disparity between the impressions of regular faculty as compared to those of Chairs and Deans. Most Chairs (14 of 22) felt that service was appropriately valued by the University, and the Deans seemed to express the view that the University did pretty well when it came to allocating service tasks equitably. In our survey and focus groups, regular faculty painted a very different picture, describing the systematic undervaluing of service at a time when service demands seem to be steadily rising. Female faculty members often reported being overloaded with service, including being offered significant service/administrative positions such as Associate Chair early in their careers. In Section 11 we describe some evidence that some service does seem to be recognized, namely that carried out by Chairs and Associate Deans, but that few female faculty members have held such roles since 2004. Faculty of both genders feel that much service goes unnoticed and unrewarded, especially what is sometimes seen as "low level" service such as advising students, answering questions, or sorting out problems that arise suddenly in a department, which fall on those who work in their offices and keep their doors open. The Working Group on the Annual Performance Review Process recommended that “good citizenship” be recognized in the merit process in part to ensure that “invisible” service can count. It is not clear that this is sufficient to address the problem.

Many faculty members indicated that, although service accounts for 20% of their job description, it does not seem to factor into tenure and promotion decisions, and that it doesn’t make much difference to pay either---since Teaching and Scholarship evaluations count for 40% of a merit adjustment, a difference of 0.25 in Service scores makes only half as much difference as a difference of 0.25 in Teaching or Scholarship. Still more problematic is the suggestion that there is little difference in the merit scores awarded those doing very large amounts of service and those doing the minimum satisfactory amount.

Some faculty told us of being informed by chairs that external service---to the profession, or to the community---"does not count" in the merit process. Where this happens, it is not only a clear violation of university policy, but is contrary to the University’s goals as such service raises the standing of Waterloo in society and in international academic circles. External service must count. At the same time, all faculty, including high profile faculty with international connections, should be required to help carry the load of internal service.

Some senior faculty reported noticing a worrisome trend in junior faculty: unwillingness to take on internal department and university service responsibilities because they are aware that it will play little or no role in securing tenure and promotion. The habit of “opting out” is unlikely to suddenly turn around once tenure is achieved if career
rewards continue to depend on research (and perhaps on teaching) but not on service. This trend away from university service will have a serious impact on the University’s future ability to govern itself. As noted elsewhere in the report (Section 9), the Working Group is particularly concerned with the position of Department Chair, which may become increasingly difficult to fill. It should also be noted that the view among Chairs was not uniform, as eight felt that service was undervalued, and some expressed the view that the current system rewards those who “dump” service responsibilities onto other colleagues in order to have the sort of productive research careers that are rewarded by the University while making no meaningful contribution to the functioning of the institution. As some faculty members pointed out, a 2.0 in Service is only worth as much as a 1.0 in Scholarship or Teaching.

Further complicating matters is the variation between large and small departments and disciplinary differences. For instance, some Chairs suggested that some problems could be mitigated if untenured faculty were explicitly barred from holding Associate Chair positions and only (full) Professors were allowed to chair departments. The first is sometimes impossible in even medium-sized departments if there has been a cluster of recent retirements and replacements, while the latter, as noted [see Section 9] seems ill-advised if we want to ensure that Chairs with appropriate personal qualities are put in place. This problem may be especially acute in disciplines where promotion to Professor on average takes longer, e.g. in the “book based” disciplines in the humanities, with the result that the supply of Professors is smaller. Moreover, while the main complaint heard about service was its overabundance and its consistently falling on the same people, the Working Group heard from a few members of large departments that it was difficult to find opportunities to do service within their units because the same few faculty members were regularly assigned the key service duties.

Finally, even among those who feel that service is significantly undervalued, there was concern that neither tenure nor promotion to Professor should be awarded “for service,” i.e., clearing each of these bars should reflect high achievement as a teacher and a scholar, not merely as an administrator. While we agree, it is the view of the Working Group that the reward structure is out of balance, and in particular that it is very counter-productive for the University to have a reward structure that punishes those who do the administrative work that allows others to thrive by strangling the career progress of the service-oriented.

**Recommendation 8.1:** Faculty Relations should amend Policy 77 to recognize the fact that it is sometimes in the interest of the University for Associate Professors to take on important service roles (e.g. as Chairs or Associate Deans), and that in these cases faculty members willing to take on these important roles for the benefit of their colleagues ought not to be punished for doing so. We suggest wording to the effect that when people who perform strongly in these administrative roles have their scholarship and teaching evaluated for promotion to Professor, “expectations for quality remain unchanged, though expectations for quantity should be adjusted accordingly.”

**Recommendation 8.2:** Deans’ Council should ensure that the recommendations of the Working Group on the Merit Review Process for Faculty designed to better recognize different levels of service contribution are being put into effect. This includes the recommendation that in annual performance reviews the range of scores is sufficiently wide to recognize the different levels of service contribution made by different members within a department, and the recommendation that when faculty members take on significant service jobs it is a routine matter that they are offered a chance to adjust their merit weightings.

**Recommendation 8.3:** The Provost and Deans should work to ensure that “invisible” service work is rendered visible and is appropriately recognized in the APR process (in particular by ensuring that there are real differences in merit scores between those doing a lot of service, including service that does not come with official titles and committee memberships and those doing much less). The Faculty Association should be making the case to its membership that provisions ensuring that this happens ought to be written into each department’s merit documents.
9. Selection of Chairs and Senior Administrators

Fortuitously, as the Working Group was carrying out its research, the Faculty Association’s Status of Women and Equity Committee brought Linda Duxbury of Carleton University, a highly regarded expert on work/life balance issues, to Waterloo. In her sessions, the point Duxbury emphasized above all others is that while it is very important to have good formal policies, what determines whether individuals have satisfactory work/life balance, more than anything else, is the quality of their managers. Since for most faculty members the relevant “manager” is the department Chair, the quality of the work done by Chairs is crucial to any attempt to do improve work/life balance for faculty (and, incidentally, for staff who work in departments as well).

Unfortunately, judging by what we heard from faculty members, not all Waterloo Chairs perform well on this score. We will address the question of providing training and information for Chairs in the next section. But it is important to note that merely providing information to someone who lacks empathy or good people skills will not by itself make much improvement. The Working Group heard some alarming accounts from faculty about the reactions they received from their Chairs when, for instance, approaching him---a large majority of the Chairs are male---about an impending parental leave (ranging from the first reaction being to exclaim “Oh shit” to telling the faculty member she would be responsible for arranging her own replacement teaching). Being a good Chair requires many skills. Empathy and people skills are among them. Unfortunately (more so in some parts of the University than others) the criteria used when selecting Chairs---for instance, having an outstanding research profile---are not reliable indicators of the skills needed to do the job well. Moreover, the job itself is often perceived as an unrelenting source of heartache that provides little in the way of compensation, so people with the skills to be good Chairs do not find the job attractive. Finally, especially in small departments there can be a shortage of suitable candidates for the Chair position, and these are also the units where the University is less likely to agree to fund a position to recruit a new Chair from outside the University.

There are also important work/life issues involved in the selections of more senior academic leaders at the level of Dean, Vice President or higher. One issue highlighted by Ann Marie Slaughter---formerly Dean of Princeton’s Woodrow Wilson School of International Affairs and from 2009-11 Director of Policy Planning in the US State Department---in a much discussed article in The Atlantic is that female academics, and increasingly males who become more involved in the lives of their families when they are young, are not likely to pursue the positions that put them on the traditional track to senior academic jobs when their families are young. Members of the Working Group have seen first-hand the effect delaying entry onto the administrative track, for instance for family reasons, has on the prospect of someone being seen as a viable candidate for a senior administrative appointment. Committees seeking Presidents, Provosts, Vice-Presidents or Deans often are on the lookout for “go getters” with an “upward trajectory” and who show “leadership qualities”---early success as a researcher, appointment as a Chair at a young age, then as a Dean, ideally moving from place to place to demonstrate suitable “ambition.” Older candidates are sometimes dismissed as seeking a “swan song” or a “ride into retirement.” We find the argument of Ann Marie Slaughter that this definition of a successful career arc is “well suited to the mid-20th Century, an era when people had their kids in their 20s, stayed in one job, retired at 67 and were dead, on average, by age 71,” but which is now out of date. One might well expect women (and men deeply involved in child-rearing) who have their children between the ages of 25 and 45 to be ready for positions of maximum demand and authority when their children are leaving home, and so will

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15 Duxbury is widely published on work-life matters. She is perhaps best known as the co-author, along with Christopher Higgins of the University of Western Ontario, of a series of three large-scale national studies of work/life issues in Canada over the past two decades. The 2012 National Study on Balancing Work and Caregiving in Canada has just been released. We quoted an earlier study in footnote 1.

16 Slaughter, op cit.
be “peaking” in their late 50s and 60s instead of between 45 and 55. (Incidentally, insofar as the qualities of “a real leader” are understood in stereotypically masculine terms, these qualities are probably counterproductive in an academic context, where collegiality, teambuilding, and the ability to persuade rather than command are the paramount skills of successful leaders.) This, coupled with the fact that it is plausible that people likely to have the empathy and people skills required to become good academic leaders are unlikely to be those who single-mindedly pursue career aspirations rather than devoting time and attention to their families, mean that it is in the interests of the University to take steps to remove roadblocks to successful careers in academic leadership for those who do not climb onto the administrative track at the start of their careers. These roadblocks are surely gendered in their effects, i.e., more likely on average to rule out women than men from leadership roles, but they also affect male faculty members who make such choices early in their careers.

Recommendation 9.1: Take steps to make the Chair job more attractive to suitable candidates. Consider implementing the recommendation of the Working Group on the Merit Review Process for Faculty of making a portion of the stipend permanent (e.g., 12.5% of the stipend could become permanent for each year in the chair, so someone filling the full eight years receives 100% of the stipend as a permanent adjustment to salary). But also consider ways to make the job itself more enjoyable and rewarding, such as involving a larger role in leading the University and administrative restructuring to lessen the amount of paperwork and drudgery.

Recommendation 9.2: The policies governing the selection of Chairs, Deans, and Vice Presidents should be reviewed by the Faculty Relations Committee to ensure that the criteria by which good candidates are to be judged give due emphasis to the human qualities and attitudes of the candidate. A list of guidelines and advice for members of nominating committees for roles at the level of Dean or higher, with information about different career arcs successful academic leaders can have and the variety of successful leadership styles one sees in academia, should be prepared and adopted by Faculty Relations and Deans’ Council.

For senior academic positions, relevant experience is expected by nominating committees. Many faculty members with the required skills do not have the experience of being Chair, and so are not seen as plausible candidates for senior academic roles at the level of Dean or higher. There are other jobs on campus besides being a Chair that could provide relevant experience, for instance the various Associate Vice President roles in Needles Hall. However, several of the positions in Needles Hall do not have fixed terms. Changing this would enable a wider range of talented faculty members a chance to acquire administrative experience, and would also ensure a regular supply of fresh ideas in the central administration.

Recommendation 9.3: The Faculty Relations Committee and Deans’ Council should review the job descriptions held by faculty members (or retired faculty members) at the level of Associate Vice-President or Associate Provost and higher and, except in cases where there is a strong reason for not doing so, rewrite them so that they are term-limited positions from which the incumbent would normally be expected to return to the regular faculty ranks.

10. Providing Information

Even the best intentioned Chair will not make much difference without good information about options in policy and practice. Providing good information is challenging because situations that require the Chair to be involved in accommodating the needs of a faculty member happen infrequently. The University has an ongoing training program for Chairs, and the Faculty Association conducts sessions to inform faculty members on policy questions. We heard concerns from various quarters about this training, both with respect to its quality and with the fact that some Chairs do not take part. Nevertheless, these initiatives are important, and should be enhanced. But while useful, the work/life balance relevant topics covered in such training will not be immediately salient for most people attending
them, and so details may not stick in their memories. Such training remains important nevertheless if certain alarming and embarrassing problems reported to the Working Group are to be avoided: faculty members being required to find people to cover their teaching when they go on parental or compassionate leave, the need to accommodate the needs of those going on leave not being recognized by colleagues, and so on.

In our focus groups, one thing that became very clear to us is that the information about compassionate care is very hard to access on the University website. People reported having had to chase down information by calling various government agencies to find out the sorts of leave they were legally entitled to, and that it was very difficult to find out from the university how that related to the provisions and practices on campus. Similar problems were certainly prevalent with respect to the family leave provisions until a few years ago, but the Human Resources web site for parental leave has since been dramatically upgraded.

**Recommendation 10.1:** The University should invest in improving the quality of training Chairs receive, implementing best practices employed at other universities.

**Recommendation 10.2:** (a) The University should establish a position in the Human Resources department with special expertise with respect to policy and practices to do with the family leave, compassionate leave, temporary workload and other work/life relevant policies. This expertise should extend beyond the details of the policy to include knowledge of creative uses made of policy options across campus. The person in this position will be available to advise Chairs when they are approached by faculty members in need of assistance. (b) The Faculty Association should establish as a key role of one of the staff members in the FAUW office the role of advising faculty members on these matters. (c) The University and Faculty Association should work together to ensure that the key contact people for Chairs and individual faculty members are providing consistent information.

**Recommendation 10.3:** The University has recently improved the information available about family leaves on the HR website. The information about compassionate care leaves should be similarly upgraded so that faculty (and staff) members can find a clear presentation of both the legal and policy provisions for such leaves.

11. **Salary Anomalies and Related Issues**

In 2008-09, the University established two working groups as a result of negotiations with the Faculty Association, one investigating salary equity for women faculty, the other the annual performance review process for faculty. Both of these working groups made recommendations intended to address some of the factors they identified as sources of recurring salary anomalies for women faculty at Waterloo. These recommendations included: eliminating the practice of awarding a score of 1.0 as a default on first year merit reviews; eliminating the practice of awarding low merit scores in the first years of employment, then gradually increasing them as the tenure decision drew nearer; closer attention to consistency in starting salaries; using the average of the previous three years of merit scores to determine the merit score for people on leave; ensuring that merit scores for teaching and service vary as much as scores for scholarship, and making use of a greater range of scores in all three areas of evaluation; recommending to those taking on heavy service tasks that they adjust their weightings for Teaching, Scholarship and Service away from the standard 40%/40%/20%, as is provided for in section 13.5.5(b) of the Memorandum of Agreement; and implementing a method in all the Faculties for identifying salary anomalies, to be applied on a regular basis to all regular faculty members, so developing problems can be addressed in a timely way. The Faculty Relations Committee has endorsed most of these, either by explicit changes in policy or by mandating a change in practice.

The recommendation about implementing a common method for identifying potential anomalies is worth special comment. In our interviews with Deans, we encountered some resistance to the suggestion. Some Deans noted that
there are many factors to be weighed when deciding whether a particular salary is anomalous, and felt that the fact that they regularly look over all the salaries with an eye to identifying anomalies, or that Chairs are asked each year to identify anomalies in their units, are sufficient safeguards. While we do not think a purely mechanical method for addressing anomalies, one that entirely removes human judgment from the decision, is advisable, we think a more systematic approach is necessary. The social psychological literature on implicit bias makes clear that there is no need to postulate either ill-will or carelessness on the part of decision-makers for bias to creep into a decision-making process. Standards of judgment of even the most enlightened judges vary with the gender, race, age, or other performance-irrelevant characteristics of those being evaluated.\textsuperscript{17} In recommending explicit processes for judging what is anomalous, we do not question the good will of current Deans; instead, we do so as a way of recognizing that Waterloo has long had Deans of good will, but has needed to have Working Groups to investigate salary anomalies for women faculty every decade or so, and the Working Groups have always found a significant number of such anomalies to address.

With the assistance of Institutional Analysis and Planning, the Working Group looked at some summary data pertaining to the annual merit review process and related issues, particularly those related to possible systemic matters that contribute to gender-based salary anomalies or to matters related to the other issues that arose in our research for this report. While both the median and mean merit scores were slightly lower for women than for men both overall and in each of Teaching, Scholarship and Service (e.g. a median overall score of 1.60 vs 1.65 overall) the difference is not statistically significant.\textsuperscript{18} However, in each of Service, Teaching and Scholarship males were more likely to receive scores of 2.0 than females. For each category, the same percentage of men and women received a score of either 1.75 or 2.0, in all cases because a larger percentage of males received a score of 2.0 while a correspondingly larger percentage of females received 1.75. The difference for Teaching and Service are not large: for Teaching, 19% of men received scores of 2.0 compared to 13% of women, while 36% of females and 31% of males received scores of 1.75. The difference for Service is 28% of male and 23% of female faculty receiving scores of 2.0 while 25% of females and 21% of males received scores of 1.75. The largest difference is in scholarship, where 25% of males and 14% of females received scores of 2.0, while 29% of females and 22% of males received scores of 1.75.\textsuperscript{19}

Some information in the IAP data suggests that some of the recommendations of the earlier Working Groups are not currently being implemented. Most obviously, the recommendation to use a greater range of scores is not being implemented. For teaching, 83% of faculty members receive a score of 1.5 or higher; for service, 77%; for

\textsuperscript{17} The evidence on the existence of implicit biases, i.e. that even those who sincerely and explicitly pronounce themselves holders of egalitarian views make judgments that accord with stereotypical views based on gender, race, sexual orientation, and so on, is by now overwhelming. Judging, though, by the number of people who still hear suggestions for measures to control against such biases as a personal affront, the phenomenon is not as well-known as it should be. A substantial body of research is concerned specifically with the academic context---there are several well-known studies that show that the very same CV is more highly rated if it has a male name on it than if it has a female name, for instance. There are many useful bibliographies on line. One such is at http://www.biasproject.org/recommended-reading.

\textsuperscript{18} The difference in merit score by gender appears larger for Scholarship than for the other areas: for males and females respectively, the means for Scholarship are 1.494 and 1.428, while for Teaching they are 1.608 and 1.599, for instance. But this difference is largely attributable to the greater proportion of female faculty who get a 0 score for Scholarship while holding appointments with a 0 weighting for Scholarship: about 9% of female faculty hold such positions, compared to about 6% of males. Similarly, the difference in mean scores for Scholarship compared to teaching are largely related to the greater proportion of faculty members with 0 weightings in Scholarship compared to teaching. There are other differences, such as differences between ranks with Professors on average getting higher scores than other ranks and there being proportionally fewer females at the Professor level that are also relevant to any residual difference.

\textsuperscript{19} This data was not broken down by Faculty. It is worth noting that the mean overall score in Mathematics (1.52) is lower than in any of the other Faculties, where the means tend to be around 1.64.
It is notable that this pattern occurs in Service, where at least many of the people who responded to us felt women carry a disproportionate share of the load. (See Section 8.) The large difference in the percentage of 2.0 scores for males and females for Scholarship may be related to the difference in the number of OPAs awarded to men and women—-if for no other reason than because one must have a merit score in the top 20% in one’s department to be a candidate for an OPA. Some of the higher percentage of males receiving scores of 2.0 is due to the much greater likelihood of Chairs and Associate Deans receiving scores of 2.0. While among those not holding such positions only 4.8% received an overall score of 2.0, fully 32% of Chairs and Associate Deans did—that is, 32% of Chairs and Associate Deans received a score of 2.0 in each of Service, Teaching and Scholarship. Holding one of these significant Service roles raised the likelihood of receiving a 2.0 in Service to 90% (compared to 22% of others). Perhaps more surprising, holding one of these roles doubles the chances of receiving 2.0 in Scholarship (from 21% to 42%) and almost triples the chances in Teaching (from 16% to 42%). At least since 2004, in all Faculties except Engineering the percentage of female faculty occupying the role of Chair or Associate Dean is markedly smaller than the percentage of female faculty members—-though Engineering also has the lowest proportion of female faculty members. (See Appendix C.)

Other data provided in the IAP analysis shows that 77% of all faculty members have a Service weighting of 20%. Those who have higher Service weightings tend to have higher overall scores as well. This snapshot does not by itself show whether the recommendation that those about to take on a heavy service task be reminded of the option of changing their weightings is being followed. It does suggest, though, that those who do take advantage of the provision benefit from doing so.

The IAP analysis makes clear that scores for Assistant Professors are lower than those for Professors, Associate Professors, Lecturers and Clinical Lecturers in both Teaching and Service, and are lower than those for Professors and Associate Professors for Scholarship. The 2008-09 Working Group recommended eliminating the practice of giving low scores to pre-tenure faculty in their first years in order to ensure an “upward trajectory” in the merit scores at tenure time. This data suggests that the recommendation is not being implemented. One factor that may explain part of the difference is Chairs giving high scores to Professors with salaries above the thresholds that are part of the salary structure so that the Professors will receive some merit increase, at least.

The Outstanding Performance Awards that were introduced to the faculty compensation process in 2004 are the subject of considerable controversy on campus. Some faculty who provided feedback to the Working Group feel that they reinforce counter-productive and selfish behavior by faculty members by, for instance, putting them in competition with their colleagues. Several respondents suggested that OPAs have not been distributed appropriately between men and women, so the Working Group did some investigation. We found that in almost every Faculty, female faculty won OPAs in lower numbers than their percentage in the Faculty. Some Deans described a practice

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20 While these numbers may suggest that it is still easier to get a low score in Scholarship, once again the existence of a significant number of faculty appointments with a 0 weighting for Scholarship is relevant, since it is a large part of the reason that 9% of female faculty and 7% of males received a score of 0 for Scholarship. Deeper investigation would be needed to disentangle whether the recommendation to use similar ranges of scores in all three areas is being followed.

21 Others include Chairs being reluctant to give high scores pre-tenure because “it is equivalent to granting tenure” since merit scores are part of the T&P file. In some Faculties which adhere to targets for average merit scores—-something the data suggests only Mathematics is doing—-part of the explanation might be that experienced faculty members who have roughly the same performance year after year would expect to get (and might get) the same merit rating leaving little room for higher ratings for younger people. However, these are just the sorts of considerations the recommendations of the earlier Working Group were suggesting needed to be prevented from influencing the process any longer.

22 For each Faculty, the percentage of female OPA winners for the years between 2004 and 2011 (i.e., those awarded between 2005 and 2012) vs. the percentage of women faculty members in 2011 as stated in the University’s Performance Indicators are
of using OPAs to address salary anomalies, since the anomaly pot available as part of the salary process described in
the Memorandum of Agreement is too small to do so. According to the Memorandum of Agreement (13.3.3e),
“The primary criteria [for determining the recipients of OPAs] will be outstanding performance in teaching and in
scholarship.” That these criteria do not include performance in service is, some respondents argued, problematic in
various ways. First, another respect in which the OPAs might encourage selfish behavior is by encouraging avoidance
of service work in favour of research and teaching, effectively ‘dumping’ the service tasks onto others. Secondly, as
noted elsewhere in this report, service loads tend to fall disproportionately of female faculty, which then places them
at a disadvantage when it comes to winning OPAs. It was suggested that Deans ignored these criteria and instead used
the OPAs to reward Chairs and Associate Deans for taking on those challenging roles. Since the final point might
appear to be in tension with the preceding one, because awarding OPAs disproportionately to Chairs and Associate
Deans might seem to be a way of rewarding service, the Working Group did some investigation of this matter. What
we discovered was that in every Faculty Chairs and Associate Deans were two to three times as likely to receive
OPAs as those not currently in those roles; but this does not reward female faculty for Service work, since the roles
of Chair and Associate Dean have rarely been held by women at Waterloo. Finally, as noted a few times above,
female faculty make up a disproportionately small fraction of the Professors at Waterloo, so if the OPAs are awarded
more often to Professors this might explain the greater frequency of males winning them. If this is so, though, it is
not clearly consistent with the Memorandum of Agreements stipulation that Deans should “dispers[e] the awards
across Faculty units, ranks, and to both women and men.”

There is evidence that faculty with different family obligations have differing career-long patterns of productivity. Many faculty members who are extremely productive early in their careers level off in later years, while many who
begin relatively slower because, for instance, they are carrying heavier family obligations often have their peak years
of productivity once their children are older. The end result is comparably productive careers. The Working Group
decided to investigate whether different career arcs were likely to result in significantly different lifetime earnings or
final salaries for people with comparably productive careers. For instance, if we imagine two 30 year careers, one of
which receives a merit score of 2.0 for 15 years followed by 15 years of 1.0 compared to a career that begins with 15
years of 1.0 followed by 15 years of 2.0---we assume an average merit score of 1.5 in the Faculty each year, a starting
salary of $80,000 in 2012, a 2% scale increase each year, and no Outstanding Performance Awards---the fast starter
has much higher lifetime earnings ($450,000 more over the career), but the slow starter will finish with a higher final
salary (by $20,000) because of the effects of the thresholds. This higher final salary would result in a higher pension

as follows: AHS 25% female OPA winners vs 36% female faculty members: Arts 33% vs 39%; Engineering 16% vs 16%;
Environment 24% vs 34%; Mathematics 16% vs 19%; and Science 23% vs 29%. These overall numbers are skewed somewhat
by the striking figures for 2008, when only 7 of 70 OPAs were awarded to women (and three out of 55 outside of Arts).
25 See section 13.3.3(d). Each year a fund equal to five percent of the “selective increment” (i.e. merit) pool in each Faculty is
made available to the Dean to address salary anomalies. The data is presented in table form in Appendix C.
24 We calculated the percentage of “person years” spent in Chair and Associate Dean roles for women in each Faculty between
2004-05 and 2011-12. For Chairs: AHS 21%, Arts 20%, Engineering 27%, Environment 4%, Mathematics 0%, and Science 4%;
for Associate Deanes, AHS 21%, Arts 25%, Engineering 15%, Environment 16%, Mathematics 14% and Science 3%. (We did
not have complete data for 2012-13, but there were some signs of change for this year---right now, two of three Associate Deans
in Environment and 7 of 16 Chairs in Arts are women.) The data are presented in table form in Appendix C.
23 Much of this research arises as parts of explanations offered for the so-called “productivity gap” between male and female
faculty. Early studies showed that male professors published at greater rates than females; a body of literature developed in
response that tried to determine what part of this gap could be accounted for by various factors such as difference in appointment
type, level of commitment to teaching, access to research networks, and so on. Some recent work suggests that, at least for top
journals, the level of productivity is the same, once participation rate in the academic work force is factored in. Among the
results in such studies is that female academics “peak” later, in terms of publication, than males. A useful survey is included in
It is worth noting in this connection that if it is true that Chairs sometimes give artificially high scores to faculty members who are past the thresholds to ensure that they receive some merit increase, early strong performance followed by lesser performance will likely receive higher scores than the opposite pattern. We have not tried to take such factors into account in our models.

**Recommendation 11.1:** Faculty Relations, with the assistance of IAP, should investigate whether recommendations implemented or mandated in response to the previous Working Groups are being followed in practice. Where they are not, they should investigate the reasons for the failure and take steps to assure implementation. Faculty Relations should also consider other recommendations not yet implemented, such as moving to merit reviews every second year for tenured professors and continuing lecturers.

**Recommendation 11.2:** Implement the recommendation of the Working Group on Women’s Salary Equity that a common methodology be developed for identifying potential salary anomalies, and apply the process to the salary of every regular faculty member on a regular basis. The decision on whether a genuine anomaly exists should not be merely mechanical, and may be left in the first instance at the discretion of the relevant Dean. However, those identified as having a potential anomaly should be notified that this was the case, and should either receive a salary adjustment or a clear explanation of why their salary is not actually anomalous. There should be some mechanism for appealing such decisions.

**Recommendation 11.3:** Faculty Relations should conduct a thorough review of the OPA program. This should begin with an evaluation of the purpose of the program, including a weighing of the currently official purpose of the program against the goals pursued by the Deans in practice (such as addressing salary anomalies), and an investigation of whether the OPA program or anything like it is the best way to spend salary dollars to achieve those goals. If something like the OPA program remains after this review, the criteria and process for winning the awards should be more transparent, and the criteria should be modified so that outstanding service contributions are grounds for receiving an OPA, and it should be recognized that not all outstanding service involves holding a position such as Chair of Associate Dean.

**Recommendation 11.4:** Well in advance of the next salary negotiations, the University and the Faculty Association, at Faculty Relations, should discuss the current overall salary structure, including the interaction of thresholds and career-long patterns of productivity and the potential effects of the cap on pensionable earnings especially for younger faculty. In particular, the appropriateness of differences in lifetime earnings for people with similar lifetime productivity should be considered, and if it is judged problematic potential smoothing mechanisms to address the difference should be considered.

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**Appendix A: Policy Housekeeping**

We include in this section recommendations of two sorts. Some we regard as policy housekeeping. These include things such as known examples of policy language that is unclear and so subject to application that is inconsistent or contrary to the intentions of the policy, or simple policy changes that seem to us uncontroversial beneficial. Other

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26 At least it would if the pension cap moved sufficiently over the next 30 years. As it stands now, both these faculty members, with relatively low starting salaries and achieving, over their careers, average performance review scores, will have more than 1/3 of their salaries, which finish at $275,000 and $295,000, above the pension cap and so receive no pension for that income. If the lesson for the compensation structure specified in the Memorandum of Agreement is not obvious, this should make obvious why attention to the pension cap issue is a pressing matter.
recommendations are more substantial. These include, for instance, recommendation of practices that seem to us to be consistent with existing policy, are not currently common practice, but that would be beneficial both to the individuals to whom they apply and to the University.

Allow policy to be followed:

A theme raised by several respondents to our calls for feedback is that there are several provisions in Waterloo’s policies that are well suited to allowing people to attain better work/life balance, but that faculty members, especially early in their careers, are discouraged by Chairs or Deans from making use of them. For instance, Policy 3 (the sabbatical policy) includes the provision that “Faculty members holding probationary appointments may apply for a special early sabbatical at full salary rather than at 85% of salary; this sabbatical would normally be completed during the fourth year of probationary appointment.” During our consultations we heard from people who had been told by their Chairs that “this provision is intended for people who are struggling,” or had been otherwise discouraged from taking advantage of this provision. We also heard from faculty who would have liked to avail themselves of the provision in Policy 59 for a temporary reduced load, either when their children were small or when a family member became ill (but death was not imminent and so the compassionate leave policy did not apply), and were met with disapproval from the academic administrators they had to approach to discuss the prospect. In some parts of the University, fixing this may involve a change in the prevailing culture, and so will involve clear and consistent messaging from the most senior academic leadership.

**Recommendation A.1:** Ensure that the legitimacy of taking advantage of the early sabbatical provision is recognized across campus. [This should be part of Chair training (see Section 10) and, insofar as advice not to take advantage of these provisions in motivated by concerns about whether external referees will take leaves and reduced loads properly into account in tenure decisions, it is a motive for the revisions to the templates for Deans’ letters (see Recommendation 7.2a).]

We turn next to provisions of particular policies, and their relationships to one another.

**Fractional Loads:**

Note 3 of Policy 3 (Sabbatical and other leaves for faculty members) describes how faculty on a reduced work load accumulate sabbatical credit. It says:

> Sabbatical credits for those on reduced or fractional-load appointments are earned in the normal six-year period, but prorated in the same way as the work load. For example, a faculty member on two-thirds load would earn either a six-month sabbatical leave at normal salary (i.e., two-thirds of nominal salary) or a twelve-month sabbatical leave at 85% of normal salary, after six years of service.

The choice of example here is problematic, because it assumes that the reduced load was consistent throughout the six years of reduced or fractional load. In practice, some faculty members have been told that this means that their sabbatical pay is determined by their load at the time of starting the sabbatical, so if they have reduced from a full load to a 50% load in year five, their sabbatical pay is 85% of 50% of their nominal salary. This makes little sense as an interpretation of “prorated in the same way as the work load,” and we suspect that a faculty member who increased workload from 50% to 100% in year 5 would not receive 85% of 100% of her or his salary while on sabbatical. Simply adding a second example to the policy could forestall such confusions.
**Recommendation A.2:** Add to the end of note 3 in Policy 3: “a faculty member on 75% load for two years, 100% load for two years, and 50% load for two years, would be eligible for a six months leave at 75% of nominal salary [(2 x 75% + 2 x 100% + 2 x 50%)/6], or a twelve-months sabbatical at 63.75% (i.e., 85% of 75%) of nominal salary.”

**Temporary reduced loads:**

There are also various problems with respect to temporary reductions of workload. First, Policy 76, Section 4 says “Faculty members who desire a temporary reduction in workload should apply for a partial leave of absence; see Policy 3.” There is no description of a partial leave of absence in Policy 3. Presumably at some point Policy 3 was revised and this provision was moved to Policy 59, which has a section called *Other Temporary Reduced Workload Arrangements,* with no corresponding adjustment to the wording of Policy 76.

The relevant section of Policy 59 states:

Staff or faculty members who wish to devote increased time to family or other outside interests during a portion of their careers may apply to reduce their daily, weekly, monthly or annual period of work to as low as 50% of that for a full-time position. Normally, such arrangements will be considered for approval for a period of at most two years but may be extended by mutual agreement to a maximum of four years in total. Continuation beyond four years will normally be on a fractional-load [see Policy 76 (Faculty Appointments)] or regular part-time appointment [see Policy 54 (Definition of Staff)].

The Working Group has two concerns with this policy.

First, the wording “a maximum four years in total” is ambiguous because it might mean (a) that a single reduced load arrangement normally lasts at most four years before it is switched to a permanent fractional load arrangement, but it also might mean (b) that in any faculty member’s career a maximum of four years on reduced load is available. The former is arguably reasonable. If the latter reading is intended, it seems both unnecessary and harsh, since it means that someone who takes such leave early in a career and who later has, for instance, a spouse who becomes debilitated and therefore needs extra care for a period of time may be forced into a fractional load.

Secondly, nothing in Policy 59, nor in Policy 3 or 76, explains how a temporary reduced load affects the tenure clock, nor do they explicitly state the proportions of teaching, research and service that comes with a reduced load. The closest Policy 76 comes is when it says:

*A fractional-load appointment* is a regular faculty appointment that carries the same distribution of duties in teaching, scholarship and service as does a regular full-time appointment, but the total commitment of time to the University is not as great. Fractional-load appointments can be made at any fraction of total load (normally at least 50%) that corresponds to a practical assignment of University duties. A faculty member who holds a probationary-term appointment on a fractional-load basis is entitled to formal consideration for reappointment or tenure at the same fractional load.

But a temporary reduced load is not a fractional load appointment. The Working Group feels that the wording about distribution of duties for fractional load appointments would serve well for temporary reduced loads as well. On the other hand, it makes little sense for someone first appointed to a full-time position and who intends to return to full time work to go through a tenure process in which people are asked to evaluate a file for a fraction of an appointment. Instead, it makes better sense to extend the time to tenure decision.

**Recommendation A.3:** Faculty Relations should: (a) make the various policies referring to temporary reduced loads consistent; (b) eliminate the suggestion that there is a career maximum of four years of temporary reduced load
available to any individual professor; (c) make explicit that a temporary reduced workload arrangement carries the same distribution of duties in teaching, scholarship and service as does a regular full-time appointment; and (d) write into policy an automatic extension of the tenure clock so that faculty who take temporary reduced loads while holding probationary appointments have their time to tenure consideration extended proportionally to their reduced-time.

**Pregnancy and Parental Leaves (Including Adoption):**

Policy 14, Section 3 says, in part:

> A faculty member returning from pregnancy, adoption or parental leave should be required to teach in no more than two of the ensuing three terms (see, also, Policy 77). Teaching duties will be reduced in proportion to the length of each pregnancy, adoption or parental leave. For instance, a six-month leave would imply a reduction in teaching duties equivalent to 50% of the faculty member's annual teaching load. The actual sequence of teaching and research terms will depend on individual circumstances, and will be determined in consultation with the Chair and Dean. During these discussions, the overall impact of the leave and reduced teaching load on total research time and sabbatical duty cycles should be addressed.

We think at least two aspects of this paragraph need to be addressed. First, the intention of the sentence about the reduction of annual teaching load should be clarified—we have heard of people arguing that what is intended is, for instance, that someone with a normal teaching load of four courses per year should have reduction of two courses in the 12 months after their return to work. Certainly, that is not what most people who take parental leave receive. Secondly, the provision that requires tailoring the sequence of teaching and research terms to individual circumstances in consultation with the Dean and Chair is one that provides useful flexibility. However, in practice, the amount of flexibility available to individual faculty members depends on the size of and resources available to the academic unit in which they work. Our recommendations on this matter will require setting aside some money centrally to remedy this uneven playing field.

**Recommendation A.4:** Write clearer wording about the impact of parental leaves on expected teaching loads upon return to work. Set up a central fund to cover the cost of short-term teaching in departments where faculty members take pregnancy, parental (or indeed compassionate) leaves. Set up provisions for “course banking”, so that people can, for instance, teach extra courses in anticipation of a leave or in the first term or two after a return from leave, or can “owe” courses for up to two years. Ensure that the language in this section of policy clearly indicates that teaching assignments upon return from leave are to be designed to maximize the teaching and research productivity of the faculty member in the several years after the return to work. In particular, it should recognize that in some disciplines it will be most beneficial to have no teaching upon return, while in others it will be best to return to work with a heavier teaching load in exchange for more non-teaching terms later on.

**Recommendation A.5:** Use the experience of the centrally funded “course banking” as a test case to see whether a more general course banking program for faculty is feasible and desirable.

The final section of Policy 14 states:

> Employees have the right to regular pregnancy, adoption or parental leaves as described in this policy. Alternative leave arrangements (e.g., when an employee wishes to continue working in order to complete a project) must be in the best interests of both the employee and the University and must be approved by the Vice-President, Academic & Provost. Employees considering alternative arrangements should consult Human Resources regarding EI benefits eligibility.
We heard from many faculty members, especially those whose work is lab based, that the nature of their research makes taking a genuine parental leave impossible without doing irreparable harm to their research careers, with the result that they continued to work a partial load on an informal basis while ostensibly on leave.

**Recommendation A.6:** The Provost, in consultation with the President of the Faculty Association, should strike a working group to investigate whether some “alternative arrangements”, as contemplated in Policy 14 would be of benefit to sufficiently many faculty members that they should be written into Policy 14 as options available to all, rather than special arrangements. [This investigation may be a natural second task for the working group described in Recommendation 5.3, though it would need additional support from HR for considering the EI and tax implications.]

These recommendations, if implemented, would greatly increase the flexibility of those who have children while on the tenure clock to better arrange their work so they have a better chance at success. Another suggestion we heard, but which we are not confident in recommending, has to do with the peculiar difficulties that can attend combining time on the tenure clock and running a lab-based research enterprise. **We therefore mention as an idea for discussion at Faculty Relations and Deans’ Council** amending Policy 76, which currently allows a one-year extension to the tenure clock as a result of a parental leave, a modification to allow a two year extension when a leave of that length will make possible three continuous years of service at some point before the tenure decision when no such three year period would occur otherwise.

Finally, the existing policies at Waterloo already provide flexibility that would allow individual faculty members to work with their Chairs and Deans to work out creative arrangements that will be mutually beneficial—though the benefits to the institution may be in the medium and long term rather than being immediate. If the policy recommendations in this report are implemented, further possibilities will be created. Here is one example. It is important than a faculty member on a temporary reduced load have teaching, scholarship and service requirements remain proportional to what they would have been if the faculty member were working full time. This is especially so for probationary faculty whose tenure files will be evaluated on all three of these aspects of their work. But it is not necessary that this workload be proportional every year. Consider two faculty members returning from a parental leave, intending to take two years with a temporary load of 50%. For a chemist who need to get a lab up and running, for instance, it might work better to have 80% of a 50% reduced load dedicated to scholarship in the first year of the reduced load period, with 80% dedicated to teaching the next—-that is, this faculty member would have no teaching in year one, and a regular teaching load in the second. A historian, on the other hand, might do better to teach a normal load in the first year back (80% of a 50% load), in exchange for having no teaching duties the following year when it will be easier to do archival research with a slightly older child whose care must be arranged. Since which arrangements will work best will vary by discipline and with individual circumstances, it is important that the arrangements be worked out locally. Centrally funding a “course banking” mechanism will make such arrangements more feasible. But it is unrealistic to expect individual faculty members and Chairs to think up all options on their own, and the ability to implement creative ideas is, currently, dependent on the size of the academic unit involved.

**Recommendation A.7:** Through Deans’ Council, encourage Chairs and Deans to be open to creative arrangements that exploit policy flexibility in ways that enable faculty members to succeed as academics while maintaining balance their lives. The various arrangements agreed to should be documented and a central record kept (perhaps with the HR and FAUW expert advisors, see Recommendation 10.1) so they can serve as options to be considered by others. Ensure that equitable access to funds for replacement teaching is available to departments across the University so such options are available to all faculty members.
Appendix B: Cumulative List of Recommendations

Recruiting-related recommendations

Recommendation 3.1: (a) The requirement that one be employed at Waterloo for six months prior to receiving the family leave top up should be eliminated. Serious consideration should be given to whether the requirement for remaining employed at Waterloo for six months after a leave serves any purpose. (b) Costs of replacement teaching for faculty on parental leave should be centrally funded, since the requirement for departments to fund the teaching disadvantages both the members of small departments and the departments themselves, because these units have less flexibility to make special arrangements.

Recommendation 3.2: While the new daycare building and partnership with Bright Starts Child Care to increase the number of infant and toddler spaces at Waterloo is an important step, it should be seen only as a first step. The University should work with Bright Starts or find other partners that will enable it to provide flexible child care options: access to short-term, emergency care when a caregiver is sick and part-time spots, short term places when university business requires being away from campus, etc. For these to be viable, they will need some subsidy from the University. Parking services should provide preferred spots to parents of young children who are likely to have to come and go frequently from campus.

Recommendation 3.3: Improve the support available to newly recruited faculty and their families, providing better support on immigration issues and with helping non-academic spouses find suitable local employment.

Recommendation 3.4: Deans’ Council and the Faculty Relations Committee should carefully reconsider the merits of the current spousal hiring policy as a mechanism for recruiting early career faculty. They should consider in particular whether the restriction to three year limited-term contracts is in the University’s interests or whether a more flexible policy that enhanced the ability to recruit and retain couples would have more benefits than costs overall.

Recommendation 3.5: The University and Faculty Association should negotiate a more flexible spousal appointment policy suitable for recruiting couples where both members are already established scholars. Safeguards should be written into the policy and the practice for its implementation to ensure that such appointments are in the interest of the University and of the academic units involved. For instance, requiring that such positions result in an additional line for the “receiving department” (i.e., in effect, that the spousal appointment be centrally funded) would ensure that the Provost approved such appointments with due caution, and ensure that such appointments are not only a realistic possibility in large departments. Requiring that the DACA of the “receiving” department be able to interview the candidate, and evaluate the candidate’s qualifications to ensure consistency with the department’s research direction and expectations for quality of colleagues should ameliorate concerns about being “force-fed” a candidate.

Early Career Success

Recommendation 4.1: (a) The University should make more effective use of the flexibility in its existing policies to make suitable arrangements for faculty who take family leaves while on the tenure clock, and should centralize funding for such options so that their availability does not depend on the size or wealth of the department; (b) The University should modify key policies and create new programs that will improve the ability of those with young families to achieve tenure while maintaining Waterloo’s existing research and teaching standards; (c) The University should clarify some existing policies where ambiguous wording sometimes creates unnecessary barriers to sensible arrangements for those on the tenure clock. (See “Policy Housekeeping” below.)
Other career stages

Recommendation 5.1: The University should implement a “top up” policy, similar to its current maternity leave policy, to provide one term of salary replacement for faculty members on compassionate leave. Accessing it should be straightforward, since people need it in times of high stress.

Recommendation 5.2: The University should have centralized money to pay for short term, short notice teaching replacements for faculty who must take compassionate leaves on an emergency basis, so that the flexibility of Chairs is not dependent on the size and resources of the department. When the level of need in a particular term is unpredictable, money should be invested in creative ad hoc arrangements, e.g. TAs whose assigned duties include covering classes when necessary but are otherwise defined by the Chair, so this labour can be used to accomplish something else in the department.

Recommendation 5.3: The Provost should establish a small working group to investigate what sorts of dependent care claims in support of research activity are supported by various granting agencies and at other universities. This working group should (a) recommend the terms of a pilot project that enables all Waterloo faculty members to have access to dependent care at a level the group judges to be “best practice”; (b) recommend metrics by which the success of the program will be judged when a decision is made about its continuation.

Recommendation 5.4: The Faculty Relations Committee and the Pension and Benefits Committee should regularly compare the provisions of Waterloo’s parental and compassionate care policies to those of competitor universities and make changes to ours to ensure competitiveness.

Workload Issues

Recommendation 6.1: Where policy now requires gender representation on committees, those provisions should be maintained. For other committees, (e.g. Tenure and Promotion Committees) where representation of both genders is merely called “desirable”, the policies should be modified by the Faculty Relations Committee to make it a requirement. At the same time the Provost and Deans’ Council should ensure that they and the Chairs take steps to ensure that: these tasks are distributed widely among women faculty; these important roles are recognized and rewarded in the Annual Performance Review process; women who take on such roles are compensated by having other service jobs assigned to male faculty instead.

Recommendation 6.2: Ensure that, apart from occasional teaching of evening classes, the scheduled activities that are part of the job for faculty members can be met during normal business hours. For instance, other than exceptional and voluntary activities, service activities (including meetings) should take place during normal business hours, and attention should be paid to finding ways to ensure proper consultation while minimizing the number of meetings people must attend. Lunch hours should also be respected when scheduling meetings, as research indicates that a proper break for lunch improves productivity. The new scheduling system should take into account the needs of faculty members to be able to carry out all aspects of their jobs (e.g. by preserving days without in-class commitments so it is possible to do some research during the day); set reasonable expectations for availability to students (e.g., set a normal time for responding to an email), and do not provide additional rewards for (and so incentivize) being more accessible than those reasonable standards.

Recommendation 6.3: In departments that do not already have them, establish normal teaching loads. Where graduate supervision varies considerably among faculty members, ensure that this activity is taken into account when determining workloads, in a manner acceptable to the regular faculty in the department. Ensure that assignments are transparent, and that faculty members are entitled to an explanation of why their assignment is as it is.
Tenure

**Recommendation 7.1:** The tenure clock should not be extended across the board on the basis of purported work/life balance benefits. Even if the tenure clock is extended for other reasons, changes to increase the flexibility of the timing before tenure should be implemented.

**Recommendation 7.2:** The Faculty Relations Committee, with input from Deans’ Council and the Faculty Tenure and Promotions Committees, should update the template used by Deans for letters they send to external referees as part of the Tenure and Promotion Process. Work/life balance related issues such as developing standard wording to ensure that a year of leave does not simply result in referees expecting an extra year’s worth of research output should be one important part of a larger review of existing policies and practices.

Service, Merit and Promotion

**Recommendation 8.1:** Faculty Relations should amend Policy 77 to recognize the fact that it is sometimes in the interest of the University for Associate Professors to take on important service roles (e.g., as Chairs or Associate Deans), and that in these cases faculty members willing to take on these important roles for the benefit of their colleagues ought not to be punished for doing so. We suggest wording to the effect that when people who perform strongly in these administrative roles have their scholarship and teaching evaluated for promotion to Professor, “expectations for quality remain unchanged, though expectations for quantity should be adjusted accordingly.”

**Recommendation 8.2:** Deans’ Council should ensure that the recommendations of the Working Group on the Merit Review Process for Faculty designed to better recognize different levels of service contribution are being put into effect. This includes the recommendation that in annual performance reviews the range of scores is sufficiently wide to recognize the different levels of service contribution made by different members within a department, and the recommendation that when faculty members take on significant service jobs it is a routine matter that they are offered a chance to adjust their merit weightings.

**Recommendation 8.3:** The Provost and Deans should work to ensure that “invisible” service work is rendered visible, is appropriately recognized in the APR process (in particular by ensuring that there are real differences in merit scores between those doing a lot of service, including service that does not come with official titles and committee memberships) and those doing much less. The Faculty Association should be making the case to its membership that provisions ensuring that this happens ought to be written into each department’s merit documents.

Selection of Chairs and Senior Administrators

**Recommendation 9.1:** Take steps to make the Chair job more attractive to suitable candidates. Consider implementing the recommendation of the Working Group on the Merit Review Process for Faculty of making a portion of the stipend permanent (e.g., 12.5% of the stipend could become permanent for each year in the chair, so someone filling the full eight years receives 100% of the stipend as a permanent adjustment to salary). But also consider ways to make the job itself more enjoyable and rewarding, such as involving a larger role in leading the University and administrative restructuring to lessen the amount of paperwork and drudgery.

**Recommendation 9.2:** The policies governing the selection of Chairs, Deans, and Vice Presidents should be reviewed by the Faculty Relations Committee to ensure that the criteria by which good candidates are to be judged give due emphasis to the human qualities and attitudes of the candidate. A list of guidelines and advice for members of nominating committees for roles at the level of Dean or higher, with information about different career arcs
successful academic leaders can have and the variety of successful leadership styles one sees in academia, should be prepared and adopted by Faculty Relations and Deans’ Council.

**Recommendation 9.3:** The Faculty Relations Committee and Deans’ Council should review the job descriptions held by faculty members (or retired faculty members) at the level of Association Vice President or Associate Provost and higher and, except in cases where there is a strong reason for not doing so, rewrite them so that they are term-limited positions from which the incumbent would normally be expected to return to the regular faculty ranks.

**Providing Information**

**Recommendation 10.1:** The University should invest in improving the quality of training Chairs receive, implementing best practices employed at other universities.

**Recommendation 10.2:** (a) The University should establish a position in the Human Resources department with special expertise with respect to policy and practices to do with the family leave, compassionate leave, temporary workload and other work/life relevant policies. This expertise should extend beyond the details of the policy to include knowledge of creative uses made of policy options across campus. The person in this position will be available to advise Chairs when they are approached by faculty members in need of assistance. (b) The Faculty Association should establish as a key role of one of the staff members in the FAUW office the role of advising faculty members on these matters. (c) The University and Faculty Association should work together to ensure that the key contact people for Chairs and individual faculty members are providing consistent information.

**Recommendation 10.3:** The University has recently improved the information available about family leaves on the HR website. The information about compassionate care leaves should be similarly upgraded so that faculty (and staff) members can find a clear presentation of both the legal and policy provisions for such leaves.

**Salary Anomalies and Related Matters**

**Recommendation 11.1:** Faculty Relations, with the assistance of IAP, should investigate whether recommendations implemented or mandated in response to the previous Working Groups are being followed in practice. Where they are not, they should investigate the reasons for the failure and take steps to assure implementation. Faculty Relations should also consider other recommendations not yet implemented, such as moving to merit reviews every second year for tenured professors and continuing lecturers.

**Recommendation 11.2:** Implement the recommendation of the Working Group on Women’s Salary Equity that a common methodology be developed for identifying potential salary anomalies, and apply the process to the salary of every regular faculty member on a regular basis. The decision on whether a genuine anomaly exists should not be merely mechanical, and may be left in the first instance at the discretion of the relevant Dean. However, those identified as having a potential anomaly should be notified that this was the case, and should either receive a salary adjustment or a clear explanation of why their salary is not actually anomalous. There should be some mechanism for appealing such decisions.

**Recommendation 11.3:** Faculty Relations should conduct a thorough review of the OPA program. This should begin with an evaluation of the purpose of the program, including a weighing of the currently official purpose of the program against the goals pursued by the Deans in practice (such as addressing salary anomalies), and an investigation of whether the OPA program or anything like it is the best way to spend salary dollars to achieve those goals. If something like the OPA program remains after this review, the criteria and process for winning the awards should be more transparent, and the criteria should be modified so that outstanding service contributions are grounds for
receiving an OPA, and it should be recognized that not all outstanding service involves holding a position such as Chair of Associate Dean.

**Recommendation 11.4:** Well in advance of the next salary negotiations, the University and the Faculty Association, at Faculty Relations, should discuss the current overall salary structure, including the interaction of thresholds and career-long patterns of productivity and the potential effects of the cap on pensionable earnings especially for younger faculty. In particular, the appropriateness of differences in lifetime earnings for people with similar lifetime productivity should be considered, and if it is judged problematic potential smoothing mechanisms to address the difference should be considered.

**Policy Housekeeping**

**Recommendation A.1:** Ensure that the legitimacy of taking advantage of the early sabbatical provision is recognized across campus. [This should be part of Chair training (see Section 10) and, insofar as advice not to take advantage of these provisions in motivated by concerns about whether external referees will take leaves and reduced loads properly into account in tenure decisions, for the revisions to the templates for Deans’ letters (see Recommendation 7.2a).]

**Recommendation A.2:** Add to the end of note 3 in Policy 3 “; a faculty member on 75% load for two years, 100% load for two years, and 50% load for two years, would be eligible for a six months leave at 75% of nominal salary [(2 x 75% + 2 x 100% + 2 x 50%)/6], or a twelve-months sabbatical at 63.75% (i.e., 85% of 75%) of nominal salary.”

**Recommendation A.3:** Faculty Relations should: (a) make the various policies referring to temporary reduced loads consistent; (b) eliminate the suggestion that there is a career maximum of four years of temporary reduced load available to any individual professor; (c) make explicit that a temporary reduced workload arrangement carries the same distribution of duties in teaching, scholarship and service as does a regular full-time appointment; and (d) write into policy an automatic extension of the tenure clock so that faculty who take temporary reduced loads while holding probationary appointments have their time to tenure consideration extended proportionally to their reduced-time.

**Recommendation A.4:** Write clearer wording about the impact of parental leaves on expected teaching loads upon return to work. Set up a central fund to cover the cost of short-term teaching in departments where faculty members take pregnancy, parental (or indeed compassionate) leaves. Set up provisions for “course banking”, so that people can, for instance, teach extra courses in anticipation of a leave or in the first term or two after a return from leave, or can “owe” courses for up to two years. Ensure that the language in this section of policy clearly indicates that teaching assignments upon return from leave are to be designed to maximize the teaching and research productivity of the faculty member in the several years after the return to work. In particular, it should recognize that in some disciplines it will be most beneficial to have no teaching upon return, while in others it will be best to return to work with a heavier teaching load in exchange for more non-teaching terms later on.

**Recommendation A.5:** Use the experience of the centrally funded “course banking” as a test case to see whether a more general course banking program for faculty is feasible and desirable.

**Recommendation A.6:** The Provost, in consultation with the President of the Faculty Association, should strike a working group to investigate whether some “alternative arrangements”, as contemplated in Policy 14 would be of benefit to sufficiently many faculty members that they should be written into Policy 14 as options available to all, rather than special arrangements. [This investigation may be a natural second task for the working group described in Recommendation 5.3, though it would need additional support from HR for considering the EI and tax implications.]
**Recommendation A.7:** Through Deans’ Council, encourage Chairs and Deans to be open to creative arrangements that exploit policy flexibility in ways that enable faculty members to succeed as academics while maintaining balance their lives. The various arrangements agreed to should be documented and a central record kept (perhaps with the HR and FAUW expert advisors, see Recommendation 10.1) so they can serve as options to be considered by others. Ensure that equitable access to funds for replacement teaching is available to departments across the University so such options are available to all faculty members.

**Appendix C:**

**Mandate of the Working Group:**

As part of the 2008 salary settlement between the University of Waterloo and the Faculty Association, two joint Working Groups were set up, one chaired by Associate Provost, Resources, Bruce Mitchell, to investigate Salary Equity for Women Faculty, the other chaired by Adel Sedra, Dean of Engineering, to investigate the Faculty Annual Performance Review Process. Both Working Groups reported in 2009, and included recommendations about areas related to their work that needed further investigation. For instance, the APR report included this:

> During the course of our deliberations, it became clear to the working group that there are some issues closely related to merit evaluations that we are not in a position to address appropriately at this time, but that we feel warrant further investigation. It is not clear to us whether there are features of the merit evaluation process that are likely to generate anomalies, for instance on the basis of gender. There is some prima facie evidence that there may be some, including the fact that the University has needed, more than once, to employ ad hoc mechanisms to address gender based inequities. The current working group on Pay Equity for Women may shed some light on this matter when it has completed its work. We think this complex issue deserves further scrutiny so that any systemic problems can be addressed. There are some intriguing possibilities for making use of existing policies in new ways to address problems faced by faculty trying to combine academic careers with modern family life. For example, a temporary reduction in teaching weighting for merit evaluation with a reduced load appointment could be a mechanism to help faculty in Science or Engineering maintain their research lab while their children are very young. This may benefit many young faculty, and help with recruiting and retention, especially of female faculty.

**Recommendation 5.1** Further investigate two related issues: a) whether the merit evaluation process has features that generate gender-based anomalies; b) how to use the flexibility of the merit evaluation process, in conjunction with other policies, to make UW a more family friendly employer. [Responsibility: Provost and FAUW President]

In response to these recommendations, the Faculty Relations Committee passed the following motion in the spring of 2011:

*The VPAP and the President of FAUW will establish a working group to investigate two related issues: a) whether there are structural features of the merit review process or other parts of the system for determining faculty compensation that generate gender-based or other anomalies; b) what adjustments can be made to policies or practice that will improve work-life balance for faculty.*
The working group will work according to an appropriate methodology of its own devising, subject to the proviso that there must be substantial opportunity for stakeholders to provide input. Under b), the mandate of the committee is to make recommendations that address work-life balance issues in ways that improve the wellbeing and long-term productivity of faculty, and hence improve the university’s ability to carry out its mission of providing excellent teaching and scholarship for the benefit of society. Both creative uses of existing policies (e.g., those concerning temporary reduction in work-load, family leave, tenure and promotion policies, etc.) and modifications to policy should be considered.

The Provost will arrange that the working group receive appropriate support from IAP during its investigation. The working group will write a report, including appropriate recommendations, to be submitted to the VPAP and the President of FAUW by March 1, 2012.

Since it took longer than anticipated to set up the Working Group, Faculty Relations later agreed to extend the date for completion of the work of the Group to the fall of 2012.

**Membership of the Working Group:**

Faculty members:

- Steve Brown, Statistics and Actuarial Science. Associate Chair, Undergrad, Department of Statistics and Actuarial Science and former Chair of the same department; formerly Associate Dean, External Relations, Faculty of Mathematics.
- Jennifer Clapp, Environment and Resource Studies, Associate Dean, Research in the Faculty of Environment
- Tara Collington, French Studies, Associate Chair, Undergraduate.
- David DeVidi (Chair). Currently Chair of the Department of Philosophy. President of FAUW 2007-09, member of FAUW executive 2004-12.
- Diana C. Parry, Recreation and Leisure Studies, Chair of the Status of Women and Equity Committee.

Resource staff:

- Carrie Hunting, Policy Officer for the Faculty Association
- Daniela Seskar-Hencic, Associate Director, Institutional Analysis and Planning
- Kerry Tolson, Institutional Analyst, Institutional Analysis and Planning

The committee is grateful for the support it received from other members of IAP, the Faculty Association staff (in particular Miriam Kominar and, while Miriam was on parental leave, Laura McDonald), and Information Systems and Technology. We are also grateful to Jay Athia for his expert work compiling and analyzing IAP data requested by the Working Group.
Data Gathered by the Working Group

Female Chairs and Directors of Schools
(Considers only Directors of Schools that are Senate recognized academic units). The final column is the 2011 percentage of female faculty, according the University’s Performance Indicators.

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Female Associate Deans by Faculty and year
Since 2004. The final column is the percentage of female faculty members in 2011.

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<td>3</td>
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Sitting Chairs and Associate Deans receiving OPAs, by Faculty and year

The second column from the right is the proportion of faculty members in a Chair or Associate Dean role to the 2011 faculty complement. The final is the proportion of sitting Chairs and Associate Deans winning OPAs between 2004 and 2012.

<table>
<thead>
<tr>
<th>Faculty</th>
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<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>% admin OPAs</th>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>6/64 (9%)</td>
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<td></td>
<td></td>
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<td></td>
<td>8/39 (20%)</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
<td>8</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>20/270 (8%)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41/163 (25%)</td>
</tr>
<tr>
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<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>13/290 (4%)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11/167 (7%)</td>
</tr>
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<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>7/65 (11%)</td>
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<td></td>
<td></td>
<td>11/41 (27%)</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>10/214 (5%)</td>
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<td></td>
<td></td>
<td></td>
<td>21/129 (16%)</td>
</tr>
<tr>
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<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>11/196 (6%)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14/119 (12%)</td>
</tr>
</tbody>
</table>

Of the 105 OPAs awarded to sitting Chairs and Associate Deans, eight went to female faculty members. Approximately 70 faculty members serve as Chairs or Associate Deans at any time, which is about 7% of faculty members.

Overall between 2004 and 2012, 658 OPAs were awarded, 16% of them to Chairs and Associate Deans.

Female winners and total winners of OPAs, by Faculty and year

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<tr>
<td>AHS</td>
<td>2</td>
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<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>4/24 (20%)</td>
</tr>
<tr>
<td>Arts</td>
<td>5</td>
<td>16</td>
<td>7</td>
<td>17</td>
<td>4</td>
<td>17</td>
<td>5</td>
<td>18</td>
<td>4</td>
<td>14/70 (20%)</td>
</tr>
<tr>
<td>Engineering</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>6</td>
<td>18</td>
<td>2</td>
<td>19</td>
<td>3</td>
<td>19/95 (20%)</td>
</tr>
<tr>
<td>Environment</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>4/20 (20%)</td>
</tr>
<tr>
<td>Math</td>
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<td>2</td>
<td>14</td>
<td>3</td>
<td>15</td>
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<td>15</td>
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<td>12</td>
<td>2</td>
<td>13</td>
<td>5</td>
<td>12</td>
<td>3</td>
<td>14</td>
<td>5</td>
<td>14/70 (20%)</td>
</tr>
<tr>
<td>Annual Total (all)</td>
<td>12</td>
<td>64</td>
<td>19</td>
<td>71</td>
<td>20</td>
<td>69</td>
<td>17</td>
<td>75</td>
<td>7</td>
<td>19/95 (20%)</td>
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<tr>
<td>Females/Total</td>
<td>19%</td>
<td>23%</td>
<td>25%</td>
<td>24%</td>
<td>22%</td>
<td>23%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Univ Cumulative Total | 128 | 648 | 147 | 658
Univ Female Cumulative % | 19% | 23% | 25% | 24% | 22% | 23% | 22% | 22% | 22%
Percentage of Female OPA winners

The % female column indicates the percentage of female faculty members in the Faculty in 2011, and is included for comparison.

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<th>Faculty</th>
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<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<td>20%</td>
<td>50%</td>
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<td>0%</td>
<td>67%</td>
<td>29%</td>
<td>25%</td>
<td>28%</td>
<td>36%</td>
</tr>
<tr>
<td>Arts</td>
<td>31%</td>
<td>41%</td>
<td>24%</td>
<td>28%</td>
<td>29%</td>
<td>43%</td>
<td>25%</td>
<td>40%</td>
<td>30%</td>
<td>33%</td>
<td>39%</td>
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<td>33%</td>
<td>11%</td>
<td>11%</td>
<td>15%</td>
<td>25%</td>
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<td>0%</td>
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<td>31%</td>
<td>23%</td>
<td>27%</td>
</tr>
<tr>
<td><strong>Total (% females/Total each year)</strong></td>
<td>19%</td>
<td>27%</td>
<td>29%</td>
<td>23%</td>
<td>10%</td>
<td>24%</td>
<td>25%</td>
<td>22%</td>
<td>22%</td>
<td>23%</td>
<td>27%</td>
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<tr>
<td><strong>Running Total as time progresses</strong></td>
<td>19%</td>
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Merit scores by rank and gender

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Models for Salary over a career.
We assume a Faculty average merit score of 1.50, assume a 2012 starting salary of $80,000 and so use the 2012 selective increase value (called “merit value” in the tables) and thresholds. We assume a modest 2% scale increase every year.

“Slow start, fast finish”: values for 15 years of 1.0 merit followed by 15 years of 2.0. Total salary is in the final row.

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“Fast start, slow finish”: 15 years of 2.0 followed by 15 years of 1.0.

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Survey questions

First Electronic Survey Questions (sent to all regular faculty and academic librarians)

The work/life balance committee would like to learn more about the nature and scope of equity and work/life balance issues that arise for faculty at the University of Waterloo. Please consider responding to this brief questionnaire and sharing your experiences and opinions.

1. Are there particular work/life balance issues that you think the committee needs to investigate?

2. Have you encountered difficulties with policies and practices at the University of Waterloo that prevented you from achieving or maintaining a good work/life balance?
   If Yes, please describe the difficulties and specific policies and practices involved.

3. Are you aware of any policies and practices that exist in other institutions that the committee should explore and potentially recommend for implementation at the University of Waterloo?

4. Do you believe that there are structural features of the merit review process or other parts of the system for determining faculty compensation that generate gender-based or other anomalies?
   If yes, please share your opinion on what those structural features or system issues are.

5. The working group may be interested in getting a more in-depth perspective on some of these issues. This may include focus group discussions or interviews.

Would you be interested in providing further input? If yes, you can choose to either send a separate email to ………indicating your interest in participating, or submit your name and contact information in the space below.

Name and contact information (optional)

Thank you for your participation. Your input is very important and will help the working group better understand and address equity and work/life balance.

Focus Group discussion starter questions:

June 6, 2012

1. Some recent research shows that the desirability of an academic career drops dramatically between the beginning and the end of students' time in a PhD program, and that the drop is even steeper for women. What attracted you to an academic career? What have you found to be the most problematic aspects of academic life at Waterloo?

2. A suggestion we have heard from some people we have talked to is that the time to tenure decision at Waterloo (the "tenure clock") is shorter than at some other research universities, and it would be an advantage to our early
career faculty if we extended it by one year. What effect, if any, would this have had on you? Do you think it is a
good idea?

3. Many of you have had children while on the tenure track, and probably all of you know people who have done so.
What are some of the most significant challenges involved in balancing new parenthood with seeking tenure? Are
there improvements to policies and practices that you can recommend that would make it easier?

4. Considering university policies and practices besides those involving tenure, can you think of changes that would
have improved your ability to find a healthy balance between your academic work and your life outside the university
early in your career? Have you ever had to miss an important conference or research trip because of difficulty
arranging childcare, and if you have would a reimbursement program have helped you resolve those childcare
dilemmas?

5. Is there anything else you think our committee should hear? (5 min)

June 7, 2012

1. We have heard from some people that the tenure clock at Waterloo is relatively short compared to other
research universities, and that this is a disadvantage to junior colleagues: external referees for tenure expect longer
track records than we have, and some have told us they think it a problem for those who have children while on the
tenure track. On the other hand, a longer tenure clock is seen by some as increasing the length of the most stressful
time of many people's professional lives. What do you think of the idea of extending the normal time to tenure at
Waterloo by a year?

2. We have heard from many people that they feel their service contributions are not appropriately recognized and
valued by the university. Do you think the university appropriately recognizes service? What weight should service
have in tenure and promotion decisions?

3. We have heard from many people that expectations as far as overall workload and expectations for availability
have become too high for individuals to reasonably manage, and that they have reached the level where it is not
possible to balance them with other obligations to family and out of work life.
   a) What is your view on what is a reasonable overall workload (in terms of hours, or tasks performed each
   week), and do you exceed it? Can you think of ways to curb workloads?
   b) Do you feel that workload is equitably distributed in your academic unit? Do you have suggestions of ways
to ensure that work is distributed fairly?

4. Is there anything else you would like to tell us? (5 minutes)

June 8, 2012

1. The University of Waterloo has provisions for up to three days per year of paid “emergency leave” to deal with
sudden illness of a family member, a child’s problem at school, a fire, etc. UW also has a bereavement leave policy.
It is common for people to find themselves with difficulties to which neither policy seems to apply: children with
recurring medical conditions, parents (often in distant places) with complicated, age-related health issues, and so on.
Are there other supports it would be reasonable for the university to offer its employees in such situations?

2. In cases where an emergency requires more than three days of effort to resolve, university policy calls for
reasonable discussion between department chairs and faculty members to work things out using combinations of
unpaid leave, vacation, and temporary partial work load. Some worry that this puts faculty members at the mercy of chairs' expectations about proper gender roles, and could disadvantage those with different religious or cultural around caregiving at a disadvantage because their needs will seem unreasonable to many chairs. Do you agree that these are legitimate worries? If you do, can you suggest ways to improve this aspect of the policy?

3. Compared to most occupations, a large proportion are over age 55. This makes them much more likely to have aging parents in need of their assistance or to have medical emergencies of their own than do younger employees. Depending on the size of a department, even one or two personal emergencies can easily become an emergency for the department. Can you suggest ways for the university to be prepared for such departmental emergencies? Could such preparation make it possible for the university to provide more extensive compassionate leaves to employees?

4. As noted in the previous question, many faculty members are older, but much of the literature on work/life balance addresses the difficulties of early career faculty. One issue for late career faculty is planning for retirement. What do you think of the idea of a phased retirement plan that allows faculty to declare a retirement date, then gradually reduce workload over a few years leading up to that date?

5. Is there anything else you would like to tell us? (5 minutes)

**Discussion starter questions for Deans:**

1. Tenure and Promotion, Merit issues
   a. The length of time people spend on the tenure clock is a complicated issue … from the WLB pov it is important because it has been suggested that the fact that Waterloo’s time-to-tenure is shorter than some other universities is a disadvantage for those who take parental leaves, since it takes some time to get back to full steam upon return to work. In your role chairing your DTPC, have you noticed this being a problem? Do you think it is a good idea to extend the tenure clock by a year at Waterloo? What might be some drawbacks of extending the tenure clock?
   b. Service: A consistent complaint we hear is that Service, especially the essential but not always high profile internal service essential to make the university run, tends to fall disproportionately on a few people and that it is not sufficiently recognized or rewarded in the merit process. Does this match your experience? We have also heard that for both structural policy reasons (e.g. the requirement for gender representation on important committees) and social/cultural reasons, the service work falls disproportionately on women faculty. Does this match your experience? If so, do you have ideas about how to address these matters?
   c. Sometimes, especially in smaller departments, the University depends on people stepping into heavy service jobs while still Associate Professors … so they, in effect, carry the load while colleagues hired at the same time (perhaps even because they are less competent or more selfish) race ahead to promotion. Do you think service, in general, is appropriately accounted for in promotion decisions? When assigning merit scores for those carrying heavy service loads, university policies say “expectations for quality of scholarship remain the same, but expectations for quantity will be adjusted.” Would a similar provision for promotion (esp to full professor) be appropriate?
d. There are various provisions in policy for extending the tenure clock, for instance because of parental leaves or due to illness. In your experience with how these policies work out in practice at Waterloo, do you think they are generally effective in allowing people to have a level playing field as they strive to achieve tenure and promotion?

2. Leaves, reduced workloads:
   a. Since many newly hired faculty are at an age where they are starting or expanding their families, it is important to them that we have effective parental leave policies, provisions for temporary reduced workloads, etc. In your experience, how effective are these policies at Waterloo (both from the pov of the individuals who take the leaves and of the departments)? Can you suggest ways the policies and practices might be modified so they are more effective?
   b. Of course, we have faculty members in all age categories and in various family circumstances. For more senior faculty, a significant challenge sometimes arises when their parents are aged or become ill. Various sorts of health crises can arise in families. Do you have suggestions about how the University should handle situations where such issues (“elder care”, “compassionate care”, etc) arise?
   c. To move to a more concrete question: there has been some discussion of a dependent care reimbursement program that would cover expenses incurred while faculty are travelling for research, conferences, etc. This strikes many people as obviously worthwhile. If such a program were set up, how do you think it should be funded?

3. Recruiting, anomalies, etc.
   a. In addition to WLB issues, the working group have been tasked with investigating what gives rise to gender-based or other salary anomalies at Waterloo, and to make recommendations about how to address those problems. The research literature suggests that one source of the gap in pay between men and women professors that is irrelevant to level of performance on the job or qualifications has to do with higher starting salaries for men, and this has a lot to do with more successful individual negotiation by males. Many universities have tried to address this by standardizing the way starting salaries are determined within particular fields (so that different market conditions for accountants and social workers can be taken into account, for instance). At Waterloo, salaries are still negotiated individually. In your opinion, would a more constrained system hinder your ability to recruit top faculty?
   b. As you know, the Waterloo spousal hiring policy involves (“normally”) hiring “accompanying spouses”, at most, for a three year contract. How effective is the policy as a recruiting tool? Of course, spousal appointments are sometimes controversial in the “receiving” department. All things considered, are there changes you would recommend to the spousal hiring policy?
   c. In the aftermath of the working group on salary equity for women faculty, it was recommended at Faculty Relations that a uniform process be developed for use in every Faculty to evaluating all salaries each year to identify potential anomalies. Do you think this is a good idea? Do you have suggestions for how the current process for addressing anomalies can be made better (e.g. more transparent, fairer, more efficient, less ad hoc)?
4. Workload, scheduling, etc.
   
a. Early in our process we asked for feedback from faculty about work-life issues. In addition to the failur
to acknowledge service properly, the main complaints had in various ways to do with workloa
. Some had to do with loss of control over the time devoted to the job—meetings and events
scheduled outside the normal business day, increasing “administrivia” required by the job, being “on call” to students and chairs seven days a week, etc. Others had to do with total workloa, and the fact that there is no definition of how much work is expected, or of when “enough” has been done.
   
i. Do you think the “zero sum” nature of our merit pay process, where in essence faculty members compete with their colleagues for their annual increment, are a source of this sense that there is no upper limit on expectations? If it is, do you think that’s a problem that should be addressed, or is it a good thing?
   
ii. Do you think the worries about loss of control over time expressed by faculty are warranted? Do you have suggestions for how to address them?

5. What have we not asked about that we should have?
   
a. Do you think that WLB issues should be a priority for the university? What sorts of WLB issues are important within your Faculty, and how have you tried to address them?

b. Is there anything else you would like to tell us that we have not asked you about?

Electronic survey questions for Chairs:

Dear Department Chair/School Director:

As you probably know, the Provost and the President of the Faculty Association have formed a working group to investigate work-life balance issues for faculty on campus. We intend to produce a report, including recommendations of changes to policies and practices, by September 2012. We know that we will not be able to produce a report that properly balances the needs of everyone likely to be affected by our recommendations without information from Chairs. We hope you will take a few minutes and respond to some or all of the following questions. Please send your responses to the working group, c/o the working group Chair, David DeVidi, at ddevidi@uwaterloo.ca. While the information you provide will play an important part in shaping our recommendations, in our report we will not use anything you say in a way that identifies you as the source of the comment.

1. As you know, Policy 40 assigns to Chairs the task of equitably assigning duties to members of their departments. When assigning teaching and service duties, do you take into account a faculty member’s family responsibilities such as the need to care for children or other care-giving tasks? Do you consider career stage (for instance by reducing service expectations for early career faculty)? Please explain.

2. What is considered a normal teaching load in your department, and do you have a operating definition of a normal load for service? What measures do you take to evenly distribute this workload? Do you have
mechanisms for “banking” teaching relief when someone carries a particularly heavy teaching or service load in a given term? Does the “banking” happen at the departmental or Faculty level?

3. Another important and difficult duty for Chairs is fairly evaluating the performance of faculty members as researchers, teachers, and in terms of service. In your unit, to what extent are extenuating circumstances such as care giving responsibilities, illness, or other such issues taken into account in this evaluation? If such circumstances are taken into account, how is relevant information gathered?

4. It can be difficult scheduling necessary meetings and events. How frequently does your department schedule meetings, events or seminars outside of 8:30-4:30 weekday hours? What sorts of events are most often scheduled outside these times?

5. Many of the University’s policies require or recommend representation of both genders on important committees. Does this present a challenge in your department? Does it result in an uneven distribution of service tasks among department members?

6. In our consultations, issues involving leaves of various sorts have often arisen as sources of concern, in particular the existing parental leave policies and the possibility of improved compassionate care leaves. Does your department have a standard practice for assigning teaching and service duties when people return from leaves? Are there difficulties you have encountered with the existing policy you that committee should know about?

7. Many people have communicated ideas to the committee involving the relationship between work-life balance and tenure and promotion policies. We are interested in the opinions of chairs on a couple of the proposals we have heard. Some have suggested that the tenure clock at Waterloo is too short, and should be extended one year. Do you think this is a good idea (whether for work-life balance or other reasons)? Secondly, do you think service is appropriately valued in tenure and promotion decisions?

8. The committee is very aware that Chairs are among the busiest and most stressed members of faculty. Are there particular work-life issues for Chairs and others in heavy administrative roles the committee should pay attention to?

9. The Work-Life Balance Committee is very interested in hearing about any practices that have been implemented in your Department/School, or recommendations you have that could be implemented by the University as a whole, to enable faculty members to balance their university duties and their family obligations.

**Final feedback survey (for all regular faculty and academic librarians):**

Please indicate your reaction to any or all of the following statements in the space provided below.

1. **Workload:**

   1. A major problem for keeping a healthy balance between work and the rest of my life is the scheduling of events and duties outside the normal work day and on weekends. Meetings should
not be scheduled outside of normal (8:30-4:30) hours on weekdays, and events outside those hours should be optional and kept to a minimum.

2. It is unfair when assigning teaching duties to give equal weight to large and small classes. Often junior faculty are stuck teaching larger classes, which are more time-consuming. They also tend to be the people with young families.

3. The policies requiring representation from both genders on important committees are important, but they have the unintended effect of putting a heavy service load on a few people in departments with few female faculty. Chairs in these departments should be required to compensate these overburdened faculty members by reducing other service or teaching duties for them.

Service:

1. The university must do more to ensure that everyone carries a fair share of the service workload. The current merit structure encourages people to dump this work onto others whenever possible. Chairs and deans should use the full range of scores in evaluating service for the Annual Merit Review to reward good service work and to encourage everyone to be involved.

2. While we don’t want people to be able to become full professors just for service, it is (for instance) sometimes in the interests of the university that an associate professor take on an important service role, such as chair or associate dean. Currently this means they work to advance the careers of others while stalling their own. Therefore the promotion policy should say that in the case where a faculty member has done a very good job in a heavy, important service role the expectations for quality of research remains the same, but the expectations for quantity are reduced.

3. While it is important that newly hired faculty have a chance to get their research and teaching careers launched, when they are entirely “protected” from service work we run the risk of having them regard service as optional, or at least unimportant, throughout their careers. If universities are to remain collegially governed institutions, it is important that faculty become active in the governance of the university right from the start.

Policies:

1. Waterloo’s current spousal hiring policy is very ineffective. The university should replace the current policy with one that makes it possible to recruit both members of a couple into tenure track positions, and should have a small central budget so that a limited number of faculty positions can be created each year to handle such situations.

2. A particular problem for researchers with small children, especially single parents, is that they must pass up opportunities to attend conferences because they cannot afford care for their children while away. The university should set up a program that funds child care to allow researchers in such circumstances to attend a small number of important conferences early in their careers.

3. Extending Waterloo’s tenure clock by a year would allow junior faculty to produce more work and more closely mirror the expectations of research institutions in the US, where files are often sent for external evaluation. It would also allow junior faculty to achieve better work-life balance because they have more flexibility to do the required work over a longer time-frame.
"Family friendly" practices and issues:

1. I expect that at some point in my career I will need to look after a sick or elderly family member on short notice for an extended period. I have no idea where to look to find out what provisions university policy makes for compassionate care leaves, and I have no idea what my legal rights are.

2. While I understand the university will soon be building a new daycare building with more infant and toddler spots, there are many other things that could be provided to recognize the extra difficulties faced by new parents who are trying to maintain academic careers---short term childcare when teaching a night course and a babysitter cancels, enough flexibility in the budgets of the daycare to allow for part time spots, preferred parking while one's children are very young and one might need to leave suddenly or come and go frequently, and so on.

3. While good policies are important, the most important factor in determining whether one will be able to lead a balanced life is the quality of the chair who is going to be interpreting and applying policies. So the university should work to improve the quality of the work chairs do. This will involve making the chair job more attractive, since many good candidates will not take the job. It will also involve mandatory training and better support for Chairs to deal with unusual requests.

4. Whether someone is going to be a good chair or not depends more than anything on the person's people skills. Nominating committees for these positions need to be instructed to take such matters into account, and perhaps to pay less attention to questions of rank or research profile.

Anomalies:

1. A key source of anomalies is differences in starting salaries. A rigid grid for starting salaries would inhibit our ability to compete for top job candidates. But transparency would provide an important constraint so that negotiations are sensible, since deans would need to explain outliers. So all faculty salaries, not only those over $100,000, should be made public each year.

2. While the criteria for the annual Outstanding Performance Awards say that "consideration also should be given to dispersing the awards across Faculty units, ranks, and to both women and men", women faculty receive these awards in far smaller numbers than their proportion in almost every Faculty. Since deans cannot seem to equitably distribute these awards when this decision is left to their judgement, we should impose stricter rules on how these awards are distributed.

3. It would be both fairer and more productive for the university to take the money currently put into Outstanding Performance Awards and devote it to general salary increases, improved benefits, and resolving salary anomalies. One thing that makes this clear is that these awards are already often used as a way to address salary anomalies anyways.
Selected Bibliography:


Faculty Salary System – Analysis of Merit Scores

Introduction / Context

The following analysis was requested by the Working Group on Work/Life Balance issues, primarily as part of its mandate to determine whether or not structural features of the current faculty salary system generate salary anomalies. Particular attention is paid to merit scores. Differences between gender, appointment type, ranks and other measures are examined to flag any potential issues with the salary system.

Approach / Methods

There were several statistical methods used to determine whether differences between various groups were significant statistically. In general, multiple comparison procedures (Tukey’s HSD) were used. SPSS was used to conduct the analysis. Analyses were conducted by Jay Athia of IAP.

- Differences in scores by appointment type, rank and gender were computed and assessed.
- Histograms of overall, teaching, scholarship and service ratings by gender were generated to illustrate the distribution of scores between genders.
- Scatterplots of birth year (age) and year of 1st appointment at institution against overall ratings were generated. This method will allow for visual identification of any patterns. Additionally, the slope of the line of best fit was determined to quantify the trend.

Data Sources

The primary data source for this analysis was faculty salary increase records extracted from the Human Resources Management System (HRMS) through an interface with Institutional Analysis and Planning. Faculty records as of May 2012 were considered.

Modifications to the Faculty List

The following changes were made to the list of faculty members extracted from HRMS:

- The senior administrative pool was removed due to low sample size
- Where faculty members had a joint appointment, and the pool and ratings were not the same in the two appointments, two distinct records were retained, but the appointment IDs were changed to be the same. Where faculty members had a joint appointment, and the pool and ratings were the same, the records were merged. This resulting data set contained 1077 records.
1 – Summary of Records

Data from 1077 records were used in these analyses. Of these 1077 records, 794 pertained to males and 283 pertained to females. The breakdown by rank and gender is given in Table 1. It indicates that males are more likely to be at the Full Professor rank, females at the Assistant, Lecturer and Clinical Lecturer ranks.

Table 1 – Records by Rank and Gender

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<td></td>
<td></td>
<td>1077</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 further describes the 1077 records in the analysis by considering the year of first appointment to the University of Waterloo for the 794 males and 283 females in the data set. The data shows that 677 (63%) of the 1077 records (72% of females and 60% of males) relate to individuals hired since 2000.

Table 2 – Year of First Appointment by Gender

<table>
<thead>
<tr>
<th>Year of First Appointment</th>
<th>Count</th>
<th>% within Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968 to 1979</td>
<td>2</td>
<td>4.3%</td>
</tr>
<tr>
<td>1979</td>
<td>45</td>
<td>95.7%</td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>100.0%</td>
</tr>
<tr>
<td>1980 to 1984</td>
<td>6</td>
<td>13.3%</td>
</tr>
<tr>
<td></td>
<td>39</td>
<td>86.7%</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>100.0%</td>
</tr>
<tr>
<td>1985 to 1989</td>
<td>22</td>
<td>22.0%</td>
</tr>
<tr>
<td></td>
<td>78</td>
<td>78.0%</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100.0%</td>
</tr>
<tr>
<td>1990 to 1994</td>
<td>21</td>
<td>25.0%</td>
</tr>
<tr>
<td></td>
<td>63</td>
<td>75.0%</td>
</tr>
<tr>
<td></td>
<td>84</td>
<td>100.0%</td>
</tr>
<tr>
<td>1995 to 1999</td>
<td>29</td>
<td>25.4%</td>
</tr>
<tr>
<td></td>
<td>95</td>
<td>76.6%</td>
</tr>
<tr>
<td></td>
<td>124</td>
<td>100.0%</td>
</tr>
<tr>
<td>2000 to 2004</td>
<td>59</td>
<td>31.6%</td>
</tr>
<tr>
<td></td>
<td>169</td>
<td>68.4%</td>
</tr>
<tr>
<td></td>
<td>228</td>
<td>100.0%</td>
</tr>
<tr>
<td>2005 to 2009</td>
<td>96</td>
<td>25.9%</td>
</tr>
<tr>
<td></td>
<td>208</td>
<td>74.1%</td>
</tr>
<tr>
<td></td>
<td>304</td>
<td>100.0%</td>
</tr>
<tr>
<td>2009</td>
<td>31.6%</td>
<td>68.4%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>2010 to 2012</td>
<td>48</td>
<td>33.1%</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>66.9%</td>
</tr>
<tr>
<td></td>
<td>145</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total Records</td>
<td>283</td>
<td>794</td>
</tr>
<tr>
<td>% of Total</td>
<td>26.3%</td>
<td>73.7%</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3 – Year of First Appointment by Faculty

<table>
<thead>
<tr>
<th>Year of First Appointment</th>
<th>Count</th>
<th>AHS</th>
<th>Arts</th>
<th>ENG</th>
<th>ENV</th>
<th>Math</th>
<th>Science</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968 to 1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>% within Range</td>
<td>14.9%</td>
<td>21.3%</td>
<td>21.3%</td>
<td>4.3%</td>
<td>25.5%</td>
<td>12.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>1980 to 1984</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>% within Range</td>
<td>6.7%</td>
<td>22.2%</td>
<td>31.1%</td>
<td>2.2%</td>
<td>11.1%</td>
<td>26.7%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>1985 to 1989</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>% within Range</td>
<td>5.0%</td>
<td>19.0%</td>
<td>28.0%</td>
<td>3.0%</td>
<td>19.0%</td>
<td>26.0%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>1990 to 1994</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>84</td>
</tr>
<tr>
<td>% within Range</td>
<td>3.6%</td>
<td>23.8%</td>
<td>31.0%</td>
<td>4.8%</td>
<td>22.6%</td>
<td>14.3%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>1995 to 1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>124</td>
</tr>
<tr>
<td>% within Range</td>
<td>1.6%</td>
<td>21.8%</td>
<td>32.3%</td>
<td>5.6%</td>
<td>19.4%</td>
<td>19.4%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>2000 to 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>228</td>
</tr>
<tr>
<td>% within Range</td>
<td>6.1%</td>
<td>22.8%</td>
<td>25.9%</td>
<td>3.9%</td>
<td>25.4%</td>
<td>15.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>2005 to 2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>304</td>
</tr>
<tr>
<td>% within Range</td>
<td>6.2%</td>
<td>27.3%</td>
<td>24.0%</td>
<td>10.2%</td>
<td>16.4%</td>
<td>15.8%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>2010 to 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>145</td>
</tr>
<tr>
<td>% within Range</td>
<td>6.9%</td>
<td>28.3%</td>
<td>27.6%</td>
<td>6.9%</td>
<td>13.1%</td>
<td>17.2%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Total Records</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1077</td>
</tr>
<tr>
<td>% of Total</td>
<td>5.8%</td>
<td>24.3%</td>
<td>26.9%</td>
<td>6.2%</td>
<td>19.1%</td>
<td>17.5%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
Table 3 (previous page) gives the number of faculty members by year of first appointment and Faculty. The percentages hired since 2000 range from 59.3% in Engineering to 74.6% in Environment.

Table 4 gives the number of faculty members by birth year and Faculty. The percentages born since 1966 range from 41.8% in Environment to 51.9% in Mathematics.

Table 4 – Birth Year by Faculty

<table>
<thead>
<tr>
<th>Birth Year</th>
<th>Count</th>
<th>Applied Health Sciences</th>
<th>Arts</th>
<th>Engineering</th>
<th>Environment</th>
<th>Math</th>
<th>Science</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1945</td>
<td>21</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>100.0%</td>
</tr>
<tr>
<td>% within Range</td>
<td>0.0%</td>
<td>28.6%</td>
<td>28.6%</td>
<td>4.8%</td>
<td>23.8%</td>
<td>14.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945 to 1955</td>
<td>208</td>
<td>20</td>
<td>51</td>
<td>50</td>
<td>11</td>
<td>32</td>
<td>44</td>
<td>100.0%</td>
</tr>
<tr>
<td>% within Range</td>
<td>9.6%</td>
<td>24.5%</td>
<td>24.0%</td>
<td>5.3%</td>
<td>15.4%</td>
<td>21.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1956 to 1965</td>
<td>360</td>
<td>15</td>
<td>84</td>
<td>99</td>
<td>27</td>
<td>62</td>
<td>73</td>
<td>100.0%</td>
</tr>
<tr>
<td>% within Range</td>
<td>4.2%</td>
<td>23.3%</td>
<td>27.5%</td>
<td>7.5%</td>
<td>17.2%</td>
<td>20.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966 to 1975</td>
<td>358</td>
<td>22</td>
<td>92</td>
<td>95</td>
<td>23</td>
<td>76</td>
<td>50</td>
<td>100.0%</td>
</tr>
<tr>
<td>% within Range</td>
<td>6.1%</td>
<td>25.7%</td>
<td>26.5%</td>
<td>6.4%</td>
<td>21.2%</td>
<td>14.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1976 to 1987</td>
<td>130</td>
<td>6</td>
<td>29</td>
<td>40</td>
<td>5</td>
<td>31</td>
<td>19</td>
<td>100.0%</td>
</tr>
<tr>
<td>% within Range</td>
<td>4.6%</td>
<td>22.3%</td>
<td>30.8%</td>
<td>3.8%</td>
<td>23.8%</td>
<td>14.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Records</td>
<td>1077</td>
<td>63</td>
<td>262</td>
<td>290</td>
<td>67</td>
<td>206</td>
<td>189</td>
<td>100.0%</td>
</tr>
<tr>
<td>% of Total</td>
<td>5.8%</td>
<td>24.3%</td>
<td>26.9%</td>
<td>6.2%</td>
<td>19.1%</td>
<td>17.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2- Summary of Findings

Assigned scores were analyzed by rank, gender, appointment type, and Faculty. All findings below were tested for statistical significance.

- Full Professors tend to get higher mean scores in scholarship and teaching.
- While there are small differences in each category and in overall scores between males and females, they are not statistically significant.
- Tenured faculty tend to get higher overall mean scores, as well as higher scores in scholarship and teaching.
- Faculty in the Math Faculty tend to get lower mean scores in overall, scholarship, service and teaching.
- Faculty members with an Associate Dean, Director or Department Chair position are more likely than other faculty members to get an overall score of 2.00.

3 - Results

3.1 – Overall Scores

Descriptive statistics for overall scores are in Table 5 below, and Figure 1 shows the distribution of overall scores. The mean overall score is 1.62, It is evident from Figure 1 that scores tend to be skewed towards the higher end of the range, with very few scores below 1.0.

Table 5 - Descriptive Statistics for Overall Rating

<table>
<thead>
<tr>
<th></th>
<th>Number of Records</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Score</td>
<td>1077</td>
<td>2.0</td>
<td>0.0</td>
<td>2.0</td>
<td>1.620</td>
<td>0.2542</td>
<td>0.065</td>
</tr>
</tbody>
</table>
Table 6 gives the mean scores for the overall rating and each of the three areas that comprise the score. Seventy-six faculty members, (73 Lecturers), have weights of zero assigned to scholarship. Scholarship Score\textsubscript{2} gives the average scholarship score for those who have a non-zero weight for scholarship. Mean scores in each component of the overall score are approximately 1.60.

**Table 6– Mean scores overall and by area**

<table>
<thead>
<tr>
<th>Area</th>
<th>Mean</th>
<th>Number of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Score</td>
<td>1.620</td>
<td>1077</td>
</tr>
<tr>
<td>Scholarship Score\textsubscript{1}</td>
<td>1.476</td>
<td>1077</td>
</tr>
<tr>
<td>Scholarship Score\textsubscript{2}</td>
<td>1.588</td>
<td>1001</td>
</tr>
<tr>
<td>Service Score</td>
<td>1.595</td>
<td>1077</td>
</tr>
<tr>
<td>Teaching Score</td>
<td>1.606</td>
<td>1077</td>
</tr>
</tbody>
</table>
3.2- Analysis by Faculty Rank

Mean Scores by rank are given in Table 7 and shown in Figure 2.

Table 7 – Mean Scores by Rank

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th>Professor</th>
<th>Associate</th>
<th>Assistant</th>
<th>Lecturer</th>
<th>Clinical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>n</td>
<td>Mean</td>
<td>n</td>
<td>Mean</td>
</tr>
<tr>
<td>Overall Score</td>
<td>1.705</td>
<td>374</td>
<td>1.603</td>
<td>352</td>
<td>1.523</td>
</tr>
<tr>
<td>Scholarship Score&lt;sub&gt;1&lt;/sub&gt;</td>
<td>1.71</td>
<td>374</td>
<td>1.54</td>
<td>352</td>
<td>1.53</td>
</tr>
<tr>
<td>Scholarship Score&lt;sub&gt;2&lt;/sub&gt;</td>
<td>1.71</td>
<td>373</td>
<td>1.55</td>
<td>350</td>
<td>1.53</td>
</tr>
<tr>
<td>Service Score</td>
<td>1.69</td>
<td>374</td>
<td>1.62</td>
<td>352</td>
<td>1.44</td>
</tr>
<tr>
<td>Teaching Score</td>
<td>1.64</td>
<td>374</td>
<td>1.61</td>
<td>352</td>
<td>1.55</td>
</tr>
</tbody>
</table>

There are several statistically significant differences in mean overall rating between ranks. In the summary below, the rank with the higher mean overall rating is in bold. Actual score differences are in brackets. There are significant differences between:

- Professors and associate professors (.101)
- Professors and assistant professors (.182)
- Professors and lecturer (.121)
- Associate professors and assistant professors (.081)

Statistically significant differences in teaching, scholarship and service ratings were also found between ranks. Again, the rank with the higher mean rating is in bold, and the difference is in brackets. Because many Lecturers have weights of zero assigned to scholarship, the comparisons are misleading and not reported:

- Scholarship score:
  - Professors and associate professor (0.171)
  - Professors and assistant professor (0.178)
  - Professors and clinical (0.306)
- Service score:
  - Professors and associate professors (0.072)
  - Professors and assistant professors (0.253)
  - Professors and lecturer (0.169)
  - Associate and assistant professors (0.182)
  - Clinical and Assistant (0.274)
- Teaching score:
  - Professors and assistant professors (.084)
Figure 2 - Distribution of Mean Overall Rating by Faculty Rank
3.3 - Analysis by Gender

Table 8 gives the mean scores overall and in the three areas, by gender. Figures 3 and 4 show the distribution of overall ratings by gender. Figures 5, 6 and 7 show the distributions for the three areas. Again, Scholarship Score$_2$ removes those who had a zero weight assigned for scholarship.

There is no significant difference between the mean overall ratings given to males and females.

Table 8 - Mean scores by gender

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Overall Score</td>
<td>1.602</td>
</tr>
<tr>
<td>Scholarship Score$_1$</td>
<td>1.428</td>
</tr>
<tr>
<td>Scholarship Score$_2$</td>
<td>1.566</td>
</tr>
<tr>
<td>Service Score</td>
<td>1.589</td>
</tr>
<tr>
<td>Teaching Score</td>
<td>1.600</td>
</tr>
</tbody>
</table>
Figure 3 - Overall Rating by Gender

N = 794
Median = 1.650
Mean = 1.626

N = 283
Median = 1.600
Mean = 1.602
Figure 4 shows the distribution of scores for females and males.

Figures 5, 6, and 7 show the distribution of scholarship, teaching and service ratings, respectively, by gender.
Figure 5 shows that a higher proportion of men receive scholarship ratings of 2.0 compared to females, while more females receive ratings of 1.50 and 1.75. The large number of zero ratings correspond mostly to those who have an assigned weight of zero for scholarship.

The mean scores for scholarship assigned to males and females do not differ significantly.
Figure 6 shows the distribution of teaching ratings between males and females. The mean scores for teaching assigned to males and females do not differ significantly.
Figure 7 shows the distribution of service ratings between males and females.

The mean scores for service assigned to males and females do not differ significantly.
3.4 - Analysis by Rank and Gender

As indicated in Table 1, there is an imbalance in the distribution of males and females between the ranks. Table 9 summarizes the mean scores by rank and gender. The scholarship scores for Lecturers are not reported due to the large number of assigned weights of zero. The data for the Clinical Lecturers is suppressed due to the small numbers in that category.

The table indicates no systematic differences between genders, with the differences between ranks being evident for both males and females.

Table 9 – Mean Scores by Rank and Gender

<table>
<thead>
<tr>
<th>Faculty Rank</th>
<th>Professor Gender</th>
<th></th>
<th>Scholarship Rate</th>
<th>Service Rate</th>
<th>Teaching Rate</th>
<th>Number of records</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gender</td>
<td>Overall Rating</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1.693</td>
<td>1.71</td>
<td>1.74</td>
<td>1.62</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.707</td>
<td>1.71</td>
<td>1.68</td>
<td>1.64</td>
<td>313</td>
</tr>
<tr>
<td>Associate</td>
<td>Female</td>
<td>1.623</td>
<td>1.57</td>
<td>1.63</td>
<td>1.64</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.596</td>
<td>1.53</td>
<td>1.61</td>
<td>1.60</td>
<td>255</td>
</tr>
<tr>
<td>Assistant</td>
<td>Female</td>
<td>1.521</td>
<td>1.52</td>
<td>1.46</td>
<td>1.55</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.524</td>
<td>1.54</td>
<td>1.42</td>
<td>1.55</td>
<td>151</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Female</td>
<td>1.547</td>
<td>NR</td>
<td>1.47</td>
<td>1.54</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.602</td>
<td>NR</td>
<td>1.55</td>
<td>1.62</td>
<td>71</td>
</tr>
</tbody>
</table>
3.5- Analysis by Appointment Type

Table 10 gives the mean scores overall and by area for each appointment type. Scholarship Score\textsubscript{2} removes those individuals who have an assigned weight of zero for scholarship.

Table 10 – Mean Scores by Appointment Type

<table>
<thead>
<tr>
<th>Appointment Type</th>
<th>Tenure</th>
<th>Probationary</th>
<th>Continuing</th>
<th>Definite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>n</td>
<td>Mean</td>
<td>n</td>
</tr>
<tr>
<td>Overall Score</td>
<td>1.657</td>
<td>706</td>
<td>1.535</td>
<td>238</td>
</tr>
<tr>
<td>Scholarship Score\textsubscript{1}</td>
<td>1.626</td>
<td>706</td>
<td>1.548</td>
<td>238</td>
</tr>
<tr>
<td>Scholarship Score\textsubscript{2}</td>
<td>1.633</td>
<td>703</td>
<td>1.548</td>
<td>238</td>
</tr>
<tr>
<td>Service Score</td>
<td>1.657</td>
<td>706</td>
<td>1.453</td>
<td>238</td>
</tr>
<tr>
<td>Teaching Score</td>
<td>1.627</td>
<td>706</td>
<td>1.553</td>
<td>238</td>
</tr>
</tbody>
</table>

Figure 10 shows the mean overall scores between appointment types.
Figure 10 - Distribution of Overall Score by Appointment Type

There are statistically significant differences in mean overall rating between appointment types. In the summary below, the appointment type with the higher mean overall rating is in bold. Actual score differences are in brackets. The differences noted were between:

- **Tenured** and probationary (0.123)
- **Tenured** and definite (0.176)
- **Continuing** and probationary (0.167)
- **Continuing** and definite (0.221)

Additionally, there was found to be a statistically significant difference in teaching, scholarship and service ratings between appointment types. Results are listed below. Again, the appointment type with the higher mean rating is in bold, and the difference is in brackets. Comparisons of scholarship scores for Continuing and Definite appointments are not reported due to the large number of individuals with assigned scores of zero for scholarship.

- Scholarship rate:
  - Tenured and probationary (0.07810)
- Service rate:
  - Tenured and probationary (0.204)
  - Tenured and definite (0.264)
  - Continuing and probationary (0.248)
  - Continuing and definite (0.308)
- Teaching rate:
  - Tenured and probationary (0.074)
  - Tenured and definite (0.134)
  - Continuing and probationary (0.166)
  - Continuing and definite (0.225)
3.6 - Analysis by Faculty

Figure 9 shows the mean overall rating by FSI pool. There is a significant difference in the mean overall scores in Math compared to the other Faculties. Math had lower scores in all three components than the other Faculties, with the differences being lower, but smaller, for the service component. It is clear that different reference standards are used in the Faculty of Mathematics. This does not affect the merit component of salary increases, however, since these are assigned within Faculties using Faculty specific average scores as the reference.

Figure 9 - Mean Overall Rating by Faculty (FSI Pool)
3.7 Analysis by Birth Year and Year of First Appointment

Analyses were undertaken to examine how overall rating scores were related to age and years of service at Waterloo. Figure 10 plots overall rating against birth year. The figure shows considerable scatter and there is little relationship between birth year and overall rating.

Figure 10 - Plot of Overall Rating by Birth Year
Figure 11 likewise shows little evidence of a relationship between year of first appointment and overall rating.

Figure 11 – Plot of Overall Rating by Year of First Appointment
To examine the trend in scores for pre-tenured faculty, Figure 12 selects faculty members who have a probationary appointment and for whom their first appointment at the institution was 2004 or later. There is considerable scatter and evidence that recently hired faculty are not necessarily being assigned low scores in their first few years. There is also evidence that scores for this group increase with year from appointment, but there is considerable scatter.

Figure 12 – Plot of Overall Rating for Probationary Faculty by Year of First Appointment
3.8 - Analysis for Those with Heavier Service Responsibilities

3.8.1 - Analysis by Service Weights (0.2 vs 0.4)

Figure 12 shows the vast majority (approx. 77%) of faculty members have an assigned service weighting of 0.20. In comparison, 8.9% of faculty members have increased service responsibilities and hence an increased weight (0.40) assigned to the service component.

A comparison of measures of performance between these two groups indicates that the group with a service weight of 0.40 had significantly higher overall scores (difference 0.103), and significantly higher service scores (difference 0.272), but significantly lower scholarship scores (difference -0.304). The teaching scores did not differ significantly between the two groups. This suggests that faculty members who participate in additional service related activities (thus given a higher weighting for service), on average, receive higher overall ratings.

Figure 12 - Distribution of Service Weights
3.8.2 – Overall Scores Awarded to Associate Deans, Directors and Chairs

Associate Deans, Directors and Chairs have much increased service responsibility. Table 11 shows, the proportion of merit scores of 2.00 awarded to individuals who hold an Associate Dean, Director or Department Chair position, compared to those who do not hold such a position. Nearly 90% of those in an Associate Dean, Director or Department Chair position receive a score of 2.0 for service. The proportion that receives an overall score of 2.0 is higher for Associate Deans, Directors and Chairs compared to those not holding those positions, and similarly scores of 2.0 are more common for teaching and research for individuals holding those positions. (Of course, in order to get a 2.0 overall rating, one must obtain 2.0 in each of the three areas).

Table 11 – Proportion Awarded Scores of 2.0

<table>
<thead>
<tr>
<th>Position</th>
<th>Type</th>
<th>Score of 2.0</th>
<th># of Faculty members</th>
<th>% of group who scored 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD/Chair</td>
<td>Overall</td>
<td>22</td>
<td>69</td>
<td>31.9%</td>
</tr>
<tr>
<td></td>
<td>Scholarship</td>
<td>29</td>
<td>69</td>
<td>42.0%</td>
</tr>
<tr>
<td></td>
<td>Teaching</td>
<td>29</td>
<td>69</td>
<td>42.0%</td>
</tr>
<tr>
<td></td>
<td>Service</td>
<td>62</td>
<td>69</td>
<td>89.9%</td>
</tr>
<tr>
<td>Excl. AD/Chair</td>
<td>Overall</td>
<td>48</td>
<td>1008</td>
<td>4.8%</td>
</tr>
<tr>
<td></td>
<td>Scholarship</td>
<td>210</td>
<td>1008</td>
<td>20.8%</td>
</tr>
<tr>
<td></td>
<td>Teaching</td>
<td>156</td>
<td>1008</td>
<td>15.5%</td>
</tr>
<tr>
<td></td>
<td>Service</td>
<td>224</td>
<td>1008</td>
<td>22.2%</td>
</tr>
</tbody>
</table>
FOR INFORMATION

University Professor Designation
The 2013 University Professor designation: Douglas Stinson (computer science).

Waterloo has awarded this distinction to nineteen other individuals: Garry Rempel (chemical engineering), Mary Thompson (statistics & actuarial science) and Mark Zanna (psychology) in 2004; Terry McMahon (chemistry), Cam Stewart (pure mathematics) and Robert Jan van Pelt (architecture) in 2005; Phelim Boyle (accountancy) and Ian Munro (computer science) in 2006; Ken Davidson (pure mathematics), Keith Hipel (systems design engineering) and Jake Sivak (optometry) in 2007; Roy Cameron (health studies & gerontology) and Flora Ng (chemical engineering) in 2008; Ellsworth LeDrew (geography & environmental management) and Ming Li (computer science) in 2009; Stuart McGill (kinesiology) and Janusz Pawliszyn (chemistry) in 2010, Robert Le Roy (chemistry) in 2011 and François Paré (french studies) in 2012.

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

Not counting retirees, it is anticipated there will be 14 University Professorships at steady state, with at most two appointments each year. Such appointments are reported to Senate and the Board of Governors in March and April respectively, and are recognized at Convocation.

Selection Process
1. Annually, nominations will be sought from Deans, Directors and Chairs, as well as from the University community generally. A nominee shall have demonstrated exceptional scholarly achievement and international pre-eminence in a particular field or fields of knowledge. The individual who nominates a colleague is responsible for gathering the documentation and submitting it to the Vice-President, Academic & Provost before the December break. The University Tenure and Promotion Committee will act as the selection committee; its decisions are final.

2. A nomination must be supported by at least six signatures from at least two UW departments/schools and must be accompanied by a curriculum vitae and a short, non-technical description of the nominee’s contributions.

3. A nomination must also be accompanied by letters from the nominee’s Dean, and from at least two and no more than five scholars of international standing in the nominee’s field from outside the University. The scholars are to be chosen by the nominee’s Chair/Director in consultation with the Dean and the nominator. The letter of nomination should explain why these particular scholars were chosen.

4. Letters soliciting comments from scholars shall be sent by the Chair/Director. Scholars shall be asked to comment on the impact and specific nature of the nominee’s most influential contributions, addressing their responses directly to the Vice-President, Academic & Provost.

5. The dossiers of unsuccessful nominees remain in the pool for two additional years. The appropriate Dean should provide updated information each year.

Geoff McBoyle
Vice-President, Academic & Provost
FOR APPROVAL

Change to the Constitution of the Mathematics Faculty Council [Attachment 1]

Motion: To approve the recommended changes to the Constitution of the Mathematics Faculty Council.

Background: The Constitution was last changed in 1982, and needed updating. This was a particular challenge due to the rules for membership and amendment. The required mail ballot was conducted in January 2013, after the required four weeks’ notice, with the following outcome:

Total eligible voters were 257. Total votes received were 212 (82.5% return). Of the votes received 201 were Yes and 11 were No/abstain.

Accordingly, the changes have been approved by the two thirds majority in the mail ballot, and are now before Senate for final approval.
THE UNIVERSITY OF WATERLOO
MATHEMATICS FACULTY COUNCIL

(Hereinafter called "The Council")
(as approved by Faculty Council on April 20, 1982)
(as approved by University Senate on June 21, 1982)

CONSTITUTION

November 26, 2012

The Constitution of Mathematics Faculty Council

1. Membership

- The President of the University.
- The Vice-President, Academic and Provost.
- The Dean of the Faculty of Mathematics.
- All Professors, Associate Professors, Assistant Professors and full-time Lecturers holding a regular, full-time faculty appointment in the Faculty of Mathematics.
- All Professors, Associate Professors, Assistant Professors and Lecturers holding a regular, full-time faculty appointment in the Mathematics Department of St. Jerome's University.
- Visiting Professors of all ranks whose term of appointment is not less than one year.
- Part-time Lecturers, Adjunct Professors, and Visiting Professors whose term of appointment is less than one year, who shall be members without the right to make a motion or to vote.
- Two representatives from each of the other Faculty Councils, who shall be faculty members.
- The Dean of Graduate Studies.
- The Registrar, or his/her delegate.
- The Program Administrator (Mathematics) of the Department of Co-operative Education & Career Services.
- The University Librarian or his/her delegate.
- One full-time Mathematics graduate student, chosen by the graduate students of the Faculty, and two full-time Mathematics undergraduate students chosen by the Mathematics Society.
- The Chair of the Council shall be elected by the Council for a three-year term.
- The Secretary, who shall be appointed by the Dean, need not be chosen from the members of the Council. If not a member of the Council prior to the appointment, the Secretary shall become a (non-voting) member of the Council on appointment.
• The following University officials or their delegates: the Associate Vice-President for Academic Programs, the Associate Provost for Graduate Studies, the Registrar, the University Librarian.

• The Faculty Relations Manager (Mathematics) of the Department of Co-operative Education and Career Action.

• The Director of the Student Success Office.

• Two full-time Undergraduate Students in the Faculty of Mathematics, chosen by the Mathematics Society.

• One full-time Graduate Student in the Faculty of Mathematics, chosen by her or his peers.

• One full-time post-doctoral fellow in the Faculty of Mathematics, chosen by her or his peers.

• One delegate from each of the Councils of the other Faculties at the University.

2. Chair

• The Chair of Mathematics Faculty Council shall be elected by the Council from within its membership, and normally serve for a three year term.

3. Secretary

• The Secretary of Mathematics Faculty Council shall be appointed by the Dean of the Faculty, and need not be a voting member of Faculty Council.

II. POWERS AND DUTIES

4. Powers and Duties of Mathematics Faculty Council

• The powers and duties of the Mathematics Faculty Council shall be:

  a. To make rules and regulations for governing its proceedings.

  b. Subject to the approval of the Senate, to determine the courses of study in the Faculty and the conditions of admission into, and continuation within, these courses of study.

  c. Subject to confirmation by Senate, to appoint the examiners for, and conduct the examinations of, the courses in the Faculty and determine the results of such examinations.

  d. To recommend to the Senate candidates for the conferring of degrees, diplomas, awards and other honours.

  e. To appoint such standing and ad hoc committees as it shall from time to time determine, and to delegate to such committees any powers and responsibilities which Council itself possesses.

  f. To consider and report to the Senate upon such matters affecting the Faculty as may seem appropriate to the Council.

III. ADOPTION AND AMENDMENT
5. Amendment of the Constitution

Any amendments to this Constitution shall require the following.

- This constitution shall come into effect on its acceptance by a meeting of the Council called for this purpose and on its ratification by the Senate. Amendments to the Constitution shall be made by a two-thirds majority vote of the voting members of the Council by a mail ballot; such amendments shall require approval by the Senate. Notice of motion for any resolution to amend the constitution must be given at least four weeks prior to any vote on the resolution.

- A recommendation for such amendments ratified by a simple majority at a meeting of Mathematics Faculty Council. Notice of such a recommendation must be brought to Mathematics Faculty Council at least one week prior to its discussion.

- A ballot (including the use of electronic voting) of all members of Faculty Council, on the recommendation emerging from a meeting of Faculty Council. There shall be at least seven days’ notice before the start of the voting period, and the voting period shall have a duration of fifteen business days. The ballot must carry by a 60% majority of all members of Faculty Council.

- Approval of the University Senate.

IV. PROCEDURE

6. Procedure

- In all matters of procedure, the Mathematics Faculty Council shall be Council shall, unless it shall otherwise have determined in advance, guided by Robert's Rules of Order Newly Revised.

V. OTHER MATTERS

- In any matter not covered by this Constitution and By Laws, Council shall determine its own procedure by a simple majority of those present and voting.
Report of the University Librarian
The university librarian will report on the Library Review and “next steps” (http://www.lib.uwaterloo.ca/libreview/documents.html).

In particular, he will focus on:

The Library's Strategic Directions

- **Advance research and scholarship** by partnering with researchers and scholars in the production, dissemination and preservation of knowledge
- **Enable student success** by providing measurably effective education, outreach and information services and resources
- **Foster staff creativity, collaboration and pro-active skills development** and expand the infrastructure for staff training and development
- **Address critical space needs and establish a framework for agile space management** that is responsive to ongoing campus needs