University of Waterloo  
SENATE  
Notice of Meeting

Date: Monday 21 April 2014  
Time: 3:30 p.m.  
Place: Needles Hall, Room 3001

<table>
<thead>
<tr>
<th>OPEN SESSION</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30</td>
<td><strong>Consent Agenda</strong></td>
</tr>
<tr>
<td><strong>Motion:</strong> To approve or receive for information by consent items 1-4 below.</td>
<td></td>
</tr>
<tr>
<td>1. Minutes of the 24 March 2014 Meeting</td>
<td>Decision</td>
</tr>
</tbody>
</table>
| 2. Reports from Councils  
   a. Graduate & Research  
   b. Undergraduate | Information/Decision |
| 3. Report of the President  
   a. Recognition and Commendation | Information |
| 4. Reports from the Faculties and Renison University College | Information |

<table>
<thead>
<tr>
<th>Regular Agenda</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3:35</td>
<td>5. Business Arising from the Minutes</td>
</tr>
</tbody>
</table>
| 6. Reports from Committees and Councils  
   a. Executive Committee | Decision |
| 3:40  
   b. Graduate & Research Council | Decision |
| 3:50  
   c. Undergraduate Council | Decision |
| 4:00 | 7. Presentations  
   a. Research: Professor Melanie Campbell, Physics & Astronomy | Information |
| 4:10  
   b. Federation of Students: President David Collins | Information |
| 4:20 | 8. Report of the President | Information |
| 4:30 | 9. Q&A Period with the President | Information |
   a. University Professor – Change to Description and Criteria | Decision |
| 4:55  
   b. Exceptions to Policy 40, The Chair related to Religious Studies | Decision |
| 5:05 | 11. Report of the Vice-President, University Research | Information |
| 5:15 | 12. Other Business | |

<table>
<thead>
<tr>
<th>CONFIDENTIAL SESSION</th>
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<tbody>
<tr>
<td>5:20</td>
<td>13. Minutes of the 24 March 2014 Meeting</td>
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<tr>
<td>5:25</td>
<td>14. Business Arising from the Minutes</td>
</tr>
<tr>
<td>5:30</td>
<td>15. Other Business</td>
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JLA:tad 
11 April 2014  
Logan Atkinson  
University Secretary & General Counsel
University of Waterloo
SENATE
Minutes of the Monday 24 March 2014 Meeting


Guests: Nello Angerilli, Nathaniel Barr, Barb Blundon, Mario Coniglio, Mike den Haan, Mahejabeen Ebrahim, Donna Ellis, Jennifer Kieffer, Brenda Lee, Kashif Memon, Cathy Newell Kelly, Sonia Rahman, Ellen Réthoré, Erin Sargeant Greenwood, Anindya Sen, Maryam Shahtaheri, Allan Starr, Marilyn Thompson, Levent Tuncel, Christina Vester, Dave Wallace, Nancy Weiner

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, and extended a special welcome to Ray Darling, attending his first meeting as registrar.

The agenda was approved by consensus as circulated.

OPEN SESSION

Consent Agenda
Senate heard a motion to approve or receive for information by consent items 1-4 below.

1. MINUTES OF THE 24 FEBRUARY 2014 MEETINGS
   Senate approved the minutes of the meeting as distributed.

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

3. REPORTS FROM THE FACULTIES
   Senate received the reports for information.
4. **REPORT OF THE COU ACADEMIC COLLEAGUE**
   Senate received the report for information.

Skidmore and Andrey. Carried.

**Regular Agenda**

5. **BUSINESS ARISING FROM THE MINUTES**
   **Confucius Institute.** Atkinson reported that the Confucius Institute did not come to Senate for approval when it was established.

6. **REPORT OF THE UNIVERSITY LIBRARIAN** [Library Update 2014 at senators’ places]
   Haslett provided his annual update focusing on the Library’s four strategic directions and their alignment with the university strategic plan.

   In answer to questions from senators, Haslett spoke to plans to continue renovation projects in the Library, and to the Library’s role in bibliometrics. A short summary of the status of copyright matters was provided in response to a further question.

   Slides used in the presentation may be seen at https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/librarian_0.pdf

7. **REPORTS FROM COMMITTEES**
   **Amit & Meena Chakma Awards for Exceptional Teaching by a Student Committee** [report at senators’ places]. Following an explanation of the criteria on which nominees are assessed, Horton presented the names of this year’s recipients to Senate: Rania Al-Hammoud, civil and environmental engineering; Nathaniel Barr, psychology; Brenda Lee, biology. A round of applause followed.

   **Distinguished Teacher Award Committee** [report at senators’ places]. Coniglio provided background and context to these awards and presented the names of this year’s recipients to Senate: Kashif Memon, science and business; Anindya Sen, economics; Levent Tuncel, combinatorics and optimization; Christina Vester, classical studies. A round of applause followed.

   **Finance Committee.** McBoyle made a presentation on the proposed university operating budget for 2014-2015, and the supplementary data submitted to support the budget. He spoke particularly about the proposed temporary deficit and measures being planned to address that deficit, and about the proposal for a reduction in the operating budget for the faculties. Other highlights of the budget were summarized.

   Senate heard a motion to recommend that the Board of Governors approve the 2014-2015 operating budget as presented.

   McBoyle and Guild.

   McBoyle responded to a question about the relationship between increasing or decreasing enrolments, the projected deficit and the proposed cuts to faculty budgets. With respect to the prospect of faculty hires in relation to projected enrolment growth over the next five to ten years, McBoyle indicated that he expects the coming year to be an anomaly, and that hiring ought to return to normal in years following. Comment was provided on the relationship between staff hiring and faculty hiring. The hiring freeze will continue following 1 May. McBoyle was asked if further detail could be provided on non-salary expenditures, both by faculties and by academic support units. Huber indicated that
certain of this information, not related to the budget but related to actuals, are provided in a schedule to the annual financial statements.

Huber provided an explanation of the relationship between the operating budget and the capital budget. Senate was advised as to various methods of financing new buildings.

The question was called, and the motion carried.

8. PRESENTATIONS

Graduate Student Association. The president of the Graduate Student Association, Robert Henderson, provided a presentation on the work of the GSA over the past year, positioning projects and accomplishments relative to the history of the GSA.

There was discussion of the termination of the ombudsperson office and the alternatives available to graduate students in this respect.


9. REPORT OF THE PRESIDENT

Hamdullahpur presented a broad report covering a number of items, including an update on the strategic mandate submission and timeline, the visit of the president and the vice-president, university research to Israel and the Technion Israel Institute of Technology and the outcomes of that visit, some items of interest from the recent federal budget, the visit of Premier Wynne to VeloCity, the provincial announcement about the eligibility of co-op students for student funding, and some ranking results positioning particular disciplines at the university in their global and national contexts. With respect to our financial situation, Hamdullahpur indicated that the expectation is that the provincial budget will not be unduly difficult for the sector, given the rumored election to come.

Hamdullahpur indicated that there has not yet been an attempt made to fill the position of vice-president, university relations, on either an interim or permanent basis. Consultations in this respect continue. The search for a new chancellor is underway through the efforts of the Executive Committee.

Slides used in the presentation may be seen at https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploadsfiles/president_6.pdf

10. Q&A PERIOD WITH THE PRESIDENT

Hamdullahpur answered a number of questions arising from his report, including the possibility of a formal response from the university on the recent HEQCO report on the relative strengths of particular programs (philosophy, economics and chemistry). The president indicated that no formal response would be prepared. On rankings, Hamdullahpur described some aspects of the methodology by which reputational rankings are established, especially in the context of employer quality.

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

Strategic Mandate Agreement. McBoyle offered further information on the Strategic Mandate Agreement, providing Senate with an update on the current status, the strength of the revised version submitted to the province, the province’s focus on experiential education and internationalization, and some minor criticisms on the numbers used to support graduate student projections. McBoyle pointed
out some changes to the submission by reference to the document accompanying the Senate agenda. He expects to have the arrangement finalized by the end of March.

**Undergraduate Admissions.** Weiner summarized first year admission targets and provided updates re: applications and early entrance scholarships.

Weiner answered questions on the numbers of offers made to students with greater than 90% graduating averages, and on the relationship between grade inflation in both private schools and public schools, and the fairness of providing scholarships to students based on grades in this environment. In response to a comment about the light attendance at the March Open House, she informed Senate that the matter is being reviewed and agreed to bring a report on the findings to Senate.

Slides used in the presentation may be seen at

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

Dixon reported on recent awards from the Canadian Foundation for Innovation Leaders Opportunity Fund, totaling $4.2 million over three years. He indicated that 22 letters of intent have gone forward from the University of Waterloo, among more than 200 province-wide, for the Research Excellence Awards from the Ontario Research Funds. He observed that we have a new minister of science and technology on the federal side, Ed Holder. Senate was advised that there is no NSERC Discovery Award news yet, although it is expected soon.

13. **OTHER BUSINESS**

There was no other business.

Senate convened in Confidential Session.

25 March 2014

Logan Atkinson
University Secretary & General Counsel
Senate Graduate & Research Council met on 3 March 2014 and 14 April 2014, 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: [https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-council](https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-council)

**FOR INFORMATION**

**RENEWAL OF CENTRES AND INSTITUTES**

**Centre for Contact Lens Research**

Under the direction of Lyndon Jones, the Centre for Contact Lens Research (CCLR) has over 25 years developed into a world-class research facility specializing in the integration of clinical, laboratory and socio-behavioural research centering on the eye.

Established in 1988, the CCLR aimed to meet the need for objective, academically-grounded research to support a growing contact lens industry. Since that time and under the direction of the founding director Desmond Fonn, the CCLR expanded from a three-person undertaking to become a world-leading clinical trial facility with a complement of approximately 50 researchers, support staff and graduate students/post-doctoral fellows.

Among the many achievements of the centre, the CCLR: played a significant role in the early development and testing of disposable and silicone hydrogel lenses; confirmed the role of oxygen in corneal health; and maintains a significant role in the development of new contact lens materials, designs and care systems.

In recognition of the world-class reputation and achievements of the Centre for Contact Lens Research, council approved its renewal for a five-year term ending March 2019, on behalf of Senate.

**Centre for Ecosystem Resilience & Adaptation**

With leadership from director Stephen Murphy, the Centre for Ecosystem Resilience & Adaptation (ERA) promotes a multidisciplinary and transdisciplinary approach between the natural, physical, and social sciences to determine how ecosystems are, or are not, resilient under natural and human-caused disturbance, as well as determining how both humans and ecosystems can be adapted to disturbance. The centre co-brands a portion of its activity with the Centre for Applied Science in Ontario Protected Areas (CASIOPA), which is a sub-centre of ERA.

ERA focuses on three main themes in its activities: research in conservation and restoration, including development of novel approaches to the prevention and repair of damaged ecosystems; increasing understanding of protected areas, particularly the role of protected areas in facilitating ecosystem resilience and adaptation; and investigation of the nature of ecosystem adaptation, which determines the capacity for ecosystem components to adapt to changes. Towards these ends, ERA and CASIOPA have hosted several well-attended workshops and conferences which attract the attention and involvement of leading researchers, government officials, non-governmental organizations and private sector leaders at the international level. Another prominent initiative of the Centre is the Speakers Series at the Waterloo Summit Centre for the Environment, which attracts major speakers from business, government and academia. The Centre has leveraged the profile generated by such activity to increase the number of researchers working on large-scale projects, with the goal of integrating policy and governance with technical and quantitative analyses.

In recognition of the significant research activity and influence of the Centre for Ecosystem Resilience & Adaptation, council approved its renewal for a five-year term ending March 2019, on behalf of Senate.
CURRICULAR MODIFICATIONS
On behalf of Senate, council reviewed and approved courses changes and minor program changes in the Faculty of Arts (germanic and slavic studies; masters of accounting).

SCHOLARSHIPS AND AWARDS
On behalf of Senate, council approved the creation of the Water Institute Graduate Scholarship and the Suncor Fellowships in Social Innovation.

Subject to approval at the Senate Graduate & Research Council on 14 April 2014, the Doctoral Thesis Writing Award is anticipated to be established for 1 May 2014.

/mg      Sue Horton  George Dixon
Associate Provost, Graduate Studies  Vice President, University Research
Senate Undergraduate Council met on 4 March 2014, and on behalf of Senate approved new courses, course changes and course inactivations. Council agreed to forward the following items to Senate for information. As well, Council has forwarded to Senate items related to minor program changes. Council recommends that these items be included in the consent agenda. The items recommended for inclusion in the regular agenda are contained in a separate report.

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

FOR APPROVAL

___________________________________

ACADEMIC PLAN CHANGES [effective 1 September 2015]

Faculty of Engineering
Chemical Engineering

1. **Motion:** To amend the chemical engineering program as described.
   (Note: strikethrough = deleted text, underline = new text)

   Chemical Engineers apply scientific and engineering principles to develop processes or systems for the economic production and distribution of useful and value-added materials through the physical, chemical or biochemical transformation of matter. Furthermore, this must be accomplished with attention paid to economics, health and safety, and environmental impact.

   Chemical Engineers combine a sound background in fundamental understanding of science and mathematics with highly-developed problem-solving skills to improve existing processes or methods, or to implement new ones. Chemical Engineers are distinguished from physical scientists such as chemists by their training in the "engineering method": the use of heuristics to cause the best change in a poorly understood situation within the available resources.

   Chemical Engineers design, analyse, optimize and control processing operations, or guide others who perform these functions, in industry, government, universities or private practice. Most materials encountered in daily life have been impacted by Chemical Engineering at some stage. Chemical Engineers will continue to be in demand for many exciting new developments over the next few decades.

   Current and future activity areas include:
   - **Energy:** conservation; renewable and non-renewable resources; fuel cells; hydrogen economy.
   - **Materials:** petrochemicals; biochemicals and foods; nanomaterials; consumer goods; pulp and paper; polymers; pharmaceuticals; etc.
   - **Environment:** pollution prevention; pollution control; climate change mitigation; recycling; environmental safety and regulations; etc.

   In a world faced with growing shortages of non-renewable resources and a finite limit on the amounts of renewable resources, persons wishing to use their talents to optimize the recovery or utilization of matter and energy will find Chemical Engineering a challenging and satisfying career, one which will place them in enviable positions with respect to the availability of employment opportunities. In addition to technical positions, Chemical Engineers often move into managerial functions within their companies. Traditionally, significant numbers of women enter Chemical Engineering and this trend continues.
Waterloo offers the student a first-rate opportunity to obtain a sound, relevant background in the discipline of Chemical Engineering. The Department of Chemical Engineering at the University of Waterloo is one of the largest and most active departments in North America. There are 33 full-time faculty, each of whom specializes in a particular sub-field through research and consulting activities, thereby bringing depth as well as breadth to the instruction and professional development of students.

Chemical Engineering at Waterloo is a co-operative education program and offers many advantages:
- an opportunity through work terms to gain exposure to a variety of job-related experiences within Chemical Engineering
- work term salaries effectively reduce the costs associated with university education
- Waterloo graduates receive favourable recognition from employers for their work term experiences
- work terms can offer an opportunity to travel through a worldwide network of co-op employers
- academic terms become more meaningful and relevant against a background of work term related experience

The Waterloo Chemical Engineering Curriculum
_A Curriculum for the 21st Century_

The curriculum offers courses in life science and material science, to provide the fundamentals required for future careers in the biotechnology or nanotechnology areas. There are four technical elective courses that can be taken to either focus in an area of particular interest or to build a strong general background for maximum career flexibility.

The main emphasis in the first and second year is on courses in science and mathematics which provide the foundations upon which engineering skills can be built. The upper-year core and elective courses assume and require this background.

Engineering is both a quantitative and an applied discipline, which requires a strong mathematical ability. Courses in Calculus, Algebra, Engineering Computation, Differential Equations, Engineering Economics, and Statistics help develop this ability. More specialized Engineering Mathematics courses extend into the third year.

To perform successfully, the Chemical Engineer must be able to design, analyse and control processes to produce useful and desirable products from less valuable raw materials in an efficient, economic and socially responsible way. The knowledge and skills essential for achieving these goals are developed in the core Chemical Engineering courses taken mainly in the third and fourth years (e.g., in fluid mechanics, heat and mass transfer, thermodynamics, reactor design, biotechnology, process control, process and equipment design). Most of these courses are a mixture of theory and practice. Computer simulations and hands-on laboratory experiences are used in several courses to reinforce the theoretical principles.

Students in the fourth year complete a group project in direct collaboration with one of their professors. These projects allow students to focus on topics and industries of special interest for their career goals. Numerous Canadian companies also sponsor projects, reinforcing the bridge between academic and work term experience. There are opportunities to compete in national and international design competitions.

In the third and fourth years, students select technical elective courses to further develop their understanding of, and ability to use, engineering principles applied to important Canadian industrial sectors. Many of these electives can be taken to fulfill Faculty Option requirements, or to focus on an area of particular interest such as polymer processing, biotechnology, analysis and control, or
environment. Courses from other departments in Engineering and the University are available as electives.

An important component of the development of a professional engineer, which receives emphasis throughout the entire four-year curriculum, is frequent practice in learning to communicate technical results clearly, accurately, and effectively to others. Written practice is provided in the requirement for co-op work term reports which are graded by faculty. Written and oral report requirements in laboratory and other courses provide additional practice opportunities.

**Accelerated Master's Program in Chemical Engineering**
Provision is made for outstanding students to pursue an Accelerated Master's Program. This program provides a quicker route to the Master of Applied Science (MASc) degree. Admission is normally granted to qualified students possessing a consistently good cumulative academic record at the end of the 3A term. See Accelerated Master's Program in Engineering for more details.

**Ethics and Equity Milestone**
This degree milestone must be met by all graduating Chemical Engineering students by either completing one course from the following list (can be taken as a CSE)

- PHIL 215 - Professional and Business Ethics
- PHIL 219J - Practical Ethics
- PHIL 315/GENE 412 - Ethics and The Engineering Profession

or by completing PD 22 - Professionalism and Ethics in Engineering Practice.

**Complementary Studies Electives (CSEs)**
A total of six Complementary Studies courses must be taken, consisting of five one-term elective courses (CSEs) in non-technical areas (that is, outside the engineering, sciences, and mathematics disciplines) and a core course in engineering economics. This requirement is organized on a Faculty basis and is detailed elsewhere in this Engineering section. If some Complementary Studies Electives are satisfied online or from other institutions on Letters of Permission, each term's minimum course load must be maintained by substituting an approved "free" elective (technical or non-technical).

**Options and Minors**
A number of Faculty or University Designated Options available to Engineering students are listed and described elsewhere in this Engineering section. Students who satisfy the option requirements (usually seven or eight courses) will have the appropriate designation shown on their transcript.

Minors are sequences of courses, usually totalling ten, which are arranged in conjunction with another department outside of Engineering, such as Economics, Biology, Psychology, etc. and lead to an appropriately designated degree. Approval from both Chemical Engineering and the other department is required.

Usually students must take extra courses to complete a Minor or a Designated Option. Students in Chemical Engineering are most frequently interested in the Management Sciences Option, the Environmental Engineering Option, the Biomechanics Option, the Statistics Option and the Water Resources Option.

**Academic Program**
The following program is applicable to students entering Chemical Engineering in the Fall 2011 term and beyond. Students admitted prior to 2011 should consult the calendar pertinent to their year of admission for the applicable requirements. Note that a total of 5 approved Complementary Studies Electives (excluding Engineering Economics) and 4 approved Technical Electives (TE) must be completed.
### Glossary of descriptions for the next table:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>LEC</td>
<td>Lecture and number of hours</td>
</tr>
<tr>
<td>TUT</td>
<td>Tutorial and number of hours</td>
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<tr>
<td>LAB</td>
<td>Laboratory and number of hours</td>
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<tr>
<td>PRJ</td>
<td>Project and number of hours</td>
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</tbody>
</table>

These courses count toward Complementary Studies requirements:

- **A**, Impact
- **B**, Engineering Economics
- **C**, Humanities and Social Sciences
- **D**, Other

- **4** Indicates Stream 4 program
- **8** Indicates Stream 8 program
- **20 hours**
- **15 hours**
- **Approximately 42 hours over the term**
- **12 hours**, **17 hours**
- **Alternate weeks**
- **Laboratory, tutorial and project component for these electives will vary**
- **Must be Technical Studies Elective (TE) if Complementary Studies Elective (CSE) selected in previous term, and vice versa**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course</th>
<th>Title and Notes</th>
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<tbody>
<tr>
<td>1A Fall&lt;sup&gt;4,8&lt;/sup&gt;</td>
<td>CHE 100</td>
<td>Chemical Engineering Concepts 1 (3 LEC,2 TUT*,6 LAB**)</td>
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<td></td>
<td>CHE 102</td>
<td>Chemistry for Engineers (3 LEC,2 TUT)</td>
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<td></td>
<td>MATH 115</td>
<td>Linear Algebra for Engineering (3 LEC,2 TUT)</td>
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<td></td>
<td>MATH 116</td>
<td>Calculus 1 for Engineering (3 LEC,2 TUT)</td>
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<td>PHYS 115</td>
<td>Mechanics (3 LEC,2 TUT)</td>
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<tr>
<td>1B Winter&lt;sup&gt;8&lt;/sup&gt; and Spring&lt;sup&gt;4&lt;/sup&gt;</td>
<td>CHE 101</td>
<td>Chemical Engineering Concepts 2 (3 LEC,2 TUT***,2 LAB)</td>
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<td></td>
<td>CHE 121</td>
<td>Engineering Computation (3 LEC,2 TUT)</td>
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<td>CHE 161</td>
<td>Engineering Biology (3 LEC,1 TUT)</td>
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<td></td>
<td>GENE 123</td>
<td>Electrical Engineering (3 LEC,1 TUT,3 LAB‡)</td>
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<td></td>
<td>MATH 118</td>
<td>Calculus 2 for Engineering (3 LEC,2 TUT)</td>
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<tr>
<td></td>
<td>CSE 1</td>
<td>Approved Complementary Studies Elective (3 LEC*)</td>
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<tr>
<td>2A Fall&lt;sup&gt;8&lt;/sup&gt; and Winter&lt;sup&gt;4&lt;/sup&gt;</td>
<td>CHE 200</td>
<td>Equilibrium Stage Operations (3 LEC,1 TUT)</td>
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<td>CHE 220</td>
<td>Process Data Analysis (3 LEC,1 TUT)</td>
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<td>CHE 230</td>
<td>Physical Chemistry 1 (3 LEC,1 TUT)</td>
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<td>CHE 290</td>
<td>Chemical Engineering Lab 1 (3 LAB)</td>
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<td>CHEM 262</td>
<td>Organic Chemistry for Engineering and Bioinformatics Students (3 LEC,1 TUT)</td>
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<td>CHEM 262L</td>
<td>Organic Chemistry Laboratory for Engineering Students (3 LAB)</td>
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<td></td>
<td>MATH 217</td>
<td>Calculus 3 for Chemical Engineering (3 LEC,1 TUT)</td>
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<td></td>
<td>CHE 298</td>
<td>Directed Research Project (6PRJ) (optional extra)</td>
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<tr>
<td>2B Spring&lt;sup&gt;8&lt;/sup&gt; and Fall&lt;sup&gt;4&lt;/sup&gt;</td>
<td>CHE 211</td>
<td>Fluid Mechanics (3 LEC,1 TUT)</td>
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<td></td>
<td>CHE 231</td>
<td>Physical Chemistry 2 (3 LEC,1 TUT)</td>
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<td></td>
<td>CHE 241</td>
<td>Materials Science and Engineering (3 LEC,1 TUT)</td>
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<tr>
<td>Term</td>
<td>Course</td>
<td>Title and Notes</td>
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<tr>
<td>CHE 291</td>
<td>Chemical Engineering Lab 2 (3 LAB)</td>
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<tr>
<td>MATH 218</td>
<td>Differential Equations for Engineers (3 LEC,1 TUT)</td>
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<tr>
<td>MSCI 261</td>
<td>Engineering Economics: Financial Management for Engineers (3 LEC,1 TUT)</td>
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<tr>
<td>WKRPT 200(^4)</td>
<td>Work-term Report</td>
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<tr>
<td>CHE 299</td>
<td>Directed Research Project (6 PRJ) (optional extra)</td>
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<tr>
<td>3A Winter(^8) and Spring(^4)</td>
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<tr>
<td>CHE 312</td>
<td>Mathematics of Heat and Mass Transfer (3 LEC,1 TUT)</td>
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<tr>
<td>CHE 322</td>
<td>Numerical Methods for Process Analysis and Design (3 LEC,1 TUT)</td>
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<tr>
<td>CHE 330</td>
<td>Chemical Engineering Thermodynamics (3 LEC,1 TUT)</td>
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<td>CHE 360</td>
<td>Bioprocess Engineering (3 LEC,1 TUT)</td>
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<tr>
<td>CHE 390</td>
<td>Chemical Engineering Lab 3 (3 LAB)</td>
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<tr>
<td>CSE 2</td>
<td>Approved Complementary Studies Elective (3 LEC(^*))</td>
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<tr>
<td>WKRPT 200(^8)</td>
<td>Work-term Report</td>
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<tr>
<td>WKRPT 300(^4)</td>
<td>Work-term Report</td>
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<tr>
<td>CHE 398</td>
<td>Directed Research Project (6 PRJ) (optional extra)</td>
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<tr>
<td>3B Fall(^8) and Winter(^4)</td>
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<tr>
<td>CHE 311</td>
<td>Chemical Reaction Engineering (3 LEC,1 TUT)</td>
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<tr>
<td>CHE 313</td>
<td>Applications of Heat and Mass Transfer (3 LEC,1 TUT)</td>
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<tr>
<td>CHE 325</td>
<td>Strategies for Process Improvement and Product Development (3 LEC,1 TUT)</td>
<td></td>
</tr>
<tr>
<td>CHE 331</td>
<td>Electrochemical Engineering (3 LEC,1 TUT)</td>
<td></td>
</tr>
<tr>
<td>CHE 391</td>
<td>Chemical Engineering Lab 4 (3 LAB)</td>
<td></td>
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<tr>
<td>TE 1(^5) or CSE 3(^4)</td>
<td>Approved Technical(^2) or Complementary Studies Elective(^2) (3 LEC(^*))</td>
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</tr>
<tr>
<td>WKRPT 300(^8)</td>
<td>Work-term Report</td>
<td></td>
</tr>
<tr>
<td>CHE 399</td>
<td>Directed Research Project (6 PRJ) (optional extra)</td>
<td></td>
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<tr>
<td>4A Spring(^8) and Fall(^4)</td>
<td></td>
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<tr>
<td>CHE 420</td>
<td>Introduction to Process Control (3LEC,1TUT)</td>
<td></td>
</tr>
<tr>
<td>CHE 480</td>
<td>Process Analysis and Design (3 LEC,2 TUT)</td>
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<tr>
<td>CHE 482</td>
<td>Chemical Engineering Design Workshop (2 LEC,3 PRJ)</td>
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<tr>
<td>CHE 490</td>
<td>Chemical Engineering Lab 5 (4 LAB)</td>
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<tr>
<td>TE 1(^4) or CSE 3(^2)</td>
<td>Approved Technical(^2) or Complementary Studies Elective(^2) (3 LEC(^*))</td>
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<tr>
<td>CSE 4</td>
<td>Approved Complementary Studies Elective (3 LEC(^*))</td>
<td></td>
</tr>
<tr>
<td>WKRPT 400(^4)</td>
<td>Work-term Report</td>
<td></td>
</tr>
<tr>
<td>CHE 498</td>
<td>Directed Research Project (6 PRJ) (optional extra)</td>
<td></td>
</tr>
<tr>
<td>4B Winter(^4,8)</td>
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</tr>
<tr>
<td>CHE 483</td>
<td>Group Design Project (1 LEC,9 PRJ)</td>
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<td>Approved Technical Elective (3 LEC(^*))</td>
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<td>TE 3</td>
<td>Approved Technical Elective (3 LEC(^*))</td>
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<td>TE 4</td>
<td>Approved Technical Elective (3 LEC(^*))</td>
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<tr>
<td>CSE 5</td>
<td>Approved Complementary Studies Elective (3 LEC(^*))</td>
<td></td>
</tr>
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</table>
Approved Technical Electives

Technical Elective (TE) courses for Chemical Engineering students are organized in three main thematic areas and may be selected from the following lists with the stated constraints. Only one non-CHE course is permitted if CHE 499 is chosen. Otherwise, students may select up to two non-CHE TE courses. Courses from other departments (i.e., non-CHE) will likely require permission of the instructor and/or other prerequisites. Consult a current calendar for prerequisites and terms of offering. In brackets are recommended minimum levels that CHE students should be enrolled in before attempting a given course. Variations from this course selection list must be approved by the Department.

**List 1 - Select a maximum of one course from the following: Energy and Environmental Systems and Processes**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title and Notes</th>
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<tbody>
<tr>
<td>BIOL 250</td>
<td>Organismal and Evolutionary Ecology or ENVS 200 Field Ecology (3B)</td>
</tr>
<tr>
<td>CHEM 237</td>
<td>Introductory Biochemistry (3B)</td>
</tr>
<tr>
<td>CHEM 267</td>
<td>Basic Organic Chemistry 2 (3B)</td>
</tr>
<tr>
<td>CHEM 433</td>
<td>Advanced Biochemistry (3B)</td>
</tr>
<tr>
<td>EARTH 405</td>
<td>Atmospheric Chemistry and Physics (4B)</td>
</tr>
<tr>
<td>STAT 435</td>
<td>Statistical Methods for Process Improvements (4A)</td>
</tr>
<tr>
<td>SYDE 384</td>
<td>Biological and Human Systems (3B)</td>
</tr>
<tr>
<td>CHE 499</td>
<td>Elective Research Project (3B)</td>
</tr>
<tr>
<td>CHE 500</td>
<td>Special Topics in Chemical Engineering (contact Department)</td>
</tr>
<tr>
<td>CHE 514</td>
<td>Fundamentals of Petroleum Production (3B)</td>
</tr>
<tr>
<td>CHE 516</td>
<td>Energy Systems Engineering (3B)</td>
</tr>
<tr>
<td>CHE 571</td>
<td>Industrial Ecology (3B)</td>
</tr>
<tr>
<td>CHE 572</td>
<td>Air Pollution Control (4B)</td>
</tr>
<tr>
<td>CHE 574</td>
<td>Industrial Wastewater Pollution Control (4B)</td>
</tr>
<tr>
<td>CIVE 572 or ENVE 472</td>
<td>Wastewater Treatment (4A)</td>
</tr>
<tr>
<td>EARTH 458</td>
<td>Physical Hydrogeology (4A)</td>
</tr>
<tr>
<td>EARTH 459</td>
<td>Chemical Hydrogeology (4B)</td>
</tr>
<tr>
<td>ENVE 573</td>
<td>Contaminant Transport (4B)</td>
</tr>
<tr>
<td>ENVE 577</td>
<td>Engineering for Solid Waste Management (4B)</td>
</tr>
<tr>
<td>ME 452</td>
<td>Energy Transfer in Buildings (4B)</td>
</tr>
<tr>
<td>ME 459</td>
<td>Energy Conversion (3B)</td>
</tr>
<tr>
<td>ME 571</td>
<td>Air Pollution (4B)</td>
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**List 2 - Select a maximum of three courses from the following: Materials and Manufacturing Processes**

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>BIOL 354</td>
<td>Environmental Toxicology 1 (3B)</td>
</tr>
<tr>
<td>CIVE 381</td>
<td>Hydraulics (3B)</td>
</tr>
<tr>
<td>CIVE 460</td>
<td>Engineering Biomechanics (4B)</td>
</tr>
<tr>
<td>CIVE 486</td>
<td>Hydrology (3B)</td>
</tr>
<tr>
<td>EARTH 444</td>
<td>Applied Wetland Science or BIOL 462 or GEOG 405 Wetlands (3B)</td>
</tr>
<tr>
<td>EARTH 456</td>
<td>Numerical Methods in Hydrogeology (4A)</td>
</tr>
<tr>
<td>EARTH 458</td>
<td>Physical Hydrogeology and EARTH 458L Field Methods in Hydrogeology (3B)</td>
</tr>
<tr>
<td>ENVE 320</td>
<td>Environmental Resource Management or MSCI 331 Introduction to Optimization (3B)</td>
</tr>
<tr>
<td>ENVE 375</td>
<td>Water Quality Engineering or CIVE 375 (3B)</td>
</tr>
<tr>
<td>ENVE 472</td>
<td>Wastewater Treatment or CIVE 572 (4A)</td>
</tr>
<tr>
<td>ENVE 573</td>
<td>Contaminant Transport (4B)</td>
</tr>
<tr>
<td>ENVE 577</td>
<td>Engineering for Solid Waste Management (4B)</td>
</tr>
<tr>
<td>CHE 499</td>
<td>Elective Research Project (3B)</td>
</tr>
<tr>
<td>Course</td>
<td>Title and Notes</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>CHE 500</td>
<td>Special Topics in Chemical Engineering (contact Department)</td>
</tr>
<tr>
<td>CHE 541</td>
<td>Introduction to Polymer Science and Properties (3B)</td>
</tr>
<tr>
<td>CHE 543</td>
<td>Polymer Production: Polymer Reaction Engineering (4B)</td>
</tr>
<tr>
<td>CHE 562</td>
<td>Advanced Bioprocess Engineering (4B)</td>
</tr>
<tr>
<td>CHE 564</td>
<td>Food Process Engineering (4B)</td>
</tr>
<tr>
<td>CHE 571</td>
<td>Industrial Ecology (3B)</td>
</tr>
<tr>
<td>ME 435</td>
<td>Industrial Metallurgy (4A)</td>
</tr>
<tr>
<td>ME 452</td>
<td>Energy Transfer in Buildings (4B)</td>
</tr>
<tr>
<td>ME 459</td>
<td>Energy Conversion (4A)</td>
</tr>
<tr>
<td>ME 559</td>
<td>Finite Element Methods (3B)</td>
</tr>
<tr>
<td>MSCI 421</td>
<td>Stochastic Models and Methods (3B)</td>
</tr>
<tr>
<td>MSCI 432</td>
<td>Production and Service Operations Management (3B)</td>
</tr>
<tr>
<td>MSCI 444</td>
<td>Information Systems Analysis and Design (3B)</td>
</tr>
<tr>
<td>MSCI 452</td>
<td>Decision Making Under Uncertainty (3B)</td>
</tr>
<tr>
<td>ME 531</td>
<td>Physical Metallurgy Applied to Manufacturing (4B)</td>
</tr>
<tr>
<td>ME 533</td>
<td>Non-metallic and Composite Materials (4B)</td>
</tr>
<tr>
<td>NE 352</td>
<td>Surfaces and Interfaces (4A)</td>
</tr>
<tr>
<td>SYDE 433</td>
<td>Conflict Resolution (4A)</td>
</tr>
<tr>
<td>SYDE 444</td>
<td>Biomedical Measurement and Signal Processing (3B)</td>
</tr>
<tr>
<td>NE 481</td>
<td>Introduction to Nanomedicine and Nanobiotechnology</td>
</tr>
</tbody>
</table>

**List 3 - Select at least two courses from the following: Process Modelling, Optimization and Control:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title and Notes</th>
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<tr>
<td>CHE 499</td>
<td>Elective Research Project (4A, 4B)</td>
</tr>
<tr>
<td>CHE 500</td>
<td>Special Topics in Chemical Engineering (contact Department)</td>
</tr>
<tr>
<td>CHE 514</td>
<td>Fundamentals of Petroleum Production (3B)</td>
</tr>
<tr>
<td>CHE 516</td>
<td>Energy Systems Engineering (4B)</td>
</tr>
<tr>
<td>CHE 522</td>
<td>Advanced Process Dynamics and Control (4B)</td>
</tr>
<tr>
<td>CHE 524</td>
<td>Process Control Laboratory (4B)</td>
</tr>
<tr>
<td>CHE 541</td>
<td>Introduction to Polymer Science and Properties (3B)</td>
</tr>
<tr>
<td>CHE 543</td>
<td>Polymer Production: Polymer Reaction Engineering (4B)</td>
</tr>
<tr>
<td>CHE 562</td>
<td>Advanced Bioprocess Engineering (4B)</td>
</tr>
<tr>
<td>CHE 564</td>
<td>Food Process Engineering (4B)</td>
</tr>
<tr>
<td>CHE 571</td>
<td>Industrial Ecology (3B)</td>
</tr>
<tr>
<td>CHE 572</td>
<td>Air Pollution Control (3B)</td>
</tr>
<tr>
<td>CHE 574</td>
<td>Industrial Wastewater Pollution Control (3B)</td>
</tr>
<tr>
<td>EARTH 456</td>
<td>Numerical Methods in Hydrogeology (4A)</td>
</tr>
<tr>
<td>ME 362</td>
<td>Fluid Mechanics 2 (3B)</td>
</tr>
<tr>
<td>ME 559</td>
<td>Finite Element Methods (3B)</td>
</tr>
<tr>
<td>ME 566</td>
<td>Computational Fluid Dynamics for Engineering Design (4A)</td>
</tr>
<tr>
<td>NE 451</td>
<td>Simulation Methods in Nanotechnology Engineering (4A)</td>
</tr>
<tr>
<td>MSCI 331</td>
<td>Introduction to Optimization (3B)</td>
</tr>
<tr>
<td>MSCI 332</td>
<td>Deterministic Optimization Models and Methods (3B)</td>
</tr>
<tr>
<td>MSCI 431</td>
<td>Stochastic Models and Methods (4B)</td>
</tr>
<tr>
<td>SYDE 411</td>
<td>Optimization and Numerical Methods (3B)</td>
</tr>
<tr>
<td>SYDE 531</td>
<td>Design Optimization Under Probabilistic Uncertainty (4B)</td>
</tr>
</tbody>
</table>

All undergraduate course descriptions including Chemical Engineering can be found in the Course Descriptions section of this Calendar.

**Rationale:** Offering the new ethics milestone gives students flexibility to achieve that milestone or take the acceptable philosophy course or completing the professional development course. The
professional development course will count as a PD elective plus the milestone; similarly the approved PHIL course will count as a Complementary Studies Elective plus the milestone. The approved technical electives have been reorganized in order to equalize the offerings for both streams prior to the common 4B term. Technical electives are now clustered into three main areas of chemical engineering practice with increased emphasis on engineering content.

Faculty of Engineering
Mechatronics Engineering

2. Motion: To amend the mechatronics engineering program as described.
(Note: strikethrough = deleted text, underline = new text)

Mechatronics engineering is an integrated approach to the design of computer controlled electromechanical systems. Mechatronic applications are pervasive in our everyday lives, so much so that we often take them for granted. Familiar examples of mechatronic systems include automotive anti-lock braking systems (ABS), SLR cameras, and aerospace "fly-by-wire" systems. These mechatronic designs are much more than simply the addition of a microcontroller to an existing mechanical system – their complete and properly integrated redesign is what makes them successful. An integrated design philosophy has been incorporated into the development of this program.

In order to successfully combine mechanical design, computers, software, and electronics with an integrated design approach, the mechatronics engineer requires an understanding of a breadth of topics. The tools that make up the mechatronics engineer’s repertoire are drawn from many departments across the faculty: Mechanical, Electrical and Computer, and Systems Design Engineering. The result is a multi-disciplinary program, which provides students with a unique set of skills.

The program is a rich blend of courses prepared and delivered specifically for Mechatronics Engineering students, designated with the MTE label, and courses selected from other engineering disciplines: Mechanical Engineering (ME), Electrical and Computer Engineering (ECE), and Systems Design Engineering (SYDE). Mechatronics Engineering students thus benefit from a breadth of expertise.

Mechatronics Curriculum
The table below lists the courses and technical electives for the Mechatronics Engineering Program. In addition to the courses listed, a student is required to select technical elective and complementary studies courses as described below.

All students in the Faculty of Engineering are permitted to take an option (as described in Options, Specializations and Electives for Engineering Students of this section of the calendar). Mechatronics Engineering students are not permitted to take the Mechatronics Option. In many cases earning an option will require a number of courses in addition to the core and elective structure given below.

The first students were admitted to the Mechatronics Engineering Program in the fall of 2003.

The courses listed as MTE courses, although listed in this calendar, will not be offered until the first students enrolled in the Mechatronics Engineering Program reach the level requiring these courses.

Academic Program
Glossary of descriptions for the next table:
Code Description
Cls Class
Tut Tutorial
The hours are shown per week for the term for Class, Tutorial, and Laboratory. These hours are estimates; the actual sequencing of the hours is announced in the first few lectures each term. Courses labelled as Seminar are provided to facilitate various class and program oriented activities.

Four of the five complementary studies electives (CSEs) are to be chosen to include at least one from list A and at least two from list C in the lists that are part of the description of Complementary Studies in the introduction to the Faculty of Engineering section in the calendar.

The five technical electives are to be chosen from the list provided. In some cases it may be necessary to verify that you meet all of the prerequisites.

Indicates stream 4

Indicates stream 8X. Stream 8X requires students to complete one 8-month work term between 3B and 4A terms. (streaming could change prior to Fall 2014 admission)

The Mechatronics Engineering Program for students entering Fall 2014 and later consists of the following course sequence:

<table>
<thead>
<tr>
<th>Term</th>
<th>Course and Title</th>
<th>Class</th>
<th>Tut</th>
<th>Lab</th>
</tr>
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<tbody>
<tr>
<td><strong>1A Fall</strong>&lt;sup&gt;4,8&lt;/sup&gt;</td>
<td>CHE 102 Chemistry for Engineers</td>
<td>3</td>
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<td>GENE 121 Digital Computation</td>
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<td>0</td>
<td>2</td>
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<tr>
<td></td>
<td>MATH 115 Linear Algebra for Engineering</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>MATH 116 Calculus 1 for Engineering</td>
<td>3</td>
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<td>MTE 100 Mechatronics Engineering</td>
<td>3</td>
<td>2</td>
<td>4</td>
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<tr>
<td><strong>1B Spring</strong>&lt;sup&gt;4&lt;/sup&gt; and <strong>Winter</strong>&lt;sup&gt;8&lt;/sup&gt;</td>
<td>MATH 118 Calculus 2 For Engineering</td>
<td>3</td>
<td>2</td>
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<td>MTE 100B Seminar</td>
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<td>0</td>
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<tr>
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<td>MTE 111 Structure and Properties of Materials</td>
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<td></td>
<td>MTE 119 Statics</td>
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<td></td>
<td>MTE 120 Circuits</td>
<td>4</td>
<td>2</td>
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<td>MTE 140 Algorithms and Data Structures</td>
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<td>1</td>
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<td><strong>2A Winter</strong>&lt;sup&gt;4&lt;/sup&gt; and <strong>Fall</strong>&lt;sup&gt;8&lt;/sup&gt;</td>
<td>MTE 200A Seminar</td>
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<td>MTE 201 Experimental Measurement and Statistical Analysis</td>
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<td>MTE 202 Ordinary Differential Equations</td>
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<td>MTE 219 Mechanics of Deformable Solids</td>
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<td>MTE 262 Introduction to Microprocessors and Digital Logic</td>
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<td>SYDE 182 Physics 2 (Dynamics)</td>
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<td>MTE 200B Seminar</td>
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<td>MTE 203 Advanced Calculus</td>
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<td>MTE 204 Numerical Methods</td>
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<td>MTE 220 Sensors and Instrumentation</td>
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<td>MTE 241 Introduction to Computer Structures and Real-Time Systems</td>
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<td>SYDE 252 Linear Systems and Signals</td>
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<td>WKRPT 200 Work-term Report</td>
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<td>3A Spring and Winter</td>
<td>ECE 309 Introduction to Thermodynamics and Heat Transfer</td>
<td>3</td>
<td>1</td>
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<td>ME 321 Kinematics and Dynamics of Machines</td>
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<td>MTE 320 Actuators and Power Electronics</td>
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<td>1</td>
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<td>MTE 325 Microprocessor Systems and Interfacing for Mechatronics Engineering</td>
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<td>SYDE 351 Systems Models 1</td>
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<td>3B Winter and Fall</td>
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<td>MTE 322 Electromechanical Machine Design</td>
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<td>MTE 360 Automatic Control Systems</td>
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<td>MTE 380 Mechatronics Engineering Design Workshop</td>
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<td>MSCI 261 Engineering Economics: Financial Management for Engineers</td>
<td>3</td>
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<td>CSE† Complementary Studies Elective</td>
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<tr>
<td>4A Fall and Spring</td>
<td>ECE 484 Digital Control Applications</td>
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<td>1</td>
<td>1.5</td>
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<tr>
<td></td>
<td>MTE 400A Seminar</td>
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<tr>
<td></td>
<td>MTE 481 Mechatronics Engineering Design Project</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>TE‡ Technical Elective</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>TE‡ Technical Elective</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CSE† Complementary Studies Elective</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>WKRPT 400 Work-term Report</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4B Winter</td>
<td>MTE 400B Seminar</td>
<td>1 Sem</td>
<td>1</td>
<td>1</td>
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<tr>
<td></td>
<td>MTE 482 Mechatronics Engineering Project</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>TE‡ Technical Elective</td>
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<td>TE‡ Technical Elective</td>
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<tr>
<td></td>
<td>CSE† Complementary Studies Elective</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Technical Elective List

The five technical elective courses are to be chosen from the list below. Note that courses are available in only one of the fourth year terms. It is possible to exchange one of the fourth year CSEs with a TE and thus have three technical electives in 4A (and two CSEs in 4B) or to have four technical electives in 4B (and two CSEs in 4A).
Courses offered in the 4A (Fall) term, choose two or three:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 362</td>
<td>Fluid Mechanics 2</td>
</tr>
<tr>
<td>ME 436</td>
<td>Welding and Joining Processes</td>
</tr>
<tr>
<td>ME 459</td>
<td>Energy Conversion</td>
</tr>
<tr>
<td>ME 524</td>
<td>Advanced Dynamics and Vibrations or SYDE 553 Advanced Dynamics</td>
</tr>
<tr>
<td>ME 548</td>
<td>Numerical Control of Machine Tools 1</td>
</tr>
<tr>
<td>ME 559</td>
<td>Finite Element Methods</td>
</tr>
<tr>
<td>ME 561</td>
<td>Fluid Power Control Systems</td>
</tr>
<tr>
<td>MTE 420</td>
<td>Power Electronics and Motor Drives or ECE 463 Design and Applications of Power Electronic Converters (offered Spring)</td>
</tr>
<tr>
<td>MTE 460</td>
<td>Mechatronic System Integration</td>
</tr>
<tr>
<td>MTE 545</td>
<td>Introduction to MEMS Fabrication</td>
</tr>
<tr>
<td>SYDE 533</td>
<td>Conflict Resolution</td>
</tr>
<tr>
<td>SYDE 543</td>
<td>Cognitive Ergonomics</td>
</tr>
<tr>
<td>SYDE 575</td>
<td>Image Processing</td>
</tr>
</tbody>
</table>

Courses offered in the 4B (Winter) term, choose two or three:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 327</td>
<td>Digital Hardware Systems</td>
</tr>
<tr>
<td>ECE 358</td>
<td>Computer Networks</td>
</tr>
<tr>
<td>ECE 429</td>
<td>Computer Architecture</td>
</tr>
<tr>
<td>ECE 457B</td>
<td>Fundamentals of Computational Intelligence</td>
</tr>
<tr>
<td>ECE 488</td>
<td>Multivariable Control Systems</td>
</tr>
<tr>
<td>ME 452</td>
<td>Energy Transfer in Buildings</td>
</tr>
<tr>
<td>(ME 547 or ECE 486 )</td>
<td>Robotic Manipulators: Kinematics, Dynamics, Control</td>
</tr>
<tr>
<td>ME 555</td>
<td>Computer-Aided Design</td>
</tr>
<tr>
<td>ME 563</td>
<td>Turbomachines</td>
</tr>
<tr>
<td>ME 564</td>
<td>Aerodynamics</td>
</tr>
<tr>
<td>SYDE 348</td>
<td>User Centred Design Methods</td>
</tr>
<tr>
<td>SYDE 372</td>
<td>Introduction to Pattern Recognition</td>
</tr>
<tr>
<td>SYDE 384</td>
<td>Biological and Human Systems</td>
</tr>
<tr>
<td>SYDE 522</td>
<td>Machine Intelligence</td>
</tr>
<tr>
<td>SYDE 542</td>
<td>Interface Design</td>
</tr>
<tr>
<td>SYDE 544</td>
<td>Biomedical Measurement and Signal Processing</td>
</tr>
<tr>
<td>SYDE 556</td>
<td>Simulating Neurobiological Systems</td>
</tr>
</tbody>
</table>

**Rationale:** The Mechatronics Engineering program has been expanded with an additional stream to address the high demand for the program.

**Faculty of Science**

**Biology**

3. **Motion:** To amend biology and environmental science plans with specializations as described.
(Note 1: strikethrough = deleted text, underline = new text
Note 2: Only the parts of each program impacted by amendments are reflected below)

i) **Honours Biology – No Specialization (Reg. & Co-op):**

Year Four
Six 300- or 400-level Biology courses (3.0 units), at least five courses (2.5 units) of which must be at the 400-level.
Four electives (2.0 units)
BIOL 361 is recommended.
### ii) Honours Biology – Animal Specialization (Reg. & Co-op):

#### Legend

<table>
<thead>
<tr>
<th>Symbol/Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>*</td>
<td>Biology electives must be from the following list: BIOL 403, 414, 434, 438, 450, 472, 473, 479, 483, 486, 490A, 499</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Year Three

- **BIOL 302, 308, 310, 331, 359, 373, 373L**
- Two Biology electives (1.0 unit)* from the list below
- One Science Elective (0.5 unit)**
- Two electives (1.0 unit)

**Note**

Science elective courses include BIOL, CHEM, EARTH, PHYS, SCI

#### Year Four

- **BIOL 303, 370, 371, 441, 477L**
- One Biology elective (0.5 unit)* from the list below
- Four electives (2.0 units)

**Note**

Must have a minimum of five courses (2.5 units) of Biology at the 400 level.

### iii) Honours Biology – Biotechnology Specialization (Reg. & Co-op):

#### Legend

<table>
<thead>
<tr>
<th>Symbol/Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>Biology electives must be from the following list: BIOL 321, 323, 349, 365 or 366, 431, 439, 467, 486, 499</td>
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</tbody>
</table>

#### Year Four

- **BIOL 342, 428, 432, 443, 474, 483**
- One Biology elective (0.5 unit)*
- Four electives (2.0 units)

**Note**

Must have a minimum of five courses (2.5 units) of Biology at the 400 level.

### iv) Honours Biology – Environmental Biology Specialization (Reg. & Co-op)

#### Legend

** Science electives include BIOL, CHEM, EARTH, PHYS and SCI courses

Year Three
BIOL 308, 350, 351, 354, 359, 361
One Biology elective (0.5 unit)* from the list below
One Science elective (0.5 unit)**
Two electives (1.0 unit)

**Note
Science elective courses include BIOL, CHEM, EARTH, PHYS, SCI

Year Four
BIOL 457, 458
Three Four Biology electives (1.5 2.0 units)* from the list below
One 300- or 400-level Biology course (0.5 unit)
Four electives (2.0 units)

Biology electives for the Environmental Biology Specialization
Must take five courses (2.5 units) of the following biology courses, four (2.0 units) must be at the 400 level: BIOL 321, 322, 325, 335L, 346, 361, 364, 370, 371, 383, 412, 426, 439, 447, 450, 452, 455, 456, 462, 466, 467, 470, 479, 480, 488, 490A, 490B, 492, 498A & 498B, 499

v) Honours Biology – Microbiology Specialization (Reg. & Co-op)

Legend

Symbol/Abbreviation Description
* Biology electives must be from the following list: BIOL 342, 345, 349, 365 or 366, 414, 441, 442, 443, 444, 447, 449, 467, 475, 499

Biology electives for the Microbiology Specialization
Must take five courses (2.5 units) of the following biology elective courses, three (1.5 units) must be at 400 level: BIOL 342, 345, 441, 442, 443, 444, 447, 449, 466, 467, 474, 475, 499

vi) Honours Biology – Plant Biology Specialization (Reg. & Co-op)

Legend

Symbol/Abbreviation Description
* Biology electives must be from the following list: BIOL 325, 361, 426, 428, 433, 439, 450, 457, 458, 462, 467, 485, 499

Year Two
BIOL 225, 239, 240, 240L, 273
CHEM 237/237L
CHEM 266/266L
STAT 202
One Science Elective (0.5 unit)**
Three electives (1.5 units)
Biology electives for the Plant Biology Specialization
Must take five courses (2.5 units) of the following biology elective courses: BIOL 325, 426, 428, 433, 439, 467

vii) Honours Environmental Science (Ecology Specialization)

Legend

<table>
<thead>
<tr>
<th>Symbol/ Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>**</td>
<td>Earth electives must be from the following list: EARTH 221, 232, 235, 238, 281, 333, 358, 359, 421, 440, 458, 459</td>
</tr>
</tbody>
</table>

Year Two (Winter)
BIOL 239 Genetics
BIOL 211 Introductory Vertebrate Zoology or BIOL 310 Invertebrate Zoology or BIOL 165 Diversity of Life
CHEM 237 Introductory Biochemistry or CHEM 233 Fundamentals of Biochemistry
STAT 202 Introductory Statistics for Scientists
ERS 215 Environmental and Sustainability Assessment I

Year Three (Fall)
Key: *BIOL and EARTH electives must be selected from the elective lists for Biology and Earth Sciences located at the end of this page.

BIOL 350 Ecosystem Ecology
BIOL 354 Environmental Toxicology I
EARTH 342 Geomorphology and GIS Applications
One BIOL elective* or one EARTH elective** (0.5 unit)
One elective (0.5 unit)

Year Three (Winter)
Key: **A BIOL 490A field course is required to complete this program. Field courses are intensive two week courses held at off-campus locations during the spring term, and enrolment in these courses works very differently than regular course enrolment. Students should plan on the completion of this course at the end of the second or third year, and must consult their academic advisor about the selection of this course no later than the fall term of their second year.

BIOL 351 Aquatic Ecology
BIOL 359 Evolution
BIOL 361 Biostatistics and Experimental Design
BIOL 490A Biology Field Course I**One 400-level BIOL elective (0.5 unit)*
One elective (0.5 unit)

Year Four
Key: *BIOL and EARTH electives must be selected from the electives lists of Biology and Earth Sciences located at the end of this page.

BIOL 456 Population Biology (Fall) or BIOL 458 Quantitative Ecology (Fall)
BIOL 457 Analysis of Communities (Winter)
Three 300- or 400-level BIOL electives* (1.5 units)
One 300- or 400-level EARTH elective** (0.5 unit)
Four electives (2.0 units)

** Biology Electives**
BIOL electives must be selected from the following list: BIOL 165, 211, 241, 309, 310, 321, 323, 325, 335L, 346, 370, 371, 383, 412, 426, 439, 447, 448, 450, 452, 455, 461, 462, 466, 470, 479, 480, 488, 490B, 490C, 499

** Earth Sciences Electives**
Earth electives must be selected from the following list: EARTH 221, 232, 235, 236, 238, 281, 333, 358, 359, 421, 440, 458, 459

Notes
Key: **One 400-level BIOL field course is required recommended to complete this program. Field courses are intensive two week courses held at off-campus locations during the spring term, and enrolment in these courses works very differently than regular course enrolment. Students should plan on the completion of this course at the end of the second or third year, and must consult their academic advisor about the selection of this course no later than the fall term of their second year.

viii) Honours Co-operative Environmental Science (Ecology Specialization)

Legend

<table>
<thead>
<tr>
<th>Symbol/ Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>*</td>
<td>Biology electives must be from the following list: BIOL 165, 211, 241, 309, 310, 321, 323, 325, 335L, 346, 370, 371, 383, 412, 426, 439, 447, 448, 450, 452, 455, 461, 462, 470, 479, 480, 488, 490B, 490C, 499</td>
</tr>
<tr>
<td>**</td>
<td>Earth electives must be from the following list: EARTH 221, 232, 235, 236, 238, 281, 333, 358, 359, 421, 440, 458, 459</td>
</tr>
</tbody>
</table>

Year 3A (Winter)
BIOL 351 Aquatic Ecology
BIOL 359 Evolution
BIOL 361 Biostatistics and Experimental Design
BIOL 211 Introductory Vertebrate Biology or BIOL 310 Invertebrate Zoology or BIOL 165 Diversity of Life (Winter)
BIOL 491A Aquatic Field Biology**
One elective (0.5 unit)

Year Four (Fall/Winter)

Key: * BIOL and EARTH electives must be selected from the Biology and Earth Science elective lists at the end of this page.

BIOL 211 Introductory Vertebrate Biology (Winter)
or BIOL 165 Diversity of Life (Winter)
BIOL 456 Population Biology or BIOL 458 Quantitative Ecology (Fall)
BIOL 457 Analysis of Communities (Winter)
ERS 215 Environmental and Sustainability Assessment I
Two 300- or 400-level BIOL electives* (1.0 unit)
One 400-level BIOL elective* (0.5 unit)
One 300- or 400-level EARTH elective** (0.5 unit)
Three electives (1.5 units)
Note
Students should be aware that many positions in Ecology and Environmental Science require knowledge of environmental planning. Students are encouraged to select ENVS 201 (Environmental Planning and Law) as an elective.

Biology Electives

Earth Sciences Electives
EARTH 221, 232, 235, 236, 238, 281, 333, 358, 359, 421, 440, 458, 459

**One 400-level BIOL field course is required to recommended to complete this program. Field courses are intensive two week courses held at off-campus locations during the spring term, and enrolment in these courses works very differently than regular course enrolment. Students should plan on the completion of this course at the end of their second or third year, and must consult their academic advisor about the selection of this course no later than the fall term of their second year.

ix) Biomedical Sciences

Legend

<table>
<thead>
<tr>
<th>Symbol/ Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>*</td>
<td>Biology elective must be from the following list: BIOL 110, 120, 211, 225</td>
</tr>
<tr>
<td>**</td>
<td>Of the eleven (5.5 units) elective courses, it is recommended that one course (0.5 unit) be MATH 127 and two courses (1.0 unit) be from the Faculty of Arts, of which, one course (0.5 unit) is an ENGL or ESL course.</td>
</tr>
</tbody>
</table>

Key: * It is highly recommended that two courses (1.0 unit) out of eleven (5.5 units) of free electives be from the Faculty of Arts. It is recommended that one of these courses should be selected from those offered by the English Department; MATH 127 is highly recommended.

Year One (Fall)
BIOL 110, 120, BIOL 130, 130L, 150, 165
Two 100- or 200-level BIOL 1XX/2XX Biomedical Science elective* (1.0 unit)
CHEM 120/120L
CHEM 123/123L
STAT 202
Two electives (1.0 units)**

Year Two
Three electives (1.5 units)**(delete*)

Year Three
Two electives (1.0 units)**(delete*)

x) Honours Biochemistry (Reg. & Co-op)

Advisors: Drs. B. Butler and T. Holyoak (Biology), Drs. E. Daub and T. Dieckmann (Chemistry)

Legend
Symbol/Abbreviation | Description
---|---
* | Group A electives are courses from following list: BIOL 308, 342, 366, 382, 428, 431, 432, 433, 434, 335L, 438, 439, 441, 483, 486, 499A/B; CHEM 381, 430, 432, 433, 494A/B
** | Group B electives are courses from the following list: BIOL 303, 323, 345, 354, 359, 370, 371, 373, 442, 443, 444, 447, 448, 473, 477L, 484; CHEM 221, 310, 313, 323, 404, 410, 420, 460, 464
*** | Group C electives are free course electives (not more than 2.0 units)

Group A
BIOL 308, 342, 366, 382, 428, 431, 432, 433, 434, 335L, 438, 439, 441, 483, 499A/B
CHEM 381, 430, 432, 433, 494A/B

Group B
BIOL 303, 323, 345, 354, 359, 370, 371, 373, 442, 443, 444, 447, 448, 473, 474, 474L, 476, 484
CHEM 221, 310, 313, 323, 404, 410, 420, 460, 464
PHYS 480

xi) Honours Biochemistry (Biotechnology Specialization) (Reg. & Co-op)

Advisors: Drs. B. Butler and T. Holyoak (Biology), Drs. E. Daub and T. Dieckmann (Chemistry)

Legend
Symbol/Abbreviation | Description
---|---
* | Group A electives are courses from the following list: BIOL 308, 366, 382, 428, 431, 434, 335L, 438, 486, 499A/B; CHEM 381, 430, 432, 433, 494A/B
** | Group B electives are courses from the following list: BIOL 303, 323, 345, 354, 359, 370, 371, 373, 442, 443, 444, 447, 448, 473, 477L, 484; CHEM 221, 310, 313, 323, 404, 410, 420, 460, 464
*** | Group C electives are free course electives (not more than 2.0 units)

Group A
BIOL 308, 366, 382, 428, 431, 434, 335L, 438, 499A/B
CHEM 381, 430, 432, 433, 494A/B

Group B
BIOL 303, 323, 345, 354, 359, 370, 371, 373, 442, 444, 447, 448, 473, 474L, 476, 484
CHEM 221, 310, 313, 323, 404, 410, 420, 460, 464
PHYS 480

Rationale: Changes to Biology plans (with specializations) came into effect Fall 2012. Minor revisions to the Honours Biology (with specializations) and Honours Environmental Science (Ecology) plan descriptions are needed to reflect the current course offerings. Changes to or additions of “Legends” or “Notes” have been done to meet visual accessibility requirements.
FOR INFORMATION

CURRICULAR MODIFICATIONS
Course changes were approved for the Faculty of Engineering (mechanical and mechatronics engineering) effective 1 September 2014.

Changes consisting of new courses, course changes, and course inactivations were approved for the Faculties of Arts (cognitive science; economics; history; political science), Engineering (Conrad Business, Entrepreneurship & Technology Centre; chemical engineering; electrical and computer engineering; mechanical and mechatronics engineering; systems design engineering), and Science (earth and environmental sciences; biology; pharmacy) effective 1 January 2015.

Changes consisting of course changes and course inactivations were approved for the Faculty of Science (biology) effective 1 September 2015.

NEW UNDERGRADUATE AWARDS
Attachment #1 to this report contains a listing of newly-approved entrance scholarships/awards/bursaries, upper-year scholarships/awards/bursaries, international experience awards and athletic awards.

Mario Coniglio
Associate Vice-President, Academic
NEW UNDERGRADUATE AWARDS
for addition to the current Undergraduate Calendar web site
- submitted for March 4, 2014 meeting of Senate UG Council -

ENTRANCE SCHOLARSHIPS/ AWARDS/ BURSARIES:

*Columbia International College Scholarship
Two scholarships, valued at a total of $5,000 each, are provided annually to graduates of Columbia International College, who are entering Year One in the Faculty of Mathematics. Scholarships are awarded on the basis of high school grades, performance on the Euclid Mathematics Contest, and participation and achievement in student government, athletics, music, art, etc. as demonstrated on the Admissions Information Form. These continuing scholarships are paid out as follows: $2,000 in first year, and $500 for up to six full-time upper-year terms as long as the recipient maintains a cumulative average of 80% or greater and remains in the Faculty of Mathematics.

Method of Financing: one-time donation (trust)

June Lowe Entrance Scholarship
A scholarship, valued at $2,000, is awarded annually to an outstanding undergraduate student entering first year in the Faculty of Engineering. This fund is made possible by a donation from June Lowe and friends of June Lowe to celebrate her 42-year career at the University of Waterloo.

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

*University of Waterloo - Columbia International College Scholarship
Four scholarships, valued at $3,000 each, are provided annually to graduates of Columbia International College, who are entering Year One in the Faculty of Mathematics. Scholarships are awarded on the basis of high school grades, performance on the Euclid Mathematics Contest, and participation and achievement in student government, athletics, music, art, etc. as demonstrated on the Admissions Information Form.

Method of Financing: Faculty funds

UPPER-YEAR SCHOLARSHIPS/ AWARDS/ BURSARIES:

Frederick T. Armstrong Scholarship
A scholarship, valued at up to $3,000, is presented annually to a full-time undergraduate student enrolled in Year One, Two, or Three of the Optometry program who has achieved academic excellence (minimum overall average of 80%). This fund is made possible through a bequest from Frances Armstrong to honour the memory of her father Dr. Frederick T. Armstrong and recognize her family's long history as vision care providers.

Method of Financing: endowment

Samuel Berenbeim Memorial Scholarship
A scholarship, valued at $2,500, is presented annually to a full-time undergraduate student enrolled in Year Three or Four in the Department of Pure Mathematics on the basis of academic excellence (minimum overall average of 80%). This fund is made possible by an anonymous donor to honour the memory of Samuel Berenbeim.

Method of Financing: annual donation (ongoing)

*These awards were established several years ago, but the award descriptions were not previously submitted.
NEW UNDERGRADUATE AWARDS
for addition to the current Undergraduate Calendar web site
- submitted for March 4, 2014 meeting of Senate UG Council -

Kenton J. Carnegie Memorial Award
An award, valued at up to $750, is provided annually to a full-time undergraduate student enrolled in
Year Three or Four of Geological Engineering who has achieved a minimum overall average of 75% and
who has demonstrated leadership potential through extracurricular involvement and/or volunteer
activities. This fund is made possible by memorial donations from family, friends and colleagues of
Kenton J. Carnegie (Posthumous BASc 2007 Geological Engineering) who demonstrated excellence in
academics and who made outstanding contributions to the Faculty of Engineering and the university
during his undergraduate career at the University of Waterloo.

Method of Financing: endowment

Winston and Diana Cherry Awards in Statistics
Awards, valued at $400 each, are provided each term to full-time undergraduate students achieving the
highest grade in each of the fourth-year undergraduate statistics courses offered by the Department of
Statistics and Actuarial Science. This fund is made possible by donations from Winston and Diana Cherry.

Method of Financing: endowment

Roger Crawford Award
One or more awards, valued at $500 each, are provided annually to students enrolled in Civil,
Environmental, or Geological Engineering. This award recognizes work-term reports that focus on buried
municipal water infrastructure renewal construction using trenchless technologies and/or buried
infrastructure asset management. This award honours Roger Crawford, P.Eng., for his significant
contributions to the trenchless industry and his support of the Centre for Advancement of Trenchless
Technologies (CATT).

Method of Financing: Departmental funds

James and Edith Davis Scholarship
Two scholarships, valued at $1,500 each, are provided annually to outstanding students enrolled in
second or third year of the Faculty of Arts who are majoring in History or Political Science. Preference will
be given to candidates who have made meaningful contributions through involvement in extracurricular
activities within the school or community. Interested students are to submit an application by February 1.
This scholarship is made possible by a gift from Eleanor Kaufman to the Canadian Federation of
University Women Kitchener-Waterloo Charitable Fund (CFUW K-W Charitable Fund). Eleanor, a long-time
member of the CFUW K-W, established this fund in honour of her late parents, James and Edith Davis,
who encouraged and supported her to pursue higher education.

Method of Financing: annual donation (ongoing)

FYidoctors Academic Leadership Award
An award, valued at $1,500, is provided annually to a full-time undergraduate student enrolled in Year
Three in the School of Optometry & Vision Science. The successful candidate will have achieved academic
excellence in clinical skills related courses and will have shown leadership potential during the first weeks
of clinical rotation. Interested students should submit a 500-word essay outlining their
intentions/interests for optometric practice, their leadership activities and the values they share with
FYidoctors’ business model. Applications will be due by October 1. This award is made possible by
FYidoctors to recognize students who excel in clinical education and have shown the potential to be
leaders in the profession of optometry.

Method of Financing: annual donation (ongoing)
NEW UNDERGRADUATE AWARDS
for addition to the current Undergraduate Calendar web site
- submitted for March 4, 2014 meeting of Senate UG Council -

Ron Kellerman Memorial Scholarship
One scholarship, valued at $500, will be presented annually to a full-time undergraduate student majoring in an Earth Sciences program who achieves the highest mark in Earth 221 (Geochemistry). This award was created in honour of Ron Kellerman who worked in the Earth Science Department as a geochemist for over 15 years.

Method of Financing: one-time donation (trust)

Karem Langer Pardo Upper-Year Scholarship in Spanish
A scholarship, valued at $2,500, is presented annually to a full-time undergraduate student enrolled in Year Two, Three, or Four in the Department of Spanish. Selection will be made on the basis of academic achievement (minimum 80% overall average). No application is necessary. This scholarship is made possible by James F. McCollum (PhD Rice, Economics) in honour of his friend Karem Langer Pardo (PhD Ottawa, Spanish) to recognize their mutual appreciation of Spanish literature and, of literature, languages and learning in general.

Method of Financing: one-time donation (trust)

Richard Nutbrown Memorial Scholarship
A scholarship, valued at $1,000, is provided annually to a full-time undergraduate student enrolled in Year Two, Three, or Four as a Political Science major in the Faculty of Arts. The recipient will have the highest mark in PSCI 225, 226, or 324. This fund is made possible by a donation from Heike Mertins, family, friends, faculty, staff, students, and former students in honour of Richard’s esteemed teaching career at the University of Waterloo.

Method of Financing: one-time donation (trust)

Professional Development Prize in Project Management
Three book prizes are awarded each term to the students who have achieved the highest overall course grade in the PD 5: Project Management course and who have also successfully completed the Certified Associate in Project Management (CAPM) Mock Exam.

Method of Financing: annual donation of books (ongoing)

Shell Design Symposium Awards
Awards are presented annually to student teams enrolled in the Faculty of Engineering’s Fourth-Year Capstone Design Project in the Departments of Chemical and Mechanical & Mechatronics Engineering. The first-place winning team in each department will receive $3,000 and the second- and third-place winning teams in each department will receive $500. Students who wish to participate in the award competition should complete an application which will be provided to them by their departmental Capstone Coordinator. Deadlines and Capstone Coordinator information can be found at https://uwaterloo.ca/engineering/entrepreneurship/capstone-design/shell-canada-design-symposium-awards. Up to five finalists will be selected in each department during the 4B term. Final selection and announcement of the winning teams will occur at the department Design Symposiums held during the winter term. This fund is made possible by Shell Canada.

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

R. A. Wentzell Memorial Scholarship
Two scholarships, valued at up to $500 each, are presented annually to the top male and top female students who are enrolled in Year Three in the Department of Applied Mathematics on the basis of academic excellence (minimum 80%). This fund has been created by family, friends, and faculty members of the Department of Applied Mathematics to honour the memory of Professor R. A. Wentzell who was a valued member of the Department of Applied Mathematics for over 20 years.

Method of Financing: endowment
NEW UNDERGRADUATE AWARDS
for addition to the current Undergraduate Calendar web site
- submitted for March 4, 2014 meeting of Senate UG Council -

INTERNATIONAL EXPERIENCE AWARDS:

NA Engineering Associates Inc. Research Travel Award in Hellenistic Studies
An award, valued at up to $1,500, is provided annually to a full-time undergraduate or graduate student who is enrolled in a program in the Department of Classical Studies. Candidates must write a 500-word letter to prove a need for travel to Greece in order to enhance their research in the study of Greece and Classical Greek heritage. Candidates must also be Canadian citizens/permanent residents, residents of Ontario, and be able to demonstrate financial need. Interested students are asked to complete the Undergraduate International Experience Award Application or Graduate Student Award Application available from the Student Awards & Financial Aid and Graduate Studies Office websites. Applications are due February 1. This fund is made possible by a donation from NA Engineering Associates Inc. in support of the Waterloo Institute for Hellenistic Studies.

Method of Financing: endowment

School of Accounting and Finance International Experience Award
An award, valued at $1,500 or more, will be provided annually to a full-time undergraduate student enrolled in third or fourth year in the Accounting and Financial Management, Computing and Financial Management, Mathematics/Chartered Professional Accountancy, or Biotechnology/Chartered Professional Accountancy program who is participating in an international work or study experience. Selection will be based on academic achievement, extracurricular involvement, and financial need. Preference will be given to students who are travelling to an unfamiliar country where they will experience a different culture in a new learning environment. Interested students should submit an application by November 15. This fund is made possible by donations from alumni and friends who share a passion for the benefits of an international experience.

Method of Financing: endowment

WCGS International Opportunities Travel Grant
Several grants, valued from $500 to $1,500 each, are provided annually to full-time undergraduate or graduate students enrolled within the first four years of their program and registered in at least one Germanic and Slavic Studies course at the University of Waterloo. Selection will be based on participation in a recognized institutional Canadian-organized German language or cultural studies program abroad. Further information regarding the application process can be found at the Waterloo Centre for German Studies (WCGS) website. Applications are due March 1.

Method of Financing: WCGS endowment

ATHLETIC AWARDS:

Robert D. Moggach Athletics Scholarship
Two scholarships, valued at $2,500 each, are provided annually to a male and a female student-athlete who are members of a varsity team (excluding football). These awards recognize athletic talent, academic achievement, contribution to Warrior Athletics and contribution to his/her team and school. This fund is made possible through the generous support of Bradley D. Moggach (BA’12) in honour of his father and grandfather who both hold the name Robert D. Moggach.

Method of Financing: annual donation (three-year pledge)
Recognition and Commendation

All of the University of Waterloo’s more than 120 co-op programs have received formal accreditation from co-op education’s national governing organization, the Canadian Association for Co-operative Education (CAFCE). “This is wonderful news,” says Peggy Jarvie, executive director of Co-operative Education & Career Services. “Waterloo founded co-operative education in Canada, so we regard accreditation highly as it reaffirms our leadership in work integrated learning. We are delighted to help set national quality standards for co-op education in Canada.” A peer review team, consisting of CAFCE members from Simon Fraser University, University of Victoria and University of Laval, evaluated the University of Waterloo’s co-op programs and processes, and then provided its recommendation to the CAFCE Accreditation Council for final approval. “Accreditation standards were developed by CAFCE to establish co-op as an educational strategy and to provide leadership in ensuring quality co-op programming. Accreditation Council members from across Canada articulate and review accreditation measures as the needs of students, employers and institutions change. In order to qualify for accreditation, Co-op programs must provide documentation demonstrating structural criteria, co-op in the institutional context, institutional commitment criteria, quality program delivery criteria, and monitoring and evaluation criteria.” Programs maintain their accreditation status for a period of six years. [18 March 2014 Daily Bulletin]
A. APPOINTMENTS

Probationary-term Appointments

MacEACHEN, Ellen, Associate Professor, School of Public Health and Health Systems, May 1, 2014 – June 30, 2017. [BA (Sociology and Anthropology), Concordia University, 1988; MSc (Rehabilitation Medicine), Queen’s University, 1993; PhD (Public Health Sciences), University of Toronto, 2003.] Dr. MacEachen comes from the Institute for Work and Health. She is a well-established teacher, and has a strong research network both nationally and internationally related to her expertise in participatory research in work and health that is evolving toward population-wide applications, e.g., work-related disability policy evaluation. This is a good fit within the strategic plan in the school.

WALLACE, James, Assistant Professor, School of Public Health and Health Systems, September 1, 2014 – June 30, 2017. [BMath (Computer Science), University of Waterloo, 2004; MCSc (Human-Computer Interaction), Dalhousie University, 2006; PhD (Systems Design Engineering), University of Waterloo, 2012]. Dr. Wallace comes to Waterloo from Wilfrid Laurier University (Business Technology Management). His research interests are in designing computer interfaces that facilitate collaboration and decision making. His expertise will bode well for future research productivity and teaching in the Health Informatics program.

BOLUK, Karla, Assistant Professor, Department of Recreation and Leisure Studies, July 1, 2014 – June 30, 2017. [BA, Honours, Brock University, 2005; PhD, University of Otago, New Zealand, 2010]. Dr. Boluk comes to Waterloo from the University of Ulster, Department of Hospitality and Tourism Management, Ulster Business School. Her research is centered on sustainable tourism, ethical consumption, tourist experience, fair trade tourism, social and green entrepreneurship, community engagement and involvement in tourism decision-making, and volunteer tourism. She will contribute to the strategic repositioning of the undergraduate and graduate tourism programs. As well, Dr. Boluk will teach a variety of tourism, business-related, and core undergraduate leisure courses and supervise graduate students.

Adjunct Appointment

Graduate Supervision

WOODRUFF ATKINSON, Sarah, Associate Professor, School of Public Health and Health Systems, February 1, 2014 to January 31, 2015.

Special Appointment

Graduate Instruction

CRIZZLE, Alexander, Lecturer, School of Public Health and Health Systems, May 1, 2014 – August 31, 2014.

B. ADMINISTRATIVE APPOINTMENTS

STAINES, Richard, Associate Dean, Research, Applied Health Sciences, May 1, 2014 – April 30, 2018.
Administrative Appointment Change
TYAS, Suzanne, Associate Dean, Research, September 1, 2013 – August 31, 2014 changed to September 1, 2013 – April 30, 2014.

C. SABBATICAL LEAVE
For Approval by the Board of Governors
STARK, Ken, Associate Professor, Department of Kinesiology, July 1, 2014 – December 31, 2014, 100% salary.

D. UNPAID LEAVE
ARAI, Susan, Associate Professor, Department of Recreation and Leisure Studies, September 1, 2014 – August 31, 2015.

Susan J. Elliott
Dean, Faculty of Applied Health Sciences
A. APPOINTMENTS/REAPPOINTMENTS

Probationary-term Appointments

DAGTAS, M. Secil (PhD expected spring 2014 University of Toronto, MA 2007 York University), Assistant Professor, Department of Anthropology, July 1, 2014 to June 30, 2017. Ms Dagtas held a Vanier Canada Graduate Fellowship (2009-2012). Her research examines tolerance, religious pluralism, and secularism in contemporary Islam, focusing on Islam in Turkey. She will contribute to the development of both the anthropology department and the religious studies programs, and contribute substantially to the Public Issues Anthropology MA.

MENSCH, Jennifer (PhD 2003 Emory University), Assistant Professor, Department of Philosophy, January 1, 2015 to June 30, 2018. Since 2012, Dr. Mensch has been senior lecturer in philosophy at Pennsylvania State University. Prior to that she was assistant professor of science, technology and society from 2006-12, before that department was closed (and all its tenure lines discontinued) in a budget-cutting move. Her work focuses on the intersection between philosophy and science in the 17th, 18th and 19th centuries, with particular attention to the role of developments in biological sciences, and in particular in embryology, on key figures like Immanuel Kant. This research is a striking departure from existing interpretive work that has focused on the interaction between physics or chemistry and philosophy in this period. One of her current research projects extends this work to fill a gap in the critical history of theorizing about race. She brings a substantial record of strong teaching evaluations and some experience as a graduate supervisor. Dr. Mensch’s research profile fits well in a department with an inter-disciplinary focus, and should help the department to continue to build bridges to other departments in arts and across the university.

MUFTI, Mariam (PhD 2011 John Hopkins University), Assistant Professor, Department of Political Science, July 1, 2014 to June 30, 2017. Dr. Mufti has been the Wick Cary assistant professor of South Asian studies at the University of Oklahoma since January 2012. With a number of publications, she is an expert in South Asian politics, including various dimensions of the politics and foreign policy of Pakistan, and has language skills in Urdu, Punjabi, and Hindi. She has extensive experience in teaching South Asian politics and will make an important contribution to the department’s course offerings in Asian politics as well as to all three of the department’s core streams of global governance (including in the area of conflict and conflict resolution which is one of the fields of concentration in department’s MA program), political economy (especially in relation to development issues), and public policy and administration (including in the areas of elections and party politics).

WATTS, Christopher (PhD 2006 University of Toronto), Assistant Professor, Department of Anthropology, July 1, 2014 to June 30, 2017. Dr. Watts has just completed a SSHRC Postdoctoral Fellowship at the University of Western Ontario, where his research in archaeology and geophysics examined prehistoric earthen enclosures in southern Ontario. He has also held a postdoctoral position at the ROM, and worked for the Ontario Ministry of Tourism, Culture, and Sport as an archaeology review officer. He will contribute to the anthropology department’s expanding program in archaeology and cultural resource management, developing classroom experiential learning opportunities for students in archaeology, and contributing to the Public Issues Anthropology MA program.
WHITESIDE, Heather (PhD 2013 Simon Fraser University), Assistant Professor, Department of Political Science, May 1, 2015 to June 30, 2018. Dr. Whiteside received SSHRC funding during her doctoral studies and presently holds a SSHRC post-doctoral fellowship at UBC. Although she received her PhD only in 2013, she already has an impressive publication record, including one co-authored book and many journal articles and book chapters. A winner of two essay competitions, she has research expertise in the field of government and business, and her dissertation focused on public-private partnerships in the health care sector in Canada. She has excellent teaching experience and will make an important contribution to the department’s core stream in political economy at both the undergraduate and graduate level as well as to its offerings in global governance, public policy and administration, and Canadian politics.

Definite-term Appointments
ANDRES, Greg (PhD 2007 University of Western Ontario), Lecturer, Department of Philosophy, July 1, 2014 to June 30, 2017. Dr. Andres is currently the instructional support coordinator for UWaterloo’s Professional Development Program, and has been a sessional instructor with the Department of Philosophy since 2007 (in addition to similar employment with other nearby philosophy departments). In addition to teaching, Dr. Andres will assume the role of coordinator of the department’s business ethics offerings for the faculty’s Arts and Business program, and for the other X and business programs on campus. He will also serve as the designated teaching mentor for graduate students teaching their own courses for the first time. He was the inaugural winner of the Faculty of Arts Teaching Award in 2013, was a nominee for the TVO Best Lecturer Award in 2009, and was named twice to the University of Western Ontario Teaching Honour Roll. While his PhD is in logic and the philosophy of logic, he is an extraordinarily versatile teacher, receiving extremely high student evaluations in courses ranging from existentialism to logic and from ethics to philosophy of science.

GEORGE, Ryan (PhD 2011 McMaster University), Lecturer, Department of Economics, September 1, 2014 to August 31, 2015. Dr. George’s PhD is in history and he also has an economics MA from the University of Toronto. In the last few years he has been teaching as a sessional lecturer in the department, including developing a course in urban economics which is related to his PhD research.

MESTA, Olivia (PhD 2009 University of Missouri-Columbia), Lecturer, Department of Economics, July 1, 2014 to June 30, 2016. In addition to an economics PhD, Dr. Mesta has an MBA and will teach courses in marketing and business finance in economics and in the Stratford programs. Since receiving her PhD she has focused her career on teaching, most recently at McMaster.

RODENBURG, Kathleen (PhD 2013 University of Guelph), Lecturer, Department of Economics, June 1, 2014 to May 31, 2016. Dr. Rodenburg’s thesis research is in experimental economics and decision theory. She also has a decade of experience working in marketing in the private sector. She will teach marketing and other courses in economics and in the Stratford programs.

Definite-term Reappointments
KIASHCHUK, Mikalai (MA 2005 University of Western Ontario), Lecturer, Department of French Studies, June 1, 2014 to May 31, 2015.

TAKAM, Alain (PhD 2009 Dalhousie University), Lecturer, Department of French Studies, September 1, 2014 to August 31, 2015.

Adjunct Appointment
Miscellaneous (research, consultations, etc.)
CARAGATA, Lea, Associate Professor, Department of Sociology and Legal Studies, January 1, 2014 to August 31, 2014.
Adjunct Reappointments

Instruction

GEORGE, Ryan, Lecturer, Department of Economics, May 1, 2014 to August 31, 2014.

KAY, Tallen, Lecturer, Department of Drama and Speech Communication, January 1, 2014 to March 18, 2014.

KROEKER, Ronald, Lecturer, Department of Classical Studies, May 1, 2014 to August 31, 2014.

KUMASE, Wokia, Lecturer, Department of Economics, May 1, 2014 to August 31, 2014.

LOCKWOOD, Eric, Lecturer, School of Accounting and Finance, January 1, 2014 to April 30, 2014.

LOPES, Maria, Lecturer, School of Accounting and Finance, January 1, 2014 to April 30, 2014.

NABERT-CHUBB, Rebecca, Lecturer, Department of Political Science, May 1, 2014 to August 31, 2014.

SCHWEITZER, David, Assistant Professor, Department of History, May 1, 2014 to August 31, 2014.

SIEBEL-ACHENBACH, Sebastian, Assistant Professor, May 1, 2014 to August 31, 2014.

Miscellaneous (research, consultations, etc.)

SMITH, Larry, Associate Professor, Department of Economics, September 1, 2014 to August 31, 2015.

B. ADMINISTRATIVE APPOINTMENTS

GORMAN, Dan, Associate Director, PhD in Global Governance, January 1, 2014 to December 31, 2016.

HOUSTON, Andrew, Acting Chair, Department of Drama & Speech Communication, July 1, 2014 to June 30, 2015.

ILCAN, Suzan, Director, MA in Global Governance, January 1, 2014 to December 31, 2016.

RIVERA-AYALA, Sergio, Associate Chair, Undergraduate Studies, Department of Spanish and Latin American Studies, July 1, 2014 to April 30, 2015.

SIMPSON, Jennifer, Associate Dean, Research, July 1, 2014 to June 30, 2015.

Administrative Appointment Changes

KENYON, Tim, Associate Dean, Research, from July 1, 2012 to June 30, 2016 to July 1, 2012 to June 30, 2014 and July 1, 2015 to June 30, 2016.

SIMPSON, Jennifer, Chair, Department of Drama and Speech Communication, from September 1, 2012 to August 31, 2016 to September 1, 2012 to June 30, 2014.

C. SABBATICAL LEAVES

For Approval by the Board of Governors

BARRICKMAN, Nancy, Assistant Professor, Department of Anthropology, July 1, 2014 to December 31, 2014, 100% salary.
HARRIS, Randy, Professor, Department of English Language & Literature, September 1, 2014 to August 31, 2015, 85% salary.

LIU, Jennifer, Assistant Professor, Department of Anthropology, January 1, 2015 to June 30, 2015, 100% salary.

SIEMERLING, Winfried, Professor, Department of English Language & Literature, July 1, 2014 to December 31, 2014, 85% salary.

SMYTH, Heather, Associate Professor, Department of English Language & Literature, July 1, 2014 to June 30, 2015, 85% salary.

TOLMIE, Sarah, Associate Professor, Department of English Language & Literature, January 1, 2015 to June 30, 2015, 85% salary.

Douglas M. Peers
Dean, Faculty of Arts
FOR INFORMATION

A. APPOINTMENTS/REAPPOINTMENTS

Probationary-term Appointment Change


Probationary-term Reappointments

TRIPP, Bryan, Assistant Professor, Department of Systems Design Engineering, July 1, 2014 – June 30, 2017. PhD University of Waterloo 2009; MSc University of Toronto 2002; BSc University of Waterloo 1997.

WONG, Alexander, Assistant Professor, Department of Systems Design Engineering, July 1, 2014 – June 30, 2017. PhD University of Waterloo 2010; MASc University of Waterloo 2007; BASc University of Waterloo 2005.

Definite-term Appointments

PELDSZUS, Sigrid, Research Associate Professor, Department of Civil & Environmental Engineering, January 1, 2014 – June 30, 2015. PhD University of Bonn, Germany 1993; MSc University of Munster, Germany 1988; BSc University of Cologne, Germany 1984. Dr. Sigrid Peldszus will continue with her research efforts in the Environmental and Water Resources Engineering Research Group in the Department of Civil and Environmental Engineering. Her recent research focuses on the origin and fate of emerging contaminants during conventional and advanced water treatment processes, and the sources and mitigation of membrane fouling. Her research is an integral component of the research program of the NSERC Industrial Research Chair in Water Treatment in the Department of Civil and Environmental Engineering.


Definite-term Reappointments

CHEN, Ariel, Lecturer, Department of Chemical Engineering, March 19, 2014 – March 31, 2016.

HURST, Ada, Lecturer, Department of Management Sciences, May 1, 2014 – June 30, 2017.

Visiting Appointments

ABUELNASR, Marwa, Scholar, Department of Electrical & Computer Engineering, April 1, 2014 – September 30, 2014.

ADJAHO, Marie-Benedicte, Scholar, Department of Electrical & Computer Engineering, March 5, 2014 – September 5, 2014.

AKBARI, Vajihe, Scholar, Department of Chemical Engineering, April 1, 2014 – October 15, 2014.

BAUTISTA, Ramer, Scholar, Department of Chemical Engineering, August 1, 2014 – July 31, 2015.
BOUCHAUDY, Anne, Scholar, Department of Electrical & Computer Engineering, July 1, 2014 – November 30, 2014.

CHEN, Hongmin (David), Scientist, Department of Chemical Engineering, March 1, 2014 – December 31, 2015.


DUMAS, Stephane, Scholar, Department of Chemical Engineering, March 28, 2014 – August 31, 2014.

GAN, Nianfei, Scholar, Department of Mechanical & Mechatronics Engineering, August 1, 2014 – July 31, 2015.

HOANG, Tuan, Scholar, Department of Chemical Engineering, March 4, 2014 – September 3, 2014.


HU, Jichao, Scholar, Department of Mechanical & Mechatronics Engineering, February 2, 2014 – February 1, 2015.


JIANG, Dan, Scholar, Department of Mechanical & Mechatronics Engineering, December 20, 2014 – December 19, 2015.

OLIVEIRA, Joao, Researcher, Department of Mechanical & Mechatronics Engineering, May 1, 2014 – December 31, 2014.

PANCHAL, Puru, Scholar, Department of Chemical Engineering, January 27, 2014 – April 30, 2014.


SOLTANI, Amir, Scholar, Department of Mechanical & Mechatronics Engineering, June 20, 2014 – December 31, 2014.

WU, Bei, Professor, Conrad Business, Entrepreneurship and Technology Centre, Dean of Engineering Office, July 1, 2014 – August 30, 2015.

Visiting Reappointments

SAEEDKIA, Daryoosh, Researcher, Department of Electrical & Computer Engineering, May 1, 2014 – April 30, 2015.

**Special Appointments**

*Undergraduate Instruction*

HOSSEINKHANI, Yasin, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2014 – August 31, 2014.

MORENO, Carlos, Lecturer, Department of Electrical & Computer Engineering, May 1, 2014 – August 31, 2014.

WRIGHT, Derek, Lecturer, Department of Electrical & Computer Engineering, May 1, 2014 – August 31, 2014.

ZARNETT, Jeffrey, Lecturer, Department of Electrical & Computer Engineering, May 1, 2014 – August 31, 2014.

*Graduate Instruction*

BLAKE, Clifford, Lecturer, Department of Management Sciences, May 1, 2014 – August 31, 2014.

*Undergraduate and Graduate Instruction*

AL-HAMMOUD, Rania, Lecturer, Department of Civil & Environmental Engineering, May 1, 2014 – August 31, 2014.

**Special Reappointments**

*Undergraduate Instruction*

NGUYEN, Tam, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2014 – August 31, 2014.

*Graduate Instruction*

NESPOLI, Oscar, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2014 – August 31, 2014.

**Adjunct Appointments**

*Graduate Supervision*

CELEBI, Emre, Assistant Professor, Department of Management Sciences, February 1, 2014 – January 31, 2017.

OSEI, Ernest, Assistant Professor, Department of Systems Design Engineering, March 1, 2014 – February 28, 2017.

*Graduate Supervision and Research*

ASMAR, Daniel, Assistant Professor, Department of Systems Design Engineering, March 1, 2014 – February 28, 2017.

**Adjunct Reappointment**

Research

FOX, Steven, Assistant Professor, Department of Civil & Environmental Engineering, July 1, 2013 – June 30, 2015.
Cross Appointments
BANSAL, Harvir, Associate Professor, Conrad Business, Entrepreneurship and Technology Centre, Dean of Engineering Office to Department of Management Sciences, March 1, 2014 – February 28, 2017.

FIDAN, Baris, Assistant Professor, Department of Mechanical & Mechatronics Engineering to Department of Systems Design Engineering, February 1, 2014 – January 31, 2017.

WEBER, Mark, Associate Professor, Conrad Business, Entrepreneurship and Technology Centre, Dean of Engineering Office to Department of Management Sciences, March 1, 2014 – February 28, 2017.

YOUNG, Steven Bruce, Associate Professor, School of Environment, Enterprise and Development, Faculty of Environment to Department of Mechanical and Mechatronics Engineering, January 1, 2014 – December 31, 2016.

B. ADMINISTRATIVE APPOINTMENTS
BISHOP William, Director, P & L Venture Creation Fund Program, Department of Electrical & Computer Engineering, May 1, 2014 – April 30, 2015.

CALAMAI, Paul, Acting Chair, Department of Systems Design Engineering, September 1, 2014 – June 30, 2015.

C. RESIGNATION
PIRNIA, Mehrdad, Lecturer, Department of Management Sciences, April 30, 2014.

D. RETIREMENT
SLIWKA, Ryszard, Associate Professor, School of Architecture, December 31, 2013.

Pearl Sullivan
Dean, Faculty of Engineering
FOR INFORMATION

A. APPOINTMENTS

Adjunct Appointments
Graduate Supervision
MASSEY, Peter, Professor, Department of Environment and Resource Studies, January 1, 2014 to December 31, 2016.

WEIS, Tim, Professor, Department of Geography and Environmental Management, March 1, 2014 to February 28, 2017.

Graduate Supervision and Research
ARYA, Neil, Associate Professor, Department of Environment and Resource Studies, March 1, 2014 to June 30, 2017.

DERKSEN, Christopher, Assistant Professor, Department of Geography and Environmental Management, January 1, 2014 to December 31, 2017.

Special Appointment
Instruction
CASTON, A. Wayne, Lecturer, Department of Geography and Environmental Management, May 1, 2014 to August 31, 2014.

Graduate Students Appointed as Part-Time Lecturers
GUNN, Grant, Department of Geography and Environmental Management, May 1, 2014 to August 31, 2014.

KARROW, Thomas, Department of Geography and Environmental Management, May 1, 2014 to August 31, 2014.

KHEYROLLAH POUR, Homa, Department of Geography and Environmental Management, May 1, 2014 to August 31, 2014.

B. ADMINISTRATIVE REAPPOINTMENT

SCOTT, Daniel, Director, Interdisciplinary Centre on Climate Change, March 1, 2014 to June 30, 2014.

C. SABBATICAL LEAVES

For Approval by the Board of Governors
CLAPP, Jennifer, Professor, Department of Environment and Resource Studies, January 1, 2015 to June 30, 2015, 85% salary.

MACRAE, Merrin, Associate Professor, Department of Geography and Environmental Management, July 1, 2014 to June 30, 2015, 100% salary.

\[\text{Signature}\]

André Roy
Dean, Faculty of Environment
A. APPOINTMENTS/REAPPOINTMENTS

Tenured

CHARBONNEAU, Benoit (BSc, 1998, Université de Québec à Montréal; MSc, 1999, Université de Québec à Montréal; PhD, 2004, Massachusetts Institute of Technology), Associate Professor, Dept. of Pure Mathematics, May 1, 2014. Dr. Charbonneau completed his PhD in 2004 at the Massachusetts Institute of Technology working under the direction of Tomasz Mrowka. Following several years at McGill, Dr. Charbonneau joined the faculty of St. Jerome’s University in 2010 as an assistant professor. Dr. Charbonneau’s research interests are in differential and algebraic geometry, two areas of fundamental importance in modern mathematics. His particular specialty is Gauge Theory. His work allows him close ties to the theoretical physics community and since 2012 he has held an affiliated position at the Fields Institute for Theoretical Physics. While at St. Jerome’s University, Dr. Charbonneau established a reputation as an outstanding educator. He also served as the coordinator of the highly successful Bridges Lecture series which aims to overcome the gap between mathematics and the arts.

HEWITT, Conrad (BSc, 1984, University of Sussex; MSc, 1985, University of Aberdeen; PhD, 1989, University of Waterloo), Associate Professor, Office of the Dean of Mathematics, May 1, 2014. Dr. Hewitt is currently associate professor and chair of the mathematics department at St. Jerome’s University. He has previously held positions on the University of Waterloo main campus and at Ryerson University. Dr. Hewitt’s research is in the field of cosmology. As a past winner of Waterloo’s Distinguished Teacher Award, he brings well-known interest and ability in education to the Centre for Education in Mathematics and Computing, which will very nicely fit in to the CEMC’s mission of promoting mathematics and computer science at the secondary school and elementary school levels.

STRUTHERS, Cynthia (BMath, 1976; MMath, 1977; PhD 1985, all from the University of Waterloo), Associate Professor, Dept. of Statistics and Actuarial Science, May 1, 2014. Professor Cynthia Struthers is joining us from St. Jerome’s University, where she has been an Associate Professor since 1991, and was an Assistant Professor from 1985 to 1991. She has also been holding a cross-appointment with the Dept. of Statistics and Actuarial Science since 1985. Her research interests are in missing data and longitudinal data, with applications in biostatistics. Professor Struthers has held several administrative appointments throughout her career, including Acting Chair of the Department of Mathematics and Associate Dean at St. Jerome’s University. She is currently the Teaching Fellow for the Faculty of Mathematics.

Probationary-term Appointments

HOFERT, Marius (MSc, 2005, Syracuse University; PhD, 2010, Ulm University), Assistant Professor, Dept. of Statistics and Actuarial Science, July 1, 2014 – June 30, 2017. Dr. Hofert is currently a guest professor in the Department of Mathematics at Technische Universität München. Prior to that, he was a Willis Research Fellow in the Department of Mathematics (RiskLab) at ETH Zurich. He obtained a PhD in mathematics from Ulm University in 2010, for which he received a 2009 Gauss-Preis award. His research area in dependence modelling and computational statistics, with applications in quantitative risk management, finance, and biostatistics, complements in a unique way several current research strengths in the department.
SATRIANO, Matthew (AB, 2005, Princeton University; PhD, 2010, University of California, Berkeley), Assistant Professor, Dept. of Pure Mathematics, July 1, 2015 – June 30, 2018. Dr. Satriano will join the pure mathematics department at the rank of assistant professor. He received his PhD in mathematics from the University California at Berkeley in 2010 where he worked under the supervision of Martin Olsson. Since graduating from Berkeley he has held a prestigious NSF Postdoctoral Fellowship at the University of Michigan. Dr. Satriano has broad interests in mathematics with his main research specialty being Algebraic Geometry. This is an area that sits within the intersection of two fundamental branches of mathematics, algebra and geometry. He has already made significant contributions within his discipline. He is now looking to make connections between algebraic geometry and other areas of mathematics such as mathematical biology.

ZHANG, Chong (BSc, 2007, Tsinghua University; MSc, 2009, Marquette University; PhD, exp. 2014, University of North Carolina at Chapel Hill), Assistant Professor, Dept. of Statistics and Actuarial Science, July 1, 2014 – June 30, 2017. Mr. Zhang is currently a PhD candidate in statistics at the University of North Carolina at Chapel Hill, working under the supervision of Professor Yufeng Liu. His research interests are in statistical machine learning, data mining, nonparametric statistics, and bioinformatics. He was the recipient of a Best Student Paper Award from the American Statistical Association’s Section on Statistical Learning and Data Mining in 2013.

**Definite-term Appointments**

YANG, Fan (BS, 2008, Xi’an Jiaotang University; MS, 2010 and PhD, 2013, both from the University of Iowa), Assistant Professor, June 1, 2014 – May 30, 2016. Dr. Fan will teach three courses per year, work on research and perform some service duties.

VINETTE, Francine (BSc, 1979 and MSc, 1983, both from the University of Ottawa; PhD, 1989, University of Waterloo), Lecturer, Office of the Dean, July 1, 2014 – June 29, 2016. Dr. Vinette will teach six courses per year and administer the mathematics program in Europe, in addition to other student activities.

**Definite-term Reappointments**

AKASH, Mukto, Lecturer, Office of the Dean, April 30, 2014 – April 28, 2016.

BELTAOS, Andrew, Lecturer, Office of the Dean, August 31, 2014 – August 29, 2016.

GEORGIOU, Konstantinos, Assistant Professor, Dept. of Combinatorics and Optimization, August 31, 2014 – August 30, 2015.

**Visiting Appointments**

FENG, Zeny, Associate Professor, Dept. of Statistics and Actuarial Science, September 1, 2014 – April 30, 2015.


RAJABI, Sayeh, Research Associate, Dept. of Applied Mathematics, March 1, 2014 – August 31, 2014.

SOTTLE, Frank, Professor, Dept. of Combinatorics and Optimization, May 1, 2014 – June 30, 2018.

XU, Wei, Scientist, Dept. of Combinatorics and Optimization, July 1, 2014 – June 30, 2015.
YUAN, An, Scholar, Dept. of Combinatorics and Optimization, September 1, 2014 – August 31, 2015.

ZHANG, Kaizhong, Professor, David R. Cheriton School of Computer Science, February 1, 2014 – June 1, 2016.

Adjunct Appointment
Instructor
GOULTIAEVA, Alexandra, Lecturer, David R. Cheriton School of Computer Science, May 1, 2014 – August 31, 2014.

Adjunct Reappointments
Instructor
HOLTBY, Dan, Lecturer, David R. Cheriton School of Computer Science, May 1, 2014 – August 31, 2014.

KNOLL, Carolyn, Lecturer, Dept. of Pure Mathematics, May 1, 2014 – August 31, 2014.


SAKHNIINI, Victoria, Lecturer, David R. Cheriton School of Computer Science, May 1, 2014 – August 31, 2014.

Research
DICKIE, Leroy, Associate Professor, Dept. of Pure Mathematics, May 1, 2014 – April 30, 2017.

Cross Appointments
CHILANA, Parmit, Assistant Professor, Management Science to the David R. Cheriton School of Computer Science, February 1, 2014 – June 30, 2016.

CUDDINGTON, Kim, Assistant Professor, Dept. of Biology to the Dept. of Applied Mathematics, January 1, 2014 – December 31, 2016.

WATROUS, John, Professor, David R. Cheriton School of Computer Science to the Dept. of Applied Mathematics, January 1, 2014 – December 31, 2017.


Cross Reappointments
FISCHMEISTER, Sebastian, Associate Professor, Dept. of Electrical and Computer Engineering to the David R. Cheriton School of Computer Science, February 1, 2014 – June 30, 2016.

LABAHN, George, Professor, David R. Cheriton School of Computer Science to the Dept. of Applied Mathematics, January 1, 2014 – December 31, 2017.

WAN, Justin, Associate Professor, David R. Cheriton School of Computer Science to the Dept. of Applied Mathematics, January 1, 2014 – December 31, 2017.

Graduate Student to Part-time Lecturer Appointments

PROSSER, Mark, David R. Cheriton School of Computer Science, May 1, 2014 – August 31, 2014.

Postdoctoral Fellow to Part-time Lecturer Appointment

Postdoctoral Fellow to Part-time Lecturer Reappointment

B. SABBATICAL LEAVES
For Approval by the Board of Governors
KATZ, Eric, Assistant Professor, Dept. of Combinatorics and Optimization, July 1, 2014 – December 31, 2014, 100% salary.

KUO, Wentang, Professor, Dept. of Pure Mathematics, July 1, 2014 – June 30, 2015, 85% salary.

LHOTAK, Ondrej, Associate Professor, David R. Cheriton School of Computer Science, September 1, 2014 – August 31, 2015, 85% salary.

LIU, Yu-Ru, Professor, Dept. of Pure Mathematics, July 1, 2014 – June 30, 2015, 85% salary.

OLDFORD, Wayne, Professor, Dept. of Statistics and Actuarial Science, September 1, 2014 – August 31, 2015, 100% salary.

POUPART, Pascal, Associate Professor, David R. Cheriton School of Computer Science, September 1, 2014 – April 30, 2015, 85% salary.

SAUNDERS, David, Associate Professor, Dept. of Statistics and Actuarial Science, July 1, 2014 – June 30, 2015, 85% salary.

TAYLOR, David, Professor, David R. Cheriton School of Computer Science, July 1, 2014 – June 30, 2015, 100% salary.


C. SPECIAL LEAVE
TAYLOR, David, Professor, David R. Cheriton School of Computer Science, July 1, 2015 – October 31, 2015, 100% salary. This is an administrative leave.

Ian P. Goulden
Dean, Faculty of Mathematics
A. APPOINTMENTS/REAPPOINTMENTS

Probationary-term Appointments

HOULE, Sherilyn, Assistant Professor, School of Pharmacy, April 1, 2014 to June 30, 2017. [BSc. in Pharmacy, University of Saskatchewan (2006); PhD, University of Alberta (2014).] Dr. Houle’s research is focused on pharmacy practice, medication use in the community and the evaluation of economic and clinical outcomes with clinical and professional services provided by pharmacists.

PATEL, Tejal, Assistant Clinical Professor, School of Pharmacy, March 1, 2014 to June 30, 2017. [BSc in Pharmacy, University of Kentucky, College of Pharmacy (1996); PhD, University of Kentucky, College of Pharmacy (1997).] Dr. Patel received a Doctor of Pharmacy degree and then went on to postdoctoral training at University of Illinois at Chicago. Her expertise is in the pharmacologic management of patients with neurologic disorders.

Definite-term Appointment

FENG, Yunwei, Research Assistant Professor, School of Optometry and Vision Science, January 15, 2014 to January 14, 2016. [MD, China Medical University (1986); MSc, Peking Union Medical College Hospital (1996); PhD, University of Waterloo (2003).] Dr. Feng’s research interests are in ocular surface sensory processing and imaging, in particular for systemic and ocular neurodegenerative diseases, dry eye and contact lens-related ocular irritation. Her work links directly with other researchers in the school in these areas.

Definite-term Reappointments

ENGELHARDT, Heidi E., Lecturer, Department of Biology, April 1, 2014 to March 31, 2016.

SRINIVASAN, Sruthi, Research Assistant Professor, School of Optometry and Vision Science, March 1, 2014 to February 29, 2016.

Adjunct Appointments

Graduate Supervision

MOHAMED, Mohamed, N., Professor, Department of Earth and Environmental Sciences, February 1, 2014 to January 31, 2017.

Graduate Supervision and Research

ARVANITAKI, Asimina, Assistant Professor, Department of Physics and Astronomy, March 1, 2014 to February 28, 2019.

HÉROGUEZ, Valérie, Professor, Department of Chemistry, March 1, 2014 to August 31, 2017.

Adjunct Reappointments

Undergraduate Instruction

MAIN, Andrea, Assistant Professor, School of Pharmacy, January 1, 2014 to August 15, 2014.

Graduate Supervision

ENGLISH, Michael C., Professor, Department of Earth and Environmental Sciences, March 1, 2014 to February 28, 2017.
Graduate Supervision and Research

SMITH, Matthew D., Associate Professor, Department of Biology, May 1, 2014 to April 30, 2017.

WINTER, Jennifer G., Assistant Professor, Department of Biology, May 1, 2014 to April 30, 2017.

Cross Appointments

SANDERSON, Joseph, Associate Professor, Department of Physics and Astronomy to the Department of Chemistry, March 1, 2014 to August 31, 2017.

WECKMAN, Elizabeth, Professor, Department of Mechanical and Mechatronics Engineering to the Department of Earth and Environmental Sciences, February 1, 2014 to January 31, 2016.

Cross Reappointment

PALMER, Michael, Associate Professor, Department of Chemistry to the Department of Biology, May 1, 2014 to April 30, 2017.

Staff to Part-time Lecturer Appointment

HA, David, School of Pharmacy, May 1, 2014 to August 31, 2014.

Graduate Student to Part-time Lecturer Appointment

NAZARI NEJAD, Saman, School of Pharmacy, May 1, 2014 to August 31, 2014.

Postdoctoral Fellow to Part-time Lecturer Reappointments

HEINIG, Nina, Department of Physics and Astronomy, May 1, 2014 to August 31, 2014.

JONES, Kyra, Department of Biology, May 1, 2014 to August 31, 2014.

COOK, Rachel, Department of Biology, May 1, 2014 to August 31, 2014.

SULLIVAN, Michael, School of Pharmacy, May 1, 2014 to August 31, 2014.

WONG, Jeffrey, School of Pharmacy, May 1, 2014 to August 31, 2014.

B. SABBATICAL LEAVES

For Approval by the Board of Governors

HONEK, John, Professor, Department of Chemistry, January 1, 2015 to December 31, 2015, 100% salary.

JONES, Lyndon, Professor, School of Optometry and Vision Science, September 1, 2014 to February 28, 2015, 100% salary.

LU, Qing-Bin, Professor, Department of Physics and Astronomy, June 1, 2014 to November 30, 2014, 100% salary.

T.B. McMahon
Dean, Faculty of Science
FOR INFORMATION

SABBATICAL LEAVE
ROBERTS, Sharon, Assistant Professor, Social Development Studies, July 1, 2014 to December 31, 2014.

Glenn F. Cartwright
Principal, Renison University College
FOR APPROVAL

Elections to Senate Committees and Councils and to the Board of Governors

Motion: To acclaim the membership of Senate committees and councils and the Board of Governors as provided on the list of nominees [see Attachment 1].

Background: The deans, the chair of the heads of the affiliated and federated institutions of Waterloo and the presidents of the Federation of Students and Graduate Student Association have been asked to recommend names of nominees to fill vacant seats on Senate committees and councils and the Board of Governors. At the meeting further nominations will be accepted from the floor. Where there is more than one name for a position, an electronic election will follow the meeting.

Feridun Hamdullahpur
Chair
LIST OF NOMINEES

• Senate Executive Committee
  Terms 1 May 2014 to 30 April 2015

  Faculty – one from each Faculty
  Applied Health Sciences
    Richard Wells
  Arts
    James Skidmore
  Engineering
    George Freeman
  Environment
    Bruce Frayne
  Mathematics
    Frank Zorzitto
  Science
    Bernie Duncker

  Faculty from Affiliated and Federated Institutions – one
    Graham Brown

  Undergraduate Students – two
    Mohammed Nasif
    Alexander Wray

  Graduate Student – one
    Boyd Panton

  Alumnus – one

• Senate Finance Committee
  Terms 1 May 2014 to 30 April 2015

  Faculty – one from each Faculty
  Applied Health Sciences
    James Rush
  Arts
    Lutz-Alexander Busch
  Engineering
    Manoj Sachdev
  Environment
    Olaf Weber
  Mathematics
    Michele Mosca
  Science
    David Edwards

  Faculty from Affiliated and Federated Institutions – one
    Glenn Cartwright

  Undergraduate Students – two
    Alanna Benson
    Danielle Burt

  Graduate Student – one
    Maryam Shahtaheri

  Alumnus – one
    Barbara Veale
• Senate Nominating Committee for Honorary Degrees
Terms 1 May 2014 to 30 April 2015

Faculty – one from each Faculty
Applied Health Sciences
  John Garcia
Arts
  Tara Collington
Engineering
  Samir Elhedhli
Environment
  Markus Moos
Mathematics
  Bruce Richter
Science
  Susan Leat

Faculty from Affiliated and Federated Institutions – one
  Katherine Bergman

Undergraduate Students – two
  Nickta Jowhari
  Mohammed Nasif

Graduate Student – one
  Samantha Shortall

Alumnus – one

• Senate Graduate & Research Council
Terms 1 May 2014 to 30 April 2016

Graduate Students – one from each Faculty
Applied Health Sciences
  Lana Vanderlee
Environment
  Daniel McRoberts
Mathematics
  Michael Hartz

• Senate Undergraduate Council
Terms 1 May 2014 to 30 April 2016

Faculty – one from each Faculty
Engineering
  Dan Davison
Environment
  Carrie Mitchell
Mathematics
  Cynthia Struthers

Science
  Carey Bissonnette

Faculty from Federated Institution – one
  Toni Serafini

• University Committee on Student Appeals
Terms 1 May 2014 to 30 April 2016

Faculty – one from each Faculty
Arts
  Duane Kennedy
Engineering
  Daniel Stashuk

Undergraduate Students – one from each Faculty
Engineering
  Allyson Francis
Science
  Sameera Karri

Graduate Student – one from Environment
  Daniel McRoberts

• Board of Governors

Faculty – three
Terms 1 May 2014 to 30 April 2016
  David Porreca
  Hamid Tizhoosh
  Frank Zorzitto

Undergraduate Student – one
Term 1 May 2014 to 30 April 2015
  Danielle Burt

Undergraduate Students – two
Terms 1 May 2014 to 30 April 2016
  Allyson Francis
  Chris Lolas

Graduate Student – one
Term 1 May 2014 to 30 April 2016
  Maryam Shahtaheri
Senate Graduate & Research Council met on 3 March 2014 and 14 April 2014 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: https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-council

FOR APPROVAL

AMENDMENTS TO GRADUATE STUDIES REGULATIONS

1. **Motion:** To approve amendments to graduate studies regulations pertaining to international visiting graduate students, as presented and effective 1 May 2014.

**International Visiting Graduate Student (IVGS)**
The International Visiting Graduate Student (IVGS) process facilitates the acceptance of an international graduate student attending a university outside of Canada to participate in research activities at the University of Waterloo and be recognized as a legitimate visitor under the supervision of a University of Waterloo faculty member and academic unit. A visit must be arranged initially by the supervisor (or equivalent) at the home university of the student and by the proposed supervisor at the University of Waterloo.

The IVGS acceptance can be held for up to 12 months, renewable once. This process does not pertain to admission for the purpose of enrolling in courses. The student is responsible for obtaining permission from Citizenship and Immigration Canada (CIC) to enter Canada for their invited purpose. See the CIC website for advice on the type of visa or permit required http://www.cic.gc.ca/english/my_application/apply_online.asp?d=1&q=n. The type of CIC application may be dependent on the country issuing the student’s passport. All students require proof of acceptance that they are visiting the University of Waterloo on self-funded research.

**Procedure**

a. The student’s supervisor will submit to the Dean of Graduate Studies or equivalent at the home university:

   (i) A letter from the University of Waterloo supervisor and department head/chair confirming his/her willingness to supervise, and confirming what arrangements have been made with regard to all aspects of the visit, including access to facilities (e.g. collections, equipment), intellectual property, timing of the visit, ethical approval of research etc. This letter must be counter-signed by the student and the supervisor at the home university.

   (ii) A completed University of Waterloo International Visiting Graduate Student form signed by the graduate program chair of the home institution accompanied by an official document to confirm proof of student self-funding or sponsorship for the duration of the visit to the University of Waterloo, and an official document from the home institution confirming the student’s current graduate program enrolment status.

b. Upon approval by the Dean of Graduate Studies at the home university, the form and other documentation will be forwarded to the Chair of the academic unit at the University of Waterloo (host) for signature and then to the Associate Provost, Graduate Studies at the University of Waterloo who will authorize and communicate acceptance of the international visiting graduate
student to the applicant and to the supervisor. The student should not proceed to travel to the University of Waterloo without receipt of a copy of the signed IVGS Acceptance Form.

c. Upon arrival at the University of Waterloo, the international visiting graduate student will pay any required health insurance and incidental fees.

**Rationale:** Following discussions at Graduate Operations Committee meetings, consultations with Human Resources, Waterloo International and Faculty Deans, the Graduate Studies Office is establishing a new acceptance procedure for International Visiting Graduate Students (IVGS) from a university outside of Canada who are undertaking research under the supervision of a faculty member at the University of Waterloo. Historically, these students were invited by a department under a Visiting Scholar category (professor or scientist) which does not provide accurate representation or authorization for international graduate student activity at the university.

**AMENDMENTS TO TERMS OF REFERENCE FOR MILLENNIUM BURSARY PROGRAM**

2. **Motion:** To approve amendments to the terms of reference for the Graduate Student Millennium Bursary program, effective 1 May 2014 and subject to approval by Senate Graduate & Research Council at its meeting on 14 April 2014.

(Note: new text underlined)

The Graduate Student Millennium Bursary program is administered by the Graduate Studies Office. Funding for this program is reviewed annually by the Graduate Student Support Advisory Committee. The account is not funded by the government; it is an internal program that was established by the University of Waterloo around 2000. The funds for the millennium bursary do carry forward.

The Millennium Bursary is available to University of Waterloo full-time graduate students who are experiencing short-term financial need. These funds are not required to be paid back and are intended to assist students with basic need and educational expenses only. The majority of this funding should be distributed to International students as they are not eligible to apply for OSAP or the University of Waterloo Student Awards and Financial Aid (SAFA) Bursary program. In special cases, a Graduate Millennium Bursary may be awarded to a graduate student who is a Canadian citizen or holds Permanent Resident status in Canada, provided that they have attempted to receive bursary funds from the SAFA office first.

**ELIGIBILITY**

- Full time graduate student in good academic standing (the Millennium Bursary funds are not to be used for part time graduate students or students in a non-degree program or qualifying term).
- Proven financial need (information reported on the application).
- Not in the first term of their program.

**International Students:**

- Have not received Millennium bursaries continuously throughout their program. (Bursaries are for short term need. Students will be required to provide a plan for how they will cover unmet need in future terms).

**Canadian and Permanent Resident Students:**

- Must have applied for a SAFA Bursary and been denied or received a SAFA bursary but with unmet need.
- Preference will be given to graduate students who are near the end of their program or experiencing a short term emergency that requires more funding than SAFA can provide.
- Other types of funding may be substituted in place of the Millennium Bursary by the GSO based on availability and eligibility (e.g., endowment/trust award funding, department/Faculty funding).

**APPLICATION DEADLINES:**
Applications are processed when received in the GSO. Following the deadline each term, decisions are made based on a first-come first-serve basis, while funds are available:

October 15 – Fall term     February 15 – Winter term     June 15 – Spring term

The deadline will be the next business day if the advertised deadline date falls on a Saturday, Sunday or holiday. All applicants will either receive an email notification from the Graduate Studies Office no later than 21 days following the deadline date or will see the bursary listed as Anticipated Aid on their Quest account.

All decisions are final. Appeals are considered only in cases where new and exceptional information is submitted to the Manager, Graduate Financials Aid and Awards, and if funds are available.

**Note:** Applicants must immediately notify the Manager, Graduate Financial Aid and Awards, if their income changes.

**Graduate Student Millennium Bursary Funds - Doctoral Thesis Writing Award**
The Millennium Bursary funds will also be used to fund the Doctoral Thesis Writing Award (DTWA) for international students starting in May 2014.

50 awards, each valued $8,000, have been allocated for international students for 2014-15 (equivalent to $400,000).

International students must have demonstrated financial need as determined through the completion of the Budget section of the Doctoral Thesis Writing Award application. Regardless of the value of unmet need, the students will be offered the full $8,000.

**Rationale:** These amendments will serve to redirect funds earmarked for financial assistance under one program to a different subset of graduate students that currently has unmet demand for financial assistance, while also fostering the completion of doctoral theses.

/sg  George Dixon
Vice-President, University Research

Sue Horton
Associate Provost, Graduate Studies
Senate Undergraduate Council met on 4 March 2014, and agreed to forward the following items to Senate for approval. Council recommends that these items be included in the regular agenda. Items recommended for inclusion in the consent agenda are contained within a separate report.

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

FOR APPROVAL

NEW ACADEMIC PLANS [effective 1 September 2015]

▸ Faculty of Arts
Political Science – Minor in Public Policy and Administration

1. **Motion:** To approve the minor in public policy and administration, as follows:

Students enrolled in any degree program or plan may pursue a minor designation in Public Policy and Administration.

The Public Policy and Administration Minor requires successful completion of a minimum of 4.0 academic course units (eight courses) with a minimum cumulative average of 65%, including:

- ECON 101 (Introduction to Microeconomics)
- ECON 102 (Introduction to Macroeconomics)
- PSCI 100 (Introduction to Government)
- PSCI 260 (Canadian Government and Politics)
- PSCI 331 (Public Administration)
- PSCI 334 (Public Policy)
- One of the following statistical courses:
  - One of:
    - ECON 341 (Public Economics: Expenditure)
    - ECON 342 (Public Economics: Taxation)
    - ECON 361 (Cost-Benefit Analysis and Project Evaluation)
    - ECON 363 (Contemporary Canadian Problems)
    - PSCI 360 (Topics in Canadian Government and Politics)
    - PSCI 431 (Canadian Public Policy)
    - PSCI 433 (Topics in Canadian Public Administration)
    - PSCI 434 (Comparative Public Administration)
    - PSCI 461 (Canadian National Politics)
    - PSCI 472 (Women and Public Policy)
    - PSCI 463 (Rights and Public Policy)
    - SDS 311R (Public Policy and Native Peoples in Canada)
    - SDS 312R (Homelessness and Public Policy)
    - SDS 331R (Social Inequality, Social Justice)
    - SDS 400R (Comparative Social Policy)

Notes:
1. Students should check for course prerequisites when selecting 300 and 400 level courses.
2. Students registered in either the Department of Economics' Public Policy Specialization or the Department of Political Science's Public Policy and Administration Specialization are not eligible to register for this plan.
Rationale: With the creation and success of the new Masters of Public Service program, the university is gaining an increasingly strong profile for the study of public policy and administration. This minor would build on this profile to provide undergraduate students with an opportunity to gain expertise in this field.

Mario Coniglio
Associate Vice-President, Academic
University Professor – Changes to Description and Criteria

Motion: To approve changes to the description and criteria for University Professor as follows [underline = new text; strikeout = deleted text]:

The University of Waterloo owes much of its international reputation and stature to the quality of its eminent professors. University of Waterloo recognizes exceptional scholarly achievement and international pre-eminence through the designation “University Professor.” Once appointed, a faculty member retains the designation for life until retirement.

Not counting retirees, it is anticipated there will be 14 University Professorships at steady state that there will be one University Professor for approximately every 60 full-time regular faculty members, 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 Faculty deans, directors of schools and department 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 & Promotion Committee will act as the selection committee; its decisions are final.

Rationale: The proposed change from a set limit of University Professorships to a proportion based on the regular full-time faculty complement is intended to introduce greater flexibility and ensure that the honour is available to deserving individuals without compromising the high standard that has been established.

The existing cap of 14 University Professorships (exclusive of retirees) has now been reached. When the title was introduced in 2003, the university had a regular faculty complement of ~840, and the cap represented approximately one University Professorship for every 60 faculty members. Since that time, the complement has grown to ~1100. Maintaining the proportion would extend the cap to 18, and allow for future growth. In addition, moving forward, the designation would end upon retirement.

Background: The Faculty Relations Committee considered Senate’s feedback at its meeting of 13 February 2014. It was felt that on retirement, a professor with the title University Professor, which had been given for recognition of exceptional scholarly achievement and international pre-eminence, would be a likely candidate for the title Distinguished Professor Emeritus/Emerita. Since this title is usually considered the highest honour a university can bestow on one of its professors, it was considered by the Faculty Relations Committee that retaining the title University Professor in retirement was unnecessary. Therefore, the Faculty Relations Committee recommended that the original proposal, as stated above, be returned to Senate for consideration.

Exceptions to Policy 40, The Chair related to Religious Studies

Motion: To approve exceptions to Policy 40, The Chair, as described in Attachment 1.

Rationale: The proposed exceptions are necessary in order to provide for the eligibility of the affiliated and federated institutions of Waterloo (AFIW) faculty members to serve as chair of the Department of Religious Studies and/or to serve on a nominating committee for the chair of that department, which is a collaborative undertaking between the University of Waterloo and the AFIW.

Background: The proposed exceptions were approved by the Faculty Relations Committee on 21 November 2013, and by the relevant academic group at each of the AFIW.
Exceptions to Policy 40, The Chair related to Religious Studies

Each of the University of Waterloo (“UW”), St. Jerome’s University, Conrad Grebel University College, Renison University College, and St. Paul’s University College is a legal entity, with its own constitution and governance system. The latter four are referred to in this document as “AFIW” (affiliated and federated institutions of Waterloo). The Department of Religious Studies is a collaborative undertaking of the five institutions.

This document sets out exceptions to Policy 40, The Chair, which are necessary in order to provide for the eligibility of AFIW faculty members (as defined below) to serve as chair of the religious studies department, and/or serve on a nominating committee for the chair of that department.

In this document, “AFIW faculty member” means a faculty member in the Department of Religious Studies, who is employed by an AFIW institution with a tenure-track appointment at the rank of assistant professor, associate professor or professor.

1. Qualification
Policy 40 provides that the chair of a department will be a tenured associate professor or professor at UW (as defined in Policy 76 – Faculty Appointments). In the case of religious studies, an AFIW tenured faculty member will be eligible to be appointed chair, despite not being a tenured faculty member at UW. AFIW members serving in administrative positions at the level of associate dean or higher at an AFIW institution are not eligible to serve as chair of a UW department.

Before an AFIW faculty member applies for consideration as chair of the department, the faculty member will inform the head of his/her AFIW institution, that he/she is running for office.

2. Appointment of a Nominating Committee
The nominating committee for the chair of religious studies shall consist of:

- The dean of the Faculty, who shall chair the committee.
- Three faculty members elected by and from the regular and AFIW faculty members of the department. At least one of these three faculty members will be tenured at the University of Waterloo.
- One regular staff member, elected by and from the regular staff members of the department.
- A regular faculty member from another department within or outside the Faculty, selected by the vice-president, academic & provost in consultation with the dean of the Faculty.
- The vice-president, academic & provost or delegate, ex officio, non-voting.
- One undergraduate student and one graduate student, chosen by the dean. Normally the dean shall consult with department or Faculty student organizations where these exist. Student appointees are voting members of the committee.
- One additional non-voting member (e.g., non-regular faculty or staff) may be appointed by the dean following appropriate consultation with department members and associated members.

3. Agreement Required
Prior to an AFIW member being appointed chair, the arrangement must be documented in an agreement between UW and the AFIW institution that employs the associate faculty member.

4. Application of UW Policies, Procedures, Guidelines and the MOA
UW policies, procedures and guidelines, as well as the Memorandum of Agreement between the Faculty Association of the University of Waterloo (FAUW) and UW, in so far as they are relevant to the activities of a chair at UW, will apply to and be binding upon an AFIW faculty member in the performance of his or her duties as chair at UW, as if such AFIW faculty member were a regular UW faculty member as defined by the Memorandum of Agreement between the University of Waterloo and the Faculty Association of the University of Waterloo as amended from time to time.