UNIVERSITY OF WATERLOO
SENATE GRADUATE & RESEARCH COUNCIL
NOTICE OF MEETING

DATE: Monday 9 March 2015
TIME: 10:30 a.m. – 12:00 noon
PLACE: Needles Hall, Room 3001

AGENDA

Item	Action
1. Declarations of Conflict of Interest a. Excerpt from Bylaw 1, section 8*	Information
2. Graduate Admissions Update (Jeannette Nugent)	Information
3. Co-chairs' Remarks	Information
4. Minutes of 9 February 2015* and Business Arising	Decision (SGRC)
5. Curricular Submissions a. Engineering* (Hellinga)……	1 (a,b) Decision (SGRC) 2 (a) SEN-regular (b) Decision (SGRC) (c) SEN-regular (d,e) Decision (SGRC)
6. New and Continuing Memberships (Nummelin) - Clinical Research Ethics Committee*	Decision (SGRC)
7. Proposal to Update University of Waterloo's Institutional Quality Assurance Process* (IQAP)	SEN-regular
8. Memo: Review of Ex-officio Membership and Appointment Terms* (Grivicic)	Report to Senate
9. Call for Nominations – Honorary Degrees and Convocation Speakers*	Information
10. Other Business	
11. Next Meeting: Monday 13 April 2015, 10:30 a.m. - 12:00 noon in NH 3001	

* material attached
** to be distributed separately

"SGRC" to be approved on behalf of Senate
"SEN" to be recommended to Senate for approval

4 March 2015

Mike Grivicic
Assistant University Secretary

Excerpt from Senate Bylaw 1

8. Declarations of conflict of interest

8.01	At the beginning of each meeting of Senate or any of Senate's committees or councils, the chair will call for members to declare any conflicts of interest with regard to any agenda item. For agenda items to be discussed in closed session, the chair will call for declarations of conflict of interest at the beginning of the closed portion of the meeting. Members may nonetheless declare conflicts at any time during a meeting.
8.02	A member shall be considered to have an actual, perceived or potential conflict of interest, when the opportunity exists for the member to use confidential information gained as a member of Senate, or any of Senate's committees or councils, for the personal profit or advantage of any person, or use the authority, knowledge or influence of the Senate, or a committee or council thereof, to further her/his personal, familial or corporate interests or the interests of an employee of the university with whom the member has a marital, familial or sexual relationship.
8.03	Members who declare conflicts of interest shall not enter into debate nor vote upon the specified item upon which they have declared a conflict of interest. The chair will determine whether it is appropriate for said member to remove themselves from the meeting for the duration of debate on the specified item(s).
8.04	Where Senate or a committee or council of Senate is of the opinion that a conflict of interest exists that has not been declared, the body may declare by a resolution carried by two-thirds of its members present at the meeting that a conflict of interest exists and a member thus found to be in conflict shall not enter into debate on the specified item upon which they have declared a conflict of interest. The chair will determine whether it is appropriate for said member to remove themselves from the meeting for the duration of debate on the specified item(s).

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Minutes of the 9 February 2015 Meeting
[in agenda order]

Present: Katherine Acheson, Bernard Duncker, George Dixon, Coleen Even, Jim Frank, Michael Hartz, Anwar Hasan, Bruce Hellinga, Sarah Hildebrandt, Robert Hill, Richard Kelly, Yuying Li, Daniel McRoberts, Tamer Özsu, Boyd Panton, Paul Parker, Samantha Shortall, Jennifer Simpson, Richard Staines, Suzanne Tyas, Lana Vanderlee

Secretariat: Mike Grivicic

Resources: Pascal Calarco, Jennifer Kieffer, Kerry Tolson

Guests: Dan Gorman (3), Jingjing Huo (2), Robert Shipley (1)

Regrets: Mark Haslett, Raymond Legge, Bruce Muirhead, Maureen Nummelin, Tracy Peressini, Maryam Shahtaheri, Mike Szarka, John Thompson
*regrets

Organization of Meeting: Jim Frank, co-chair of the council, took the chair, and Mike Grivicic, acted as secretary. The secretary advised that due notice of the meeting had been given, a quorum was present, and the meeting was properly constituted.

1. FINAL ASSESSMENT REPORT – PLANNING

Hasan and Hartz lead the discussion, noting the positive assessment of the external reviewers. Members discussed the report and obtained clarification from Robert Shipley as required: no doctoral programs in planning are accredited by the Ontario Professional Planners Institute; development of coursework based master's plan; accredited master's plans must be two years in length, and a one year plan would be intended to allow already-accredited professionals to obtain specific in-depth knowledge in an efficient manner; relatively high student to faculty ratio is skewed by offering degrees at the undergraduate and graduate levels; potential to split graduate courses into 400/600 series to differentiate; flexibility in program allows students external to Waterloo to enroll without the same preparation that a Waterloo undergraduate would have received; offering of graduate courses with undergraduate courses, and the potential for the latter to be more difficult in some cases; deadlines and milestones in graduate program aim to instill behaviours key to professional success; data showing delays in graduate student completion is skewed by students who commence with paid work or those who teach courses before graduating; doctoral studies are geared to students seeking to teach and/or research in universities. Council heard a motion to accept the final assessment report on behalf of Senate, and to affirm that the programs are of good quality. Parker and Hellinga. Carried.

2. FINAL ASSESSMENT REPORT – POLITICAL SCIENCE

Staines and Shortall lead the discussion and provided an overview of the report. Their assessment of the report was positive, noting the small number of minor recommendations. Council heard a motion to accept the final assessment report on behalf of Senate, and to affirm that the programs are of good quality. Staines and Shortall. Carried.

3. FINAL ASSESSMENT REPORT – HISTORY

Kelly and McRoberts lead the discussion. Members discussed the report and obtained clarification from Dan Gorman as required: sometimes difficult to follow the report and the messaging within; some weaknesses mentioned without mention of action to address; many space-related comments came from Laurier students; increased effort to market and publicize the department and offerings; not enough students to cover all eight fields consistently, though most fields are usually populated with students; elements of professional development for non-academic careers could be improved, though the department is utilizing on-campus resources and alumni resources to inform students re: non-academic careers; vigourous competition with other universities for quality graduate students and difficulty to identify weaker students at enrollment stage; low rate

of attrition; funding pressures on department. Council heard a motion to accept the final assessment report on behalf of Senate, and to affirm that the programs are of good quality. Kelly and McRoberts. Carried.

4. TWO-YEAR REPORT – FRENCH STUDIES
Council heard a motion to accept the report on behalf of Senate. Even and Parker. Carried.

5. DECLARATIONS OF CONFLICT OF INTEREST
None declared.

a. Excerpt from Bylaw 1, section 8. This item was received for information.

6. CO-CHAIRS' REMARKS
Frank noted that recent review of the Graduate Studies Office as well as new enrollment figures for 2015 which show increases in overall enrollment and a strong student profile. He observed that the enrollment trends could lead to the loss of graduate spaces, and that the university is making a significant effort to fill those spaces and to compete with the best Canadian universities in that regard. Members discussed: any potential cap on non-Canadian students would disadvantage a number of graduate programs; some competitor universities have assets that cannot be replicated by Waterloo or any other university; faculty members are generally indifferent to whether students are Canadian, but may respond to incentives to recruit more domestic students; no new announcements re: funding for international students; importance of internet presence in recruiting.

Dixon observed that NSERC is restructuring the strategic grants program, and workshops will be offered to help navigate this shift. He provided some detail on the Canada First Research Excellence Fund and the university's anticipated submission to the first round of funding.

7. MINUTES OF 12 JANUARY 2015 AND BUSINESS ARISING
It was noted that Simpson attended in place of Warley. A motion was heard to approve the minutes as amended. Duncker and Panton. Carried.

8. CURRICULAR SUBMISSIONS
a. Engineering. Council heard a motion to recommend that Senate approve the addition of Chemical Engineering to the Collaborative Water Program. Panton and Hellinga. Carried. Council heard a motion to approve the changes in item #2 as presented. Hellinga and Panton. Carried.

b. Environment. Item #1 was deferred to a future meeting. For item #2, Parker noted the amended material distributed to members via email ahead of the meeting. Members discussed: first known Canadian offering of a fully online planning program; potential for more part-time students; naming convention aligns with other similar professionally-geared programs; will need to communicate with Applied Health Sciences on elective offerings; differing cohorts for various graduate offerings; a number of existing courses are common to the coursework and research plans, with many offered online; relative pedagogical merits of in person vs. online learning. Council heard a motion to recommend that Senate approve the Master of Planning plan. Parker and Hasan. Carried.

c. Mathematics. Council heard a motion to approve the new course in applied mathematics. Li and Hartz. Carried.

d. Science – Collaborative Water Program. Council heard a motion to approve changes to the courses as presented. Hill and Acheson. Carried.

9. GRADUATE AWARDS
a. Flora T.T. Ng and Garry L. Rempel Doctoral Scholarship in Sustainable Development. Council took items (a) through (c) together. Members discussed: award in (b) aims to encourage timely completion of studies but there is no mention of time limitations in the description; award is awarded within normal timelines and is not new funding per se. Council heard a motion to approve the awards in (a) through (c) as presented. Hildebrandt and Hasan. Carried.

b. Faculty of Engineering Domestic Doctoral Student Award. See item (a).
c. Keith and Winifred Shantz Master of Fine Arts Internship. See item (a).
d. Doctoral Thesis Writing Award. Frank observed that this award did not meet the anticipated uptake, and that the funding issues around this award are an issue for discussion with the ministry.

10. TERMS OF REFERENCE FOR A MID-TERM BREAK
Frank provided an overview of the item and members discussed: no apparent reference to research assistants; aim to include all students in any context; it could be seen that marking occurs during the break but no classes, tutorials or seminars would be held; much of the university's business must still continue despite such breaks for students in their studies. Frank will take members' comments back to the working group.

11. MEMO: REVIEW OF EX-OFFICIO MEMBERSHIP AND APPOINTMENT TERMS
Grivicic provided a short overview, and by consensus the item was deferred to the next meeting.

12. OTHER BUSINESS
There was no other business.

13. NEXT MEETING
The next meeting will be on Monday 9 March 2015, 10:30 a.m. - 12:00 noon in Needles Hall, Room 3001.

3 March 2015

Mike Grivicic
Assistant University Secretary

UNIVERSITY OF WATERLOO

FACULTY OF ENGINEERING | Graduate Studies Office
519-888-4567
engineering.uwaterloo.ca

Memorandum

TO: Mike Grivicic
Associate University Secretary

FROM: B. Hellinga, Associate Dean, Graduate Studies
Faculty of Engineering

RE: Senate Graduate and Research Council Meeting

DATE: February 24, 2015

Please place the following motions on the agenda for the next Senate Graduate and Research Council meeting. These motions were approved by Engineering Faculty Council on February 24, 2015.

1. The Department of Chemical Engineering has two items for approval:

    a. Effective Fall 2014: CHE requests approval of changes to degree requirements for PhD, MASc and MEng Graduate Programs in the Department of Chemical Engineering and for PhD and MASc Graduate Programs in Collaborative Nanotechnology Program in the Department of Chemical Engineering.

    b. Effective Winter 2015: CHE has been approved by EFC to join the Collaborative Water Program and so the second item is to approve the program requirements for the MASc and PhD Water programs to be added to the Graduate Calendar.

2. The Department of Electrical and Computer Engineering requests approval of five items:

    a. <u>Resubmission:</u> A change in the format of the Comprehensive Examination for PhD students. SGRC reviewed this item for the January meeting and the suggested revisions have been made. The proposal and its updated changes has been approved by ECE , EGSC, and EFC.

    b. Adding ECE Core Course Listings to the Graduate Calendar.

    c. Changing the ECE MEng Management Science Diploma program requirements and updating the Graduate Calendar.

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d. Revising the Graduate Calendar entry for Master's and Doctoral Level course requirements.

e. Updating the ECE Electric Power Engineering Non-Degree Studies Graduate Calendar wording so that it is clear students in the non-degree program will have to apply to the diploma or MASc program and cannot simply transfer into the program.

BH: jec

Bruce Hellinga

UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING
Department of Chemical Engineering

DATE: December 9, 2014
TO: Bruce Hellinga, Assoc. Dean, Faculty of Engineering
FROM: Leonardo Simon, Assoc. Chair, Graduate Studies, Chemical Engineering
SUBJECT: Approval of Changes to Degree Requirements

The Department of Chemical Engineering requests approval of changes to degree requirements for PhD, MASc and MEng Graduate Programs in the Department of Chemical Engineering and for PhD and MASc Graduate Programs in Collaborative Nanotechnology Program in the Department of Chemical Engineering.

These changes were discussed in several departmental meetings. These changes were first brought forward at a department graduate retreat on July 31, 2014, but we did not have quorum. Subsequently, there was an e-mail vote and Liz Bevan provided the results of that vote on August 25, 2014.

Attached, please find documentation outlining the changes, as well as a copy of relevant e-mails. The changes are underlined. Summary of changes and rationale:

1) Update the list of core courses by adding CHE620 to the list (this course was already approved as a core course). *Rationale:* CHE620 Applied Engineering Mathematics was created to attend the need of a core course in the area of advanced applied mathematics. This course was offered first time in 2013. Then it was approved with status of core course and offered in 2014 as a core course. This change in the Degree Requirements is needed to reflect the status of CHE620 as a core course. As a core course, CHE620 should be offered every year.

2) Make changes to limit the number of courses that are held-with or 500-level to be taken to fulfill degree requirement. *Rationale:* As part of the exercise required by the Quality Review, the department identified the need to make a change to the degree requirement that two-thirds of the course requirement be met through courses at graduate level (course without a significant content of undergraduate material or with majority of undergraduate students like in a held-with or a 500-level). It was identified that in practice CHE622 was being offered as an identical course as CHE325. Firstly the department approved to change CHE325 to be CHE425 (technical elective), and secondly to have CHE622 held-with CHE425. CHE622 remains in the list of core courses but it has a held-with status. Therefore the change is to limit the number of held-with or 500-level courses taken toward graduate degree requirements.

3) Make changes to limit the number of reading courses that can be taken to fulfill degree requirement. *Rationale:* The department approved that only one reading course can be taken toward degree requirements.

4) Make changes to the way the seminars attended by graduate students are taken and increase the list of approved seminars. *Rationale:* Grad student in CHE have to attend a certain number of seminars. The change is to facilitate and homogenize the required number of seminar for each degree. The previous version of the degree requirements was counting number of seminars per academic term, which makes it difficult to keep track with students go part-time, inactive or change from MASc to PhD. Moreover, the previous version of degree requirements only allowed seminar attended at the Department of Chemical Engineering and the Waterloo Institute for Nanotechnology to count towards this requirement. This was change to also include a seminars attend in other departments or research institutes from an approved list. This list is to contain departments or research institutes where faculty members of CHE have a membership and it is mean to be updated yearly. In 2014 the list includes, Department of Chemical, Engineering, Department of Civil and Environmental Engineering, Department of Mechanical and Mechatronics Engineering, Department of Earth and Environmental Sciences, Department of Physics and Astronomy, Department of Biology, Department of Chemistry, Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry, Waterloo Institute for Nanotechnology, Waterloo Institute for Sustainable Energy, Waterloo Center for Automotive Research, Water Institute, Institute for Polymer Research, and Centre for Bioengineering and Biotechnology.

Regards,

Leonardo C. Simon

Degree Requirements for MEng Program
Chemical Engineering Department

EFFECTIVE FOR STUDENTS BEING ENROLLED FOR FALL 2014 AND ONWARD

Background – Chemical Engineering

Eight graduate courses (.5 unit weight per course) towards degree credit made up as follows:

- At least two core courses.
- At most two of this group: 500 level or held with.
- At most one reading course.

Seminar attendance.

Background – Non-Chemical Engineering

Eight graduate courses (.5 unit weight per course) towards degree credit made up as follows:

- At least three core courses.
- At most two of this group: 500 level or held with.
- At most one reading course.

Seminar attendance.

Notes

- At least five of the courses for degree requirements are to be taken in Chemical Engineering Department.
- Regular students must achieve a minimum cumulative average of 70% AND a minimum grade of 65% in any individual course (except core courses which require a minimum grade of 70%). Students are responsible for monitoring their academic records. Any inadequate grade or average should be brought to the immediate attention of the Graduate Coordinator.
- Full time MEng students should attend 12 seminars over the course of their degree program (seminars in Chemical Engineering, WIN and from units in the approved list only). Attendance is taken at Chemical Engineering Seminars, students must fill out attendance form and get it signed for WIN Seminars and other approved seminars.

CORE COURSES

1. ChE 610 - Transport Phenomena
2. ChE 612 - Interfacial Phenomena
3. ChE 620 - Applied Engineering Mathematics
4. ChE 622 - Statistics in Engineering
5. ChE 630 - Chemical Reactor Analysis
6. ChE 640 - Principles of Polymer Science
7. ChE 660 - Principles of Biochemical engineering
8. Nano 701 - Fundamentals of Nanotechnology(*)
9. Nano 702 - Nanotechnology Tools(*)

All regular students must achieve at least 70% in each core course; a higher grade in core courses is required for probationary students as specified in their admission letters. At least 50% of the final grade in core courses will be determined by a final written exam. (*)Students must complete two Nano 701 modules (0.25 credit each) to meet the core course requirement for Nano 701. (*)Students must complete two Nano 702 modules (0.25 credit each) to meet the core course requirement for Nano 702.

Degree Requirements for MASc Program
Chemical Engineering Department

EFFECTIVE FOR STUDENTS BEING ENROLLED FOR FALL 2014 AND ONWARD

Background – Chemical Engineering

Four graduate courses (.5 unit weight per course) towards degree credit as follows:

- At least two core courses.
- At most one from this group: 500 level or held with.
- At most two courses may be taught by supervisor(s).
- At most one reading course.

MASc seminar presentation.
MASc thesis, required to do an informal oral examination prior to completion of degree.
Seminar attendance.

Background – Non-Chemical Engineering

Four graduate courses (.5 unit weight per course) towards degree credit as follows:

- At least three core courses
- At most one from this group: 500 level or held with.
- At most two courses may be taught by supervisor(s).
- At most one reading course.

MASc seminar presentation.
MASc thesis, required to do an informal oral examination prior to completion of your degree.
Seminar attendance.

Notes

- No more than half of the courses used for credit towards degree requirements may be taught by supervisor(s).
- At least half of the courses for degree requirements must be Faculty of Engineering graduate courses.
- All regular students must achieve a minimum cumulative average of 70% AND a minimum grade of 65% in any individual course (except for core courses which require 70%). Students are responsible for monitoring their academic records. Any inadequate grade or average should be brought to the immediate attention of the Graduate Coordinator.
- Full time MASc students should attend 12 seminars over the course of their degree program (seminars in Chemical Engineering, WIN and from units in the approved list only). Attendance is taken at Chemical Engineering Seminars, students must fill out attendance form and get it signed for WIN Seminars and other approved seminars.

CORE COURSES

1. ChE 610 - Transport Phenomena
2. ChE 612 - Interfacial Phenomena
3. ChE 620 - Applied Engineering Mathematics
4. ChE 622 - Statistics in Engineering
5. ChE 630 - Chemical Reactor Analysis
6. ChE 640 - Principles of Polymer Science
7. ChE 660 - Principles of Biochemical engineering
8. Nano 701 - Fundamentals of Nanotechnology(*)
9. Nano 702 - Nanotechnology Tools(*)

All regular students must achieve at least 70% in each core course; a higher grade in core courses is required for probationary students as specified in their admission letters. At least 50% of the final grade in core courses will be determined by a final written exam. (*)Students must complete two Nano 701 modules (0.25 credit each) to meet the core course requirement for Nano 701. (*)Students must complete two Nano 702 modules (0.25 credit each) to meet the core course requirement for Nano 702.

Degree Requirements for PhD Program
Chemical Engineering Department

EFFECTIVE FOR STUDENTS BEING ENROLLED FOR FALL 2014 AND ONWARD

Chemical Engineering Background with a MASc degree

Three graduate courses (.5 unit weight per course) towards degree credit as follows:

- At least two core courses.
- One other graduate course at 600 or at 700 level (at most one held with).
- At most one course may be taught by supervisor(s).
- At most one reading course.

PhD comprehensive exam (due in 4th term).
PhD Thesis.
Seminar attendance.

Chemical Engineering Background without a MASc degree

Seven graduate courses (.5 unit weight per course) towards degree credit as follows:

- At least four core courses.
- At most two of this group: 500 level or held with.
- At most two courses may be taught by supervisor.
- At most one reading course.

PhD comprehensive exam (due in 4th term).
PhD Thesis.
Seminar attendance.

Non-Chemical Engineering background with a MASc degree

Three core graduate courses (.5 unit weight per course) towards degree credit as follows:

-At most one course may be taught by supervisor.
-At most one reading course may be taken.

PhD comprehensive exam (due in 4th term).
PhD Thesis.
Seminar attendance.

Notes

- All regular students must achieve a minimum cumulative average of 70% AND a minimum grade of 65% in any individual course (except for core courses which require 70%). Students are responsible for monitoring their academic records. Any inadequate grade or average should be brought to the immediate attention of the Graduate Coordinator.
- Full time PhD students should attend 24 seminars over the course of their degree program (seminars in Chemical Engineering, WIN and from units in the approved list only). Attendance is taken at Chemical Engineering Seminars, students must fill out attendance form and get it signed for WIN Seminars and other approved seminars.

CORE COURSES

1. ChE 610 - Transport Phenomena
2. ChE 612 - Interfacial Phenomena
3. ChE 620 - Applied Engineering Mathematics
4. ChE 622 - Statistics in Engineering
5. ChE 630 - Chemical Reactor Analysis
6. ChE 640 - Principles of Polymer Science
7. ChE 660 - Principles of Biochemical engineering
8. Nano 701 - Fundamentals of Nanotechnology(*)
9. Nano 702 - Nanotechnology Tools(*)

All regular students must achieve at least 70% in each core course; a higher grade in core courses is required for probationary students as specified in their admission letters. At least 50% of the final grade in core courses will be determined by a final written exam. (*)Students must complete two Nano 701 modules (0.25 credit each) to meet the core course requirement for Nano 701. (*)Students must complete two Nano 702 modules (0.25 credit each-to meet the core course requirement for Nano 702.

Degree Requirements for Collaborative Nanotechnology Program
Chemical Engineering Department

EFFECTIVE FOR STUDENTS BEING ENROLLED FOR FALL 2014 AND ONWARD

MASc

Four courses (.5 unit weight per course), including 2 required Nano core courses and 2 elective courses from approved list:

- At most one of this group: 500 level or held with.
- At most two courses may be taught by supervisor(s).
- At most one reading course.

MASc seminar presentation.
MASc Thesis, required to do an informal oral examination prior to completion of degree.
Seminar attendance.

PhD (with a MASc degree)

Three courses (.5 unit weight per course, including 2 required Nano core courses and 1 elective course from approved list:

- At most one of this group: 500 level or held with.
- At most one course may be taught by supervisor(s).
- At most one reading course.

PhD Comprehensive Exam.
PhD Nanotechnology seminar presentation (Defense).
PhD Thesis.
Seminar attendance.

PhD (without a MASc degree)

Seven courses (.5 unit weight per course), including two required Nano core courses and one elective from approved list:

- At most two of this group: 500 level or held with).
- At most two course may be taught by supervisor(s).
- At most one reading course.

PhD Comprehensive Exam.
PhD Nanotechnology seminar presentation (Defense).
PhD Thesis.
Seminar attendance.

Required Nano Core Courses

Nano 701 – Fundamentals of Nanotechnology (take two 0.25 modules to be equivalent to .5 total credit weight).
Nano 702 – Nanotechnology Tools (take two 0.25 modules to be equivalent to .5 total credit weight).

Core Course Exemptions

Students holding a BASc degree in Nanotechnology Engineering or Master's degree in Nanotechnology at the University of Waterloo are not required to take the two Nano core courses as part of the minimum course requirement. Instead, they can choose any courses from the prescribed approved list of electives, currently available at
http://chemeng.uwaterloo.ca/nano/NANOTechnicalElectives.pdf
However, the core course requirement in Chemical Engineering must be complied with:

- 2 core courses for MASc
- 2 core courses for PhD students with a MASc
- 4 core courses for PhD students without a MASc

The number of courses taught by supervisor(s) and reading courses taken towards credit are the same as outlined above.

Notes

- Full time MASc students should attend 12 seminars (including eight nanotechnology WIN seminars) and PhD students should attend 24 seminars (including eight nanotechnology WIN seminars) over the course of their degree program (seminars in Chemical Engineering, WIN and from units in the approved list only). Attendance is taken at Chemical Engineering Seminars, students must fill out attendance form and get it signed for WIN Seminars and other approved seminars.
- All regular students must achieve a minimum cumulative average of 70% AND a minimum grade of 65% in any individual course (except for core courses which require 70%). Students are responsible for monitoring their academic records. Any inadequate grade or average should be brought to the immediate attention of the Graduate Coordinator. Note that the constraints on crediting of courses taught by supervisor (s) are the same as in regular Chemical Engineering MASc and PhD programs.

Degree Requirements for Collaborative Integrated Water Management Program
Chemical Engineering Department

EFFECTIVE FOR STUDENTS BEING ENROLLED FOR WINTER 2015 AND ONWARD

MASc

Five graduate courses (.5 unit weight per course) towards degree credit as follows:

- **Background Chemical Engineering** at least two core courses, or **Background Non-Chemical Engineering** three core courses.
- Two required IWM courses (WATER 601, WATER 602).
- At most one from this group: 500 level or held with.
- At most two courses may be taught by supervisor(s).
- At most one from this group: reading or seminar course.

MASc seminar presentation.

MASc thesis, required to do an informal oral examination prior to completion of degree.

Seminar attendance.

PhD (with a MASc degree)

Five graduate courses (.5 unit weight per course) towards degree credit as follows:

- **Background Chemical Engineering** at least two core courses, or **Background Non-Chemical Engineering** three core courses.
- Two required IWM courses (WATER 601, WATER 602).
- At most one from this group: 500 level or held with.
- At most two courses may be taught by supervisor(s).
- At most one from this group: reading or seminar course.

PhD comprehensive exam (due in 4th term).

PhD Thesis.

Seminar attendance.

PhD (without a MASc degree)

Eight courses (.5 unit weight per course) towards degree credit as follows:

- At least four core courses.
- Two required IWM courses (WATER 601, WATER 602).
- At most one from this group: reading or seminar course.
- At most two courses may be taught by supervisor.
- At most one reading/seminar course.

PhD comprehensive exam (due in 4th term).

PhD Thesis.

Seminar attendance.

Notes

- At least half of the courses for degree requirements must be Faculty of Engineering graduate courses.
- All regular students must achieve a minimum cumulative average of 70% AND a minimum grade of 65% in any individual course (except for core courses which require 70%). Students are responsible for monitoring their academic records. Any inadequate grade or average should be brought to the immediate attention of the Graduate Coordinator.
- Full time MASc students should attend 12 seminars and PhD students should attend 24 seminars over the course of their degree program (seminars in Chemical Engineering, WIN and from units in the approved list only). Attendance is taken at Chemical Engineering Seminars, students must fill out attendance form and get it signed for WIN and other approved seminars.

CORE COURSES

1. ChE 610 - Transport Phenomena
2. ChE 612 - Interfacial Phenomena
3. ChE 620 - Applied Engineering Mathematics
4. ChE 622 - Statistics in Engineering
5. ChE 630 - Chemical Reactor Analysis
6. ChE 640 - Principles of Polymer Science
7. ChE 660 - Principles of Biochemical engineering
8. Nano 701 - Fundamentals of Nanotechnology(*)
9. Nano 702 - Nanotechnology Tools(*)

All regular students must achieve at least 70% in each core course; a higher grade in core courses is required for probationary students as specified in their admission letters. At least 50% of the final grade in core courses will be determined by a final written exam. (*)Students must complete two Nano 701 modules (0.25 credit each) to meet the core course requirement for Nano 701. (*)Students must complete two Nano 702 modules (0.25 credit each) to meet the core course requirement for Nano 702.

Memorandum

Date: January 20, 2015

To: Bruce Hellinga, Associate Dean, Graduate Studies & International Agreements

From: Catherine Gebotys, Associate Chair, Graduate Studies, Electrical and Computer Engineering

Subject: REVISED - PhD Comprehensive Examination and Seminar milestone revisions

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The Electrical and Computer Engineering department requests the changes indicated below, to our doctoral program Comprehensive Examination and Seminar milestones. These changes are in response to Electrical and Computer Engineering's Vision 2015 plan with objectives to improve the quality of our PhD program and, to increase the rigor of the PhD comprehensive examination by splitting it into a separate background examination and a research proposal examination.

The revised PhD Comprehensive Examination represents a split of the existing PhD comprehensive examination into 2 examinations separated in time. The current PhD comprehensive examines the background subjects and the thesis proposal in two separate rounds of questioning. The 2 rounds of questioning are proposed to be 2 separate examinations. The revised PhD Comprehensive examinations propose to examine the candidate on background subjects in the Background Comprehensive Examination to be completed by the end of the first year and to examine the candidate on the thesis proposal by the end of the second year in the Comprehensive Proposal Examination. This allows the background subjects to be solid before the research begins, unlike our current experience where generally the comprehensive examination identifies candidate weaknesses too late in the program. In addition, it is hoped that this new format will help to increase the PhD committee involvement to reduce the time to graduation.

All changes were approved by the Department of Electrical and Computer Engineering at a meeting held June 19, 2014. Changes are to become effective Fall 2015. A detailed explanation of the changes is provided, followed by the specific Calendar revision. The highlighted sections indicate changes to the existing wording in the calendar.

<u>Background Comprehensive Examination</u>

The Background Comprehensive Examination would be held in the student's third term (fourth term if from an incomplete MASc), generally after all course work has been completed, and must successfully be completed before the Comprehensive Proposal Examination can be booked. Students who fail the background exam will be permitted to retake the exam before the end of the subsequent term. Students who fail the re-examination must withdraw from the PhD program.

The supervisor will complete a PhD Comprehensive Background Examination form to inform the ECE Graduate Studies Office of the date and time of the comprehensive background examination and the composition of the Examining Committee at least three weeks prior to the background examination. The Comprehensive Background Examination Committee later becomes the Comprehensive Proposal

Examination Committee and part of the PhD Thesis Defense Examining Committee. The makeup of the Comprehensive Committee has not changed and will continue to be subject to department and EGO approval. The ECE Department Graduate Studies Office will appoint a neutral Chair from ECE for the comprehensive background examination. The rules of conduct for the exam will remain in line with EGO guidelines (i.e. committee attendance). The committee will lead the examination with the questioning of the candidate's background technical knowledge.

At the conclusion of the questioning period, only members of the examining committee (not including the supervisor(s)) are allowed to stay for the in camera deliberation session following the examination. The supervisor(s) is required to leave in order to avoid the appearance of any influence on the committee and its decision. The supervisor may have an invested interest in seeing the student succeed and therefore, can inadvertently bias the committee's decision with their comments.

Background Comprehensive Examination Decisions

The Chair must inform the candidate, in the presence of the Examination Committee, of the outcome of the Comprehensive Background Examination and of all recommendations and/or conditions imposed on the candidate.

Category 1 – Unconditional Pass

Category 2 - Passed subject to completion of recommendations where by the candidate's background preparation is generally adequate but certain deficiencies need to be rectified. For example the recommendations might require a student to enrol in additional graduate courses. The specific recommendations of the Comprehensive Examination Committee must be clearly identified on page 2 of the Report of PhD Comprehensive Background Examination by the Chair, along with completion dates and the Committee member(s) responsible for ensuring that the recommendations will be satisfied.

Candidates who are required to complete additional requirements must satisfy them within one calendar year of the exam. Students who fail to meet these conditions will be required to withdraw. The supervisor(s) must inform the ECE or Engineering Graduate Studies Office when all recommendations of the Comprehensive Background Examination have been satisfied.

Category 3 - Re-examination required where by the candidate's background is deficient. Re-examination cannot take place within six weeks after the date of the Comprehensive Background Examination. The re-examination must be scheduled before the end of the next term. The re-examination date must be established by the supervisor(s) in consultation with the examiners and the candidate and reported as part of the recommendations. A student who fails a re-examination will be required to withdraw from the PhD program.

Category 4 – The decision failed is only applicable to the PhD Background Comprehensive Re-examination and means that the candidate will be required to withdraw from the PhD program.

<u>Comprehensive Proposal Examination</u>

The Comprehensive Proposal Examination would be held no later than the student's sixth term and have the same committee as used for the Background Comprehensive Examination. The process for setting up and executing the Comprehensive Proposal Examination will be the same as the existing process in the Faculty of Engineering. The supervisor will submit a Comprehensive Proposal Examination form and the EGO will supply a neutral chair for the examination. The student will be required to submit a research proposal to their committee under the same guidelines that are used now. The rules of conduct and procedure for the exam will remain in line with EGO guidelines (i.e. committee attendance). Students who fail the proposal exam will be permitted to retake the exam before the end of the subsequent term. Students who fail the re-examination must withdraw from the PhD program.

Comprehensive Proposal Examination Decisions

The Chair must inform the candidate, in the presence of the Examination Committee, of the outcome of the Comprehensive Proposal Examination and of all recommendations and/or conditions imposed on the candidate.

Category 1 – Unconditional Pass

Category 2 - Passed subject to completion of recommendations where by the candidate's proposal preparation is generally adequate but certain deficiencies need to be rectified. The recommendations might require a student prepare a written report on designated aspects of the proposed research area and/or to present a public seminar on the proposal. The specific recommendations of the Comprehensive Examination Committee must be clearly identified on page 2 of the Report of PhD Comprehensive Proposal Examination by the Chair, along with completion dates and the Committee member(s) responsible for ensuring that the recommendations will be satisfied.

Candidates who are required to complete additional requirements must satisfy them within one calendar year of the exam. Students who fail to meet these conditions will be required to withdraw. The supervisor(s) must inform the ECE or Engineering Graduate Studies Office when all recommendations of the Comprehensive Proposal Examination have been satisfied.

Category 3 - Re-examination required where by the candidate's proposal is deficient. Re-examination cannot take place within six weeks after the date of the Comprehensive Proposal Examination. The re-examination must be scheduled no later than one year after the Comprehensive Proposal Examination. The re-examination date must be established by the supervisor(s) in consultation with the examiners and the candidate and reported as part of the recommendations. A student who fails a re-examination will be required to withdraw from the PhD program.

Category 4 - Failed where by the proposal examination procedure is closed and the candidate will be required to withdraw from the PhD program. Students who fail the re-examination must withdraw from the PhD program.

PhD Research Seminar

The Research Seminar is to be held no later than the end of the third year after the initial registration for the PhD degree. The seminar must be attended by the student's supervisor and their advisory committee. Other Faculty members and PhD and MASc students may also be in attendance. Since this is not intended to be an examination, the seminar presentation and the feedback communication, would be regarded as satisfying the seminar credit requirements.

All changes were approved by the Department of Electrical and Computer Engineering at a meeting held June 19, 2014. Changes are to become effective Fall 2015. The proposed changes to the Graduate Calendar are as follows:

CURRENT CALENDAR DESCRIPTION

Comprehensive Examination

This examination is conducted by the Department for each candidate. It is normally held 6-16 months after the initial registration for the PhD degree. The examination has two main objectives:

1. to examine and approve the thesis proposal, after which an Advisory Committee is identified which is willing to assist the student with the subsequent research program;
2. to satisfy the Department that the candidate has a broad knowledge of his/her field and a thorough technical background to pursue his/her research; the candidate will be questioned on his/her background preparation.

The result of this examination is the identification of an advisory committee which has examined and approved the candidate's thesis proposal and is willing to assist the supervisor with the subsequent research program. The validity of the comprehensive examination expires after three years.

PhD Research Seminar

The aim of the Research Seminar is to allow the student to gain experience in preparing and presenting his/her work. The Research Seminar should be given three terms after the PhD comprehensive examination. These seminars will be attended by faculty members, members of the student's advisory committee, and the PhD and MASc students. Since this is not intended to be an examination, the seminar presentation, and the feedback communication, would be regarded as satisfying the seminar credit requirements.

PROPOSED CALENDAR DESCRIPTION CHANGES

Comprehensive Examinations

The background comprehensive examination and the comprehensive proposal examination are conducted by the Department for each candidate.

The first exam, the Background Comprehensive Examination, will be held before the end of the third term (fourth term if from an incomplete MASc). The main objective of this examination is to satisfy the Department that the candidate has a broad knowledge of his/her field and a thorough technical background to pursue his/her research; the candidate will be questioned on his/her background preparation.

The second exam, the Comprehensive Proposal Examination, will be held no later than the student's sixth term and only after the Background Comprehensive Examination has been successfully completed. The main objective of this examination is to examine and approve the thesis proposal, after which an Advisory Committee is identified which is willing to assist the student with the subsequent research program.

Memorandum

Date: December 15, 2014

To: Bruce Hellinga, Associate Dean, Graduate Studies & International Agreements

From: Catherine Gebotys, Associate Chair, Graduate Studies, Electrical and Computer Engineering

Subject: Electrical and Computer Engineering Core Course listing to be added to the calendar

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The Electrical and Computer Engineering department requests the addition of the approved list of core courses for Master and Doctoral level students, to the graduate studies calendar. It is the department's intention that this listing will be reviewed and amended annually by the 13 recognized research groups within the department. This listing was approved by the Department of Electrical and Computer Engineering at a meeting held November 13, 2013. Changes were to become effective Fall 2014.

Antennas, Microwaves, and Wave Optics

- ECE 671: Microwave and RF Engineering
- ECE 675: Radiation and Propagation of Electromagnetic Fields

Circuits and Systems

- ECE 636: Advanced Analog Integrated Circuits
- ECE 637: Digital Integrated Circuits
- ECE 671: Microwave and RF Engineering

Communications and Information Systems

- ECE 603: Statistical Signal Processing
- ECE 604: Stochastic Processes
- ECE 610: Broadband Communication Networks
- ECE 611: Digital Communications
- ECE 612: Information Theory

Computer Hardware

- ECE 621: Computer Organization
- ECE 627: Register-transfer-level Digital Systems

Computer Software

- ECE 606: Algorithm Design and Analysis
- ECE 650: Methods and Tools for Software Engineering
- ECE 653: Software Testing, Quality Assurance and Maintenance
- ECE 654: Software Reliability Engineering
- ECE 656: Database Systems

Nanotechnology

- ECE 630: Physics and Models of Semiconductor Devices

- ECE 672: Optoelectronic Devices
- ECE 730 T13: Special Topics in Solid State Devices -Nanoelectronics
- ECE 730 T18: Special Topics in Solid State Devices - Organic Electronics
- ECE 730 T24: Special Topics in Solid State Devices - Fabrication in the Nanoscale: Principles, Technology and Applications

PAMI - Pattern Analysis and Machine Intelligence

- ECE 606: Algorithm Design and Analysis
- ECE 657: Tools of Intelligent Systems Design
- ECE 710 T13: Special Topics in Communications and Information Theory - Image Processing and Visual Communication
- ECE 750 T17: Special Topics in Computer Software - Data and Knowledge Modelling and Analysis
- ECE 750 T21: Special Topics in Computer Software - Intelligent Sensors and Sensor Networks

Power and Energy Systems

- ECE 662: Power Systems Analysis and Control
- ECE 663: Energy Processing
- ECE 665: High Voltage Engineering Applications
- ECE 666: Power Systems Operation
- ECE 668: Distribution System Engineering

Quantum Information

- QIC 710: Quantum Information Processing
- ECE 770 T14 (QIC 885): Special Topics in Antenna and Microwave Theory - Quantum Electronics and Photonics
- ECE 770 T11 (QIC750): Special Topics in Antenna and Microwave Theory - Quantum Information Processing Devices

Silicon Devices and Integrated Circuits

- ECE 630: Physics and Models of Semiconductor Devices
- ECE 631: Microelectronic Processing Technology
- ECE 636: Advanced Analog Integrated Circuits
- ECE 671: Microwave and RF Engineering
- ECE 672: Optoelectronic Devices
- ECE 730 T18: Special Topics in Solid State Devices - Organic Electronics

Systems and Controls

- ECE 602 (CO 602): Introduction to Optimization
- ECE 604 (Stat 901): Stochastic Processes
- ECE 682: Multivariable Control Systems
- ECE 686: Filtering and Control of Stochastic Linear Systems
- ECE 688: Nonlinear Systems

VLSI - Very Large Scale Integration

- ECE 636: Advanced Analog Integrated Circuits
- ECE 637: Digital Integrated Circuits

- ECE 671: Microwave and RF Engineering

Wireless Communication

- ECE 603: Statistical Signal Processing
- ECE 604: Stochastic Processes
- ECE 610: Broadband Communication Networks
- ECE 611: Digital Communications
- ECE 612: Information Theory

Regards,

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Catherine Gebotys
Associate Chair, Graduate Studies
/ad

Memorandum

Date: January 13, 2015

To: Bruce Hellinga, Associate Dean, Graduate Studies & International Agreements

From: Catherine Gebotys, Associate Chair, Graduate Studies, Electrical and Computer Engineering

Subject: MEng Program Diploma information to be added to the calendar

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The Electrical and Computer Engineering department requests changes, indicated below, to our MEng Management Science Diploma program requirements. Additionally, it is the department's intentions to have the content of these program specific diplomas appear in the University of Waterloo Graduate Studies calendar.

Detailed Calendar Revision

Current

Degree Requirements

This MEng option requires successful completion of eight one-term courses (0.50 unit weight) acceptable for credit by the Department.

For additional information on the regulations governing this program, please refer to the Electrical and Computer Engineering website.

Proposed

Degree Requirements

Master of Engineering (MEng)

The MEng program is designed with the professional in mind and is based on industry relevant course work. Eight courses with a minimum passing grade of 65% are required to earn the degree with a minimum of five electrical and computer engineering courses. Students may be required at any time to withdraw from the program if they fail to maintain a cumulative average grade of at least 70% (B-) in their coursework.

The Department of Electrical and Computer Engineering offers diplomas of specialization in core and emerging areas such as: Computer Networking and Security, Software Engineering, Sustainable Energy and Management Sciences (offered in collaboration with the Department of Management Sciences) to those completing an MEng degree. The Department of Electrical and Computer Engineering does not permit students to retake graduate level courses.

Note: There are no restrictions on the number of diplomas a student can be awarded.

Diploma details

1. Computer Networking and Security

Students will be exposed to the fundamental, advanced, and practical aspects of computer networks, security, and distributed computing systems. They will gain knowledge in the field of local and wide area networks - both wired and wireless. Students will learn designing network based systems for parallel and distributed processing; and the security aspects of communication and distributed system applications.

To receive the Department Graduate Diploma in Computer Networking and Security, a student completing his or her MEng will have to successfully complete three compulsory courses and two elective courses from the lists below.

Compulsory courses (3)

- ECE 610 Broadband Communication Networks
- ECE 628 Computer Network Security
- ECE 655 Protocols, Software, Issues in Mobile Systems (formerly ECE750(T4))

Elective Courses (choose 2 from this list)

- ECE 653 Software Testing, Quality Assurance and Maintenance
- ECE 606 Algorithm Design and Analysis
- ECE 651 Foundations of Software Engineering
- ECE 654 Software Reliability Engineering (formerly ECE 750(T2))
- ECE 656 Database Systems (formerly ECE 750(T18))
- ECE 657 Tools of Intelligent Systems Design (formerly ECE 750(T16))
- ECE 658 Component Based Software (formerly ECE 750(T11))

2. Software Engineering

Students will learn the concepts, techniques and methods of modern, effective software development. They will gain knowledge in software specifications, design and testing and will be exposed to data structures and algorithms, networking lower and upper layers, data-base systems, knowledge modeling, computational intelligence, component-based software engineering, re-engineering, and network security.

To receive the Department Graduate Diploma in Software Engineering, a student completing his or her MEng will have to successfully complete three compulsory courses and two elective courses from the lists below. **Compulsory courses (3)**

- ECE 650 Methods and Tools for Software Engineering
- ECE 651 Foundations of Software Engineering
- ECE 653 Software Testing, Quality Assurance and Maintenance

Elective Courses (choose 2 from this list)

- ECE 606 Algorithm Design and Analysis
- ECE 610 Broadband Communication Networks
- ECE 628 Computer Network Security
- ECE 654 Software Reliability Engineering (formerly ECE 750(T2))
- ECE 655 Protocols, Software, Issues in Mobile Systems (formerly ECE 750(T4))
- ECE 656 Database Systems (formerly ECE 750(T18))

- ECE 657 Tools of Intelligent Systems Design (formerly ECE 750(T16))
- ECE 658 Component Based Software (formerly ECE 750(T11))

3. Sustainable Energy:

Students will be exposed to different aspects of sustainable energy sources including the theory of operation and analysis of wind turbines, fuel cells and photovoltaic. Interfacing these energy sources with the electric utility grid and their effects on electricity market pricing will be addressed.

To receive the Department Graduate Diploma in Sustainable Energy, a student completing his or her MEng will have to successfully complete two compulsory courses and three elective courses from the lists below.

Compulsory courses (2)

- ECE 663 Energy Processing
- ECE 668 Distribution Systems Engineering

Elective Courses (choose 3 from this list)

- ECE 632 Photovoltaic Energy Conversion
- ECE 661 HVDC and FACTS
- ECE 662 Power System Analysis and Control
- ECE 664 Power System Components and Modelling
- ECE 665 High Voltage Engineering Applications
- ECE 666 Power System Operation
- ECE 667 Sustainable Distributed Power Generation
- ECE 669 Dielectric Materials
- ECE 768 Power System Quality

4. Management Sciences:

Students can augment their technical knowledge gained from the courses in Electrical and Computer Engineering, with a broad perspective on technology management concepts. The students can learn about production and inventory management or economic concepts in management, organizational behavior, or even senior management principles.

A student completing the Master of Engineering degree in the ECE department can obtain a diploma in Management Sciences, awarded in collaboration with the Department of Management Sciences. To obtain the diploma, the student has to successfully complete a total of 4 courses as indicated below.

Compulsory courses (1)

- ECE 602 Introduction to Optimization

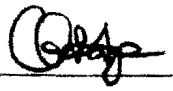
Elective Courses (choose 3 from this list)

- MSci 602 Strategic Management Technology
- MSci 605 Organizational Theory & Behaviour
- MSci 607 Applied Economics for Management
- MSci 632 Discrete Event Simulation
- MSci 633 Production and Inventory Management

- MSci 638 Information Systems Analysis and Design
- MSci 646 Database Management Systems
- MSci 712 Decision Analysis Under Uncertainty

Note: MSci 603 dropped due to overlap with ECE 602

Regards,



Catherine Gebotys
Associate Chair, Graduate Studies
/ad

Memorandum

Date: January 16, 2015

To: Bruce Hellinga, Associate Dean, Graduate Studies & International Agreements

From: Catherine Gebotys, Associate Chair, Graduate Studies, Electrical and Computer Engineering

Subject: Master and Doctoral level course requirements description, calendar change.

The Electrical and Computer Engineering department requests wording to be changed in the calendar, as outlined to Master and Doctoral level course requirements description to better reflect the intent of this form of study. The rationale for these changes is to more clearly outline the expectations of the ECE department and the Faculty of Engineering. These changes were approved at a regular meeting of the Electrical and Computer Engineering Department on Thursday, January 15, 2015. This change is to be effective immediately.

Detailed Calendar Revision

http://gradcalendar.uwaterloo.ca/page/ECE-Introduction

Current:

Course Offerings

A faculty supervisor is appointed to supervise the program of study of each graduate student. New students must meet with their supervisor prior to graduate course registration to arrange a coursework program and discuss research interests. Student progress is reviewed at least once each term by their supervisor. Any change in either coursework or research program must be specifically approved prior to registration in the subsequent term.

Graduate programs in this department cover the following areas of Electrical Engineering and include course offerings at the 600 and 700 level. A '6' (e.g., 600) in the first digit represents a regularly scheduled course; a '7' (e.g., 700) in the first digit represents an advanced graduate course offered when there is sufficient demand. The middle digit in the course number represents the general area (see table below).

Proposed:

Course Offerings

A faculty supervisor is appointed to supervise the program of study of each graduate student. New students must meet with their supervisor prior to graduate course registration to arrange a coursework program and discuss research interests. Student progress is reviewed at least once each term by their supervisor. Any change in either coursework or research program must be specifically approved prior to registration in the subsequent term.

At any time a student in a Master's level program, may be required to withdraw from the program if their cumulative average grade in the approved study program falls below 70%. The passing mark in any individual course is 65%. The Department of Electrical and Computer Engineering does not permit students to retake graduate level courses.

Similarly, at any time a student in a Doctoral program may be required to withdraw from the program if their cumulative average grade in the approved study program falls below 78%. The passing mark in any individual course is 75%. The Department of Electrical and Computer Engineering does not permit students to retake graduate level courses.

Graduate programs in this department cover the following areas of Electrical Engineering and include course offerings at the 600 and 700 level. A '6' (e.g., 600) in the first digit represents a regularly scheduled course; a '7' (e.g., 700) in the first digit represents an advanced graduate course offered when there is sufficient demand. The middle digit in the course number represents the general area (see table below).

Regards,

Catherine Gebotys
Associate Chair, Graduate Studies
/ad

Memorandum

Date: January 16, 2015

To: Bruce Hellinga, Associate Dean, Graduate Studies & International Agreements

From: Catherine Gebotys, Associate Chair, Graduate Studies, Electrical and Computer Engineering

Subject: Electric Power Engineering Non-Degree studies, wording to be changed in the calendar

The Electrical and Computer Engineering department requests wording to be changed in the calendar, in reference to Electric Power Engineering Non-Degree studies, to better reflect the intent of this form of study. This will also help to clarify the requirements for admission to a Diploma or Master level program. These changes were approved at a regular meeting of the Electrical and Computer Engineering Department on Thursday, January 15, 2015. This change is to be effective immediately.

Detailed Calendar Revision

"Students admitted to Electric Power Engineering Non-Degree who wish to apply to a Diploma or Master of Engineering, Electric Power Engineering program, must apply to the desired program. Students are not permitted to transfer from Non-degree to either the Master of Engineering or Diploma programs.

Courses taken during Non-Degree Study cannot be used to meet either the diploma or degree program requirements."

Regards,

Catherine Gebotys
Associate Chair, Graduate Studies
/ad

Memorandum

To: Members
Senate Graduate and Research Council

From: Maureen Nummelin
Chief Ethics Officer

Date: April 9, 2015

Subject: New and Continuing Memberships

The following information on new and continuing members on the **Clinical Research Ethics Committee** is provided for approval by the Senate Graduate and Research Council at its upcoming meeting:

Clinical Research Ethics Committee

Renewal of Membership:

Eduardo Krupnik, for a 3 year term from April 1, 2015 to March 30, 2018 as a clinical member. (Please refer to the attached "Statement of Interest and Curriculum Vitae").

Att: CV, Eduardo Krupnik, Legal Member

Eduardo Krupnik
Miller Thomson LLP
One London Place
255 Queens Avenue, Suite 2010
London, Ontario, Canada N6A 5R8
Direct Line: 519.931.3542
Fax: 519.858.8511
Email: ekrupnik@millerthomson.com
www.millerthomson.com

Statement of Interest

I am interested in serving on the University of Waterloo's Clinical Research Ethics Committee for a 3rd term. I understand that my participation requires Senate approval, and that you need from me a note about why I am interested in serving on CREC for another term.

I was asked by Andrea Edginton if I would be interested in continuing serving on the CREC. I am interested in continuing serving on the CREC for at least the following four reasons (in no particular order of importance):

1. Promoting Ethical Research
We know of the importance of conducting research in an ethical manner. The Clinical Research Ethics Committee is essential in promoting and assisting in the ethical conduct of research involving humans. I am proud to be part of this important committee.

2. Experience
During the last two terms I gathered experience to efficiently go through research applications and uncover the ethical issues that they may have. I believe that this experience may be beneficial to the CREC.

3. Background
Being a lawyer, I have been appointed as a member knowledgeable in law.
Prior to being a lawyer I obtained a PhD in clinical research. I believe that the combination of my legal and scientific background may also be advantageous to the CREC.

4. Personal
As mentioned in the first point, I have been part of the CREC for the last two terms. I enjoy the company of my fellow members, the discussions during our meetings, and the research/projects that we do in between meetings.

For at least the above reasons, I am interested in continuing serving on the CREC.

Att: CV, Eduardo Krupnik, Legal Member

Eduardo Krupnik

[redacted]

E-mail: ekrupnik@millerthomson.com

EDUCATION

REGISTERED CANADIAN PATENT AGENT, 2007

CALL TO THE BAR OF THE LAW SOCIETY OF UPPER CANADA: October 2002

OSGOODE HALL LAW SCHOOL, YORK UNIVERSITY - Toronto, Ontario

- LL.B., 2001.

UNIVERSITY OF MANITOBA - Winnipeg, Manitoba

- Ph.D., 1998 (oncology)
- M.Sc., 1993 (neurosciences).
- B.Sc. (Hons.), 1990 (genetics).

ACADEMIC AWARDS

- University of Manitoba Graduate Studies Fellowship.
- Wolinsky Scholarship.

WORK EXPERIENCE

Jan. 2007 – Present **Lawyer,** MILLER THOMSON LLP

- Representing clients' interests in technology transfers, joint ventures, licenses, clinical trials, research collaborations, consulting and other intellectual properties issues relating to corporate transactions. Developing intellectual property strategies to define and protect clients' intellectual assets.
- Drafting and negotiating complex contractual arrangements that relate to the transfer, commercialization or discovery of intellectual property, including assignments and licenses.
- Patent infringement, patentabilty, freedom-to-operate analyses.
- Patent prosecution and drafting.
- Reviewing and recommending internal policies, practices and procedures.
- Litigation.

Dec. 2002 - **Manager, Intellectual Property & Legal Affairs,** LAWSON HEALTH

Jan. 2007 RESEARCH INSTITUTE

- Management of Sponsor/Institution/Investigator initiated clinical trials, research collaboration agreements, Consulting Agreements, and other research related contractual arrangements.
- Drafting, reviewing and negotiating agreements: Assignments, Clinical Trials Agreements, Confidential disclosures, Letters of Intent, Licenses, Material Transfer Agreements, Research contracts.
- Patent infringement, patentabilty, freedom-to-operate analyses.
- Patent prosecution and drafting.
- Liaise with external counsel.
- Reviewing and recommending internal policies, practices and procedures.
- Successful Commercial Transactions:
    - Siemens: Non-exclusive license (software).
    - Pathway Diagnostics: Option to exclusive license (diagnostic kit).
    - Transition Therapeutics: Exclusive license (therapeutic molecule).
    - Fralex Therapeutics: Assignment of technology (therapeutic device) and shares.
    - Medtrode: Exclusive license (therapeutic device).
    - Aethlon Medical: Assignment of technology (therapeutic method and device)

June 2005 - Jan. 2007 **Business Development Manager**, PLANTIGEN INC.

- Drafting, reviewing and negotiating agreements: Licenses, Letters of intent, Confidential disclosures, Material transfer agreements, Research contracts, Assignments
- Patent infringement, patentabilty, freedom-to-operate analyses.
- Successful Commercial Transactions:
    - Dow Agrosciences: Exclusive license and collaborative research agreement.

May-Aug. 2000 & & Apr. 2001-July 2002 **Articling Student,** BORDEN LADNER GERVAIS LLP

- Transactions and legal research in several fields of the law including:
    - Corporate/commercial
    - Intellectual property: trade-marks, copyrights & patents
    - Real estate
    - Litigation

July-Aug. 1999 **Summer Student**, CANGENE CORPORATION

- Drafted, negotiated, reviewed commercial and employment contracts.
- Patent infringement, patentabilty, freedom-to-operate analyses.

1997-1998 **Technical Officer**, NATIONAL RESEARCH COUNCIL OF CANADA

- Provided technical support; developed new protocols; run scientific projects.

1992-1998 **Teaching Assistant**, UNIVERSITY OF MANITOBA, SCHOOL OF MEDICINE

- Assisted first year medical students with their projects and assignments.

PUBLICATIONS

G. Zimmerman, E. Krupnik & S. MacCormac, "Enforcement of Orders and Judgments" in R. E. Dimock ed., *Intellectual Property Disputes: Resolutions and Remedies*" (Toronto: Carswell, 2002) at c. 22.

Krupnik, E., Brière, K.M., Bird, R.P., Littman, C., and Smith, I.C.P. 1H-magnetic resonance spectroscopy evidence that aberrant crypt foci are preneoplastic lesions on the colon. Anticancer Research 19 (1999) 1699-1704.

Krupnik, E., Jackson, M., Bird, R.P., Smith, I.C.P., and Mantsch, H.H. Infrared spectroscopic characteristics of normal and malignant colonic tissues. In Infrared Spectroscopy: New Tool in Medicine, Henry H. Mantsch, Michael Jackson, Editors, Proceedings of SPIE 3257 (1998), 296-306.

Krupnik, E., Bird, R.P., and Smith I.C.P. 1H MR Spectroscopic Study of Pre-Neoplastic Lesions of the Rat Colon. Proc. Soc. Magn. Reson. 3: 1690, 1998, Sydney, Australia.

Krupnik, E., Jackson, M., Bird, R.P., Smith, I.C.P., and Mantsch, H.H. Investigation into the infrared spectroscopic characteristics of normal and malignant colonic epithelium. International Society for Optical Engineers, 1998, San Jose, California.

Bezabeh, T., Smith, I.C.P. Krupnik, E., et al. Diagnostic Potential for cancer via 1H-magnetic resonance spectroscopy of colon tissue. Anticancer Research 16 (1996) 1553-58.

Krupnik, E., Brière, K.M., Bird, R.P., and Smith, I.C.P. Ex-vivo 1H-magnetic resonance spectroscopy of normal and neoplastic rat colon tissue. Canadian Federation of Biological Societies, 1995, Saskatoon.

Krupnik, E. and Paterson, J.A. Butyrylcholinesterase activity in the developing auditory brainstem, the choroid plexus and the pituitary gland of the perinatal rat. Int. J. Devl. Neurosc. 11 (1993) 731-8.

Cholinesterase activity and glucose-transporter immunoreactivity in endothelial cells in the auditory brainstem of the young postnatal rat. Krupnik, E., Andersson, L., and Paterson, J.A. Second Craigie Conference on Brain Capillaries, 1992, Montreal.

Histochemical and immunochemical studies of the endothelial cells in auditory regions of the post-natal rat. Ninth Annual North Country Anatomy Interchange, 1992, Grand Forks, North Dakota.

AFFILIATIONS

- Member, Law Society of Upper Canada
- Member, Association of University Technology Managers
- Member, Licensing Executive Society
- 'Big Brothers Association.'

Proposal to update University of Waterloo's Institutional Quality Assurance Process (IQAP)

The motion below is being being brought to both Senate Undergraduate Council and Senate Graduate and Research Council for approval.

Motion: To amend the University of Waterloo's Institutional Quality Assurance Process as presented.

Rationale: Senate approval is required to implement needed updates to our existing IQAP. From the Ontario Universities Council on Quality Assurance (http://oucqa.ca/framework/1-3-quality-assurance-framework/)

> *"Over a period of two years, during which there was extensive consultation, OCAV developed this <Quality Assurance> Framework for quality assurance of all graduate and undergraduate programs offered by Ontario's publicly assisted universities. Under this Framework, these institutions have undertaken to design and implement their own Institutional Quality Assurance Process (IQAP) that is consistent not just with their own mission statements and their university Degree Level Expectations, but also with the protocols of this Framework. The IQAPs are at the core of the quality assurance process. Furthermore, the universities have vested in the Quality Council the authority to make the final decision on whether, following the Council-mandated appraisal of any proposed new undergraduate or graduate program, such programs may commence."*

The current IQAP document is accessible at the following link:
https://uwaterloo.ca/academic-reviews/sites/ca.academic-reviews/files/uploads/files/Institutional%20Quality%20Assurance%20Framework_0.pdf

The revised document is the first update since UW's IQAP was first approved in 2011. The revised document has been improved substantially through numerous minor edits (shown in red text) to improve readability and reduce repetition. Text has also been rewritten or reorganized to improve clarity and flow. More substantive editorial changes are identified by the mark-up text on the right hand margin of the document. The document has also been modified to describe more accurately the processes followed and informed by experience garnered in preparing proposals for new programs and executing the regular cyclical reviews of existing programs since the IQAP was first approved.

The only substantial change to process ("Guidelines for Site Visits", section 1.1 on page 10) relates to the review of interdisciplinary options and minors that are not attached to degree programs. In the previous IQAP three internal arms-length reviewers were required from outside the Faculty in which the program resided. The proposed revision reduces the number of internal reviewers to two, one of whom could be from the same Faculty, but demonstrably at

arm's length. This change has two benefits – there is less demand from UW faculty to participate in these reviews, and importantly, it should now be possible to include a reviewer with some related disciplinary expertise germane to the program under review. In the past, reviews of non-degree related minors and options were less likely to have been critically examined by a reviewer having a closely-related disciplinary expertise.

Following approval of the revised IQAP, the IQAP must be ratified by the Ontario Quality Council.

Institutional Quality Assurance Process (IQAP)

Office of the Associate Vice-President, Academic Programs
and Office of the Associate Provost, Graduate Studies
University of Waterloo
Waterloo, Ontario N2L 3G1

Approved March 8, 2011
Revised March 2015

Table of Contents

A. Purpose and Scope of Reviews

Consistent with good educational practice, the University of Waterloo (UW) regularly reviews its academic programs. The schedule for undergraduate and graduate program reviews is based on a seven year cycle.

This Institutional Quality Assurance Process (IQAP) document is consistent with recommendations of the Ontario Universities Council on Quality Assurance (the Quality Council), and is effective July 1 2011. The UW IQAP document replaces the previous guidelines for undergraduate programs (originally approved by Senate in February 1997), and previous guidelines for graduate programs (Ontario Council for Graduate Studies guidelines originally implemented in 1982). Any changes to the IQAP are subject to approval by Senate and by the Quality Council.

The review processes are subject to regular audit by the Quality Council, on a schedule determined by the Quality Council. The threshold framework for degree expectations are the UW guidelines for Undergraduate Degree Level Expectations (adopted by Senate in 2008), and the UW guidelines for Graduate Degree Level Expectations (adopted by Senate in 2010). These in turn conform to the OCAV Guidelines for Degree Level Expectations (adopted by OCAV in 2005).

In addition to the Undergraduate Degree Level Expectations, the University of Waterloo intends its graduating students at the Bachelor's level to be able to articulate their learning from experiential or applied opportunities, and to demonstrate an understanding of the intellectual, social, cultural, and political diversity of the world in which we live.

The OCAV framework for degree expectations, together with the University of Waterloo enhancements, will support departments and academic units in planning or revising curricula and in communicating program goals and outcomes to students and other stakeholders. As of July 2011, departments and faculties engaged in program review shall use these guidelines as base expectations while retaining the flexibility to add objectives unique to their specialties.

The Quality Assurance Framework of the Quality Council is the foundational document for UW's IQAP. This framework defines a degree program as the "complete set and sequence of courses, combinations of courses and/or other units of study, research and practice prescribed by an institution for the fulfillment of the requirements of a particular degree". Programs are not necessarily congruent with academic organizational units, and provision should be made to include joint programs and multi- or inter-disciplinary programs in a way appropriate for the institution. (Note that while University of Waterloo student information system often uses the term "plan" to refer to a program, the term "program" will be used throughout this document to avoid confusion).

Following the Quality Assurance Framework, the scope of academic reviews at University of

Waterloo covers "new and continuing undergraduate and graduate degree/diploma programs whether offered in full, in part, or conjointly by any institutions federated and affiliated with the university." This also extends "to programs offered in partnership, collaboration or other such arrangement with other postsecondary institutions including colleges, universities, or institutes, including Institutes of Technology and Advanced Learning…"

At UW, the fundamental purposes of the review process are to:

1) help each program to achieve and maintain the highest possible standards of academic excellence, through systematically reflecting on its strengths and weaknesses, and looking forward to determine what actions would further enhance quality in the program;
2) assess the quality of the program relative to counterpart programs in Ontario, Canada and internationally;
3) meet public accountability expectations through a credible, transparent, and action-oriented review process; and
4) create an institutional culture which understands and values the benefits of program reviews, while recognizing the significant workload implications of preparing a self-study, hosting a site visit, and providing a two-year progress report.

The design of the Program Review process is intended to be as streamlined as possible, while ensuring its accessibility and transparency to the UW community. At the University of Waterloo, the responsibility for undergraduate academic reviews rests with the position of Associate Vice-President Academic Programs. The responsibility for graduate academic reviews rests with the Associate Provost, Graduate Studies. Responsibility for combined (or augmented) reviews of undergraduate and graduate programs is allocated to one of these two individuals. These are the sole institutional contacts with the Quality Council.

UW encourages combined augmented reviews where feasible. Not only can they be more efficient, they also have academic merit as there are frequently interactions between the undergraduate and graduate programs. Academic units proposing an augmented review should indicate their intention to the AVPA/APGS as soon as possible prior to the academic year in which the self-study actually takes place.

Policy since 1998 has been that:

1) reviews would be treated as "whole of program reviews" in the belief that undergraduate and graduate programs should be considered together;
2) interdisciplinary options and minors are reviewed under the same arrangement as for single-discipline reviews except for the composition of the review committee; and
3) review processes for professional accreditation would be examined to determine if they meet the UW and the Quality Council requirements for a program review.

At the University of Waterloo, many students complete their degrees in a faculty rather than in a department or school. Faculty-based programs are treated similarly to their counterparts in departments or schools.

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When feasible, combined (or augmented) reviews of undergraduate and related graduate programs are encouraged. Such augmented reviews can be more efficient and also have academic merit, as there are frequently interactions between the undergraduate and graduate programs. To achieve alignment between the timing of reviews of undergraduate and graduate programs, dates can be adjusted, subject to the interval between reviews of individual programs not exceeding eight years. The accreditation for professional programs commonly occurs on a five year cycle and the UW schedule of reviews can be adjusted to allow the program review to occur simultaneously with the professional accreditation review.

The self-study process is started during the preceding academic year with a joint presentation in September organized by the Associate Vice-President, Academic (AVPA) (undergraduate reviews) and the Associate Provost, Graduate Studies (APGS) (graduate reviews). In cases where the academic unit chooses to submit an augmented review, either the AVPA or APGS assumes primary responsibility for overseeing that particular review. Augmented reviews are shared in order to balance workloads. At the presentation, the nature of the review process is discussed, and opportunity is provided for questions. After the presentation, departments can contact either the AVPA or APGS office for further clarification on matters pertaining to their program. The self-study is submitted the following June, so that the site visit could be scheduled for either the following fall or winter term. Data for the self-study is provided primarily by Institutional Analysis and Planning (IAP), which is responsible for the integrity of the data. This data is not publicly available.

The following sections outline the expectations and processes associated with program reviews at the University of Waterloo.

B. Cyclical Reviews of Existing Academic Programs

1. Academic Programs not related to Professional Accreditation

The Quality Assurance Framework specifies the key elements for the Institutional Quality Assurance Process (IQAP). The University of Waterloo's approach to fulfilling each of the criteria is described in the sections "Guidelines for Self-Studies" and "Guidelines for Site Visits" below.

According to the Quality Assurance Framework, the institutional review practice should:

1) include a self-appraisal by professors, staff and students participating in the program (see section below "Guideline for Self-Studies).
2) have an evaluation, including a site visit by at least two external reviewers including one from a university outside Ontario. One internal reviewer is also mandated, from outside the discipline under review (see section below "Guideline for Site Visits).
3) describe the process of assessment of the self-study and review within the university, describe how a Final Assessment Report will be drafted, including an implementation plan for recommendations (see sections below "The Quality Council Evaluation Criteria", "Guidelines

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Deleted: and has been organized to place undergraduate program reviews in the same year as, or one year before or after, the scheduled Graduate Program Reviews, in order to allow information from one review to be used in the other review. Units are also encouraged where desired and appropriate to undertake combined undergraduate and graduate reviews (i.e. augmented reviews). However, it also is recognized that

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Deleted: (UW: A Self Study for an undergraduate program will be reviewed and approved by the Associate Vice President Academic Programs. A Self Study for a graduate program will be reviewed and approved by the Associate Provost, Graduate Studies. A Self Study for an augmented program will be reviewed and approved by both??? either the Associate Vice President Academic Programs or the Associate Provost, Graduate Studies. ~~The guidelines for those reports are provided in the Manual).~~ See Cyclical review template.
(UW: each Site Visit involves two external external reviewers, at arm's length [not collaborators from the past seven years, supervisors or supervisees, relatives, etc.] from the program under review, normally with one from a university in Ontario and one from a university from outside Ontario. Reviewers should be Associate or Full Professors or equivalent, preferably with some experience of program management). Each Site Visit Team also involves one internal UW reviewer, chosen by the AVPA/APGS from a different Faculty than the one in which the program under review is located). See criteria for choosing Arm's length reviewers. Guidelines for Site Visits are provided below ... [2]

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for the Report from the Review Team", "4. After the Site Visit").

4) describe reporting requirements (see section below "4. After the Site Visit").
5) provide an institutional manual that supports the institutional quality assurance process. Note that the approach at UW has been to develop an informative web site as well as a comprehensive template for the self-study document (volume I – Self-Study), as well as templates for the required supporting documentation (volume II – Faculty CVs, volume III – Proposed Reviewers)

How University of Waterloo's IQAP meets criteria 1 through 4 is described below.

Quality Council Evaluation Criteria

The curricular content, admission requirements, mode of delivery, basis of evaluation of student performance, commitment of resources and overall quality of any program and its courses are all necessarily related to their goals, learning objectives and learning outcomes. Goals provide an overview for students, instructors and program/course evaluators of what the program or course aims to accomplish. Learning objectives are an expression of what the instructor intends that students should have learned or achieved by the end of the program or course. Learning outcomes are what the students have actually learned or achieved in the program or course.

The Quality Assurance Framework specifies that the review of existing programs should use the following criteria (excerpted from Quality Assurance Framework):

1. Objectives

a) Program is consistent with the institution's mission and academic plans.
b) Program requirements and learning outcomes are clear, appropriate and align with the institution's statement of the undergraduate and/or graduate Degree Level Expectations.

2. Admission requirements

Admission requirements are appropriately aligned with the learning outcomes established for completion of the program.

3. Curriculum

a) The curriculum reflects the current state of the discipline or area of study.
b) Evidence of any significant innovation or creativity in the content and/or delivery of the program relative to other such programs.
c) Mode(s) of delivery to meet the program's identified learning outcomes are appropriate and effective.

4. Teaching and assessment

a) Methods for assessing student achievement of the defined learning outcomes and degree learning expectations are appropriate and effective.

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b) Appropriateness and effectiveness of the means of assessment, especially in the students' final year of the program, in clearly demonstrating achievement of the program learning objectives and the institution's statement of Degree Level Expectations.

5. Resources

Appropriateness and effectiveness of the academic unit's use of existing human, physical and financial resources in delivering its program(s). In making this assessment, reviewers must recognize the institution's autonomy to determine priorities for funding, space, and faculty allocation.

6. Quality indicators

a) Faculty: qualifications, research and scholarly record; class sizes; percentage of classes taught by permanent or non-permanent (contractual) faculty; numbers, assignments and qualifications of part-time or temporary faculty;
b) Students: applications and registrations; attrition rates; time-to-completion; final-year academic achievement; graduation rates; academic awards; student in-course reports on teaching; and
c) Graduates: rates of graduation, employment six months and two years after graduation, post-graduate study, "skills match" and alumni reports on program quality when available and when permitted by the Freedom of Information and Protection of Privacy Act (FIPPA). Auditors will be instructed that these items may not be available and applicable to all programs.

7. Quality enhancement

Initiatives taken to enhance the quality of the program and the associated learning and teaching environment.

8. Additional graduate program criteria

a) Evidence that students' time-to-completion is both monitored and managed in relation to the program's defined length and program requirements.
b) Quality and availability of graduate supervision.
c) Definition and application of indicators that provide evidence of faculty, student and program quality, for example:
    - Faculty: funding, honours and awards, and commitment to student mentoring;
    - Students: grade-level for admission, scholarly output, success rates in provincial and national scholarships, competitions, awards and commitment to professional and transferable skills;
    - Program: evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience;
    - Sufficient graduate level courses that students will be able to meet the requirement that two-thirds of their course requirements be met through courses at this level.

Guidelines for Self-Studies

The chair/director of the program under review arranges for completion of a self-study with input from the dean, faculty members, staff, students and alumni. The template provided for the self-study reflects closely the guidelines articulated by the Quality Assurance Framework. The template includes the major headings relevant to self-assessment of the past, present and future, the organization and the people involved, research, service, teaching (with special attention to co-operative education and online learning), the students and the support available (human, physical and financial).

The UW guidelines are broad in scope, so that each program being reviewed can emphasize those aspects that are most relevant. The review covers the last seven fiscal years (spring/fall/winter), with emphasis on the last several years. Institutional Analysis and Planning (IAP) provides most of the historical data for each program and ensures its integrity.

Under each heading in the UW guidelines are suggested areas that could be discussed and critically examined. In some cases, a topic may fit just as well under another heading. It is not necessary to repeat information in several sections, and generally it will be up to the program to decide where information should be included in the self-study. The self-study should be broad-based, reflective, forward-looking and include critical analysis.

The self-study should address and document the:

- consistency of the program's learning outcomes with the institution's mission and Degree Level Expectations, and how its graduates achieve those outcomes;
- program-related data and measures of performance, including applicable provincial, national and professional standards (where available);
- integrity of the data;
- review criteria and quality indicators identified above;
- concerns and recommendations raised in previous reviews;
- areas identified through the conduct of the self-study as requiring improvement;
- areas that hold promise for enhancement;
- academic services that directly contribute to the academic quality of each program under review;
- participation of program faculty, staff, students and alumni in the self-study

Faculty, staff and students associated with a program should be provided the opportunity to participate in the self-appraisal process and to comment on the self-study. Faculty from the Affiliated and Federated Institutions of Waterloo and part-time faculty who regularly teach in the program are also to be given this opportunity. If there are differing views among the faculty these should be noted. Also all faculty members should have the opportunity to participate in the program's response to the review team report. Again the response should note differing views if there is no consensus among faculty. It is also good practice, once the program review has been completed, to inform faculty, staff and students (for example at a town hall meeting)

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of the review team's findings and plans for program improvement.

Guidelines for Site Visits

The following guidelines will assist departments/schools in making arrangements for the site visit related to their program reviews. The program under review takes the lead role in making arrangements for scheduling the site visit. However, arrangements should be prepared in consultation with the office of the AVPA or the APGS, as appropriate. For augmented reviews (reviews combining both undergraduate and graduate offices), one office will be assigned primary responsibility, and consultation with the other will occur as needed. Contact the relevant administrative assistant.

The schedule for the site visit should be prepared at least one month in advance of the visit, so that the review team can see the schedule, and have an opportunity to suggest changes.

1. Prior to the Site Visit

1.1 The chair/director of the program under review, in consultation with the dean of the faculty, develops a proposed list of reviewers (including full contact information and a brief biography) which is submitted to the AVPA/APGS (Volume III – Proposed Reviewers). For most program reviews, two external reviewers and one internal reviewer are required. Five names should be proposed, and ranked in order of preference, for each of (1) an external reviewer who will normally come from a university in Ontario; (2) an external reviewer who will normally come from a university outside Ontario, but at the undergraduate level usually within Canada. One external reviewer may be a non-university appointee (e.g., someone from government or the private sector), provided that she/he has appropriate qualifications to fulfill the reviewer role**.** An internal reviewer, who will come from UW but normally from outside the home faculty, will be selected by the AVPA/APGS.

For interdisciplinary options and minors not attached to degree programs, the programs are reviewed by two arm's length reviewers, at least one of whom should have some relevant disciplinary experience. In this situation, one or both reviewers may be from the faculty in which the program resides.

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1.2 All proposed reviewers should be at arm's length from the program, meaning not collaborators, supervisors/supervisees, relatives, etc. The AVPA/APGS will make the final choice of members for the review team.

1.3 The chair/director identifies several two-day blocks suitable to the program under review for the site visit, and provides those to the AVPA/APGS.

1.4 The office of the AVPA/ APGS contacts the proposed external and internal reviewers, to invite them to serve as the external reviewers for the program review process.

1.5 The office of the AVPA/APGS confirms the time and arrangements for the site visit with the reviewers.

1.6 The office of the AVPA/APGS co-ordinates some travel arrangements and the hotel accommodations for the external reviewers.

1.7 The office of the AVPA/APGS sends a copy of the self-study to the external reviewers at least one month prior to the visit.

2. The Site Visit

2.1 The external reviewers normally arrive no later than the evening before the site visit activities are to begin.

2.2 An initial meeting with the AVPA/APGS is normally held at the start of the visit.

The purpose[1] of the meeting is to ensure that the reviewers:

- understand their role and obligations;
- identify and commend the program's notably strong and creative attributes;
- describe the program's respective strengths, areas for improvement, and opportunities for enhancement;
- recommend specific steps to be taken to improve the program, distinguishing between those the program can itself take and those that require external action;
- recognize the institution's autonomy to determine priorities for funding, space, and faculty allocation;
- respect the confidentiality required for all aspects of the review process.

2.3 The review team usually has two days to meet with key stakeholders in the program under review. For reviews of interdisciplinary options and minors not attached to degree programs, the site visit would take place over a single day. The chair/director should make arrangements for the review team to meet at a minimum with the:

- dean and associate dean(s) (subject to availability) relevant to the program under review.
- chair/director and associate chairs
- faculty (including adjunct faculty and those in the Affiliated and Federated Institutions of Waterloo where applicable) in groups, or, if feasible, individuals

[1] from the Quality Assurance Framework

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when requested

- staff
- the relevant Librarian
- Co-operative Education and Career Services (if there is a co-op stream)
- undergraduate students (recommended more than one time slot be identified for undergraduates to ensure that adequate opportunity is provided to meet with the Review Team). These meetings should be arranged without faculty present, to facilitate frank and open discussion. It is good practice to ask the departmental/school undergraduate student association (where one exists) to invite students to participate in this meeting.
- graduate students, with particular attention to ensuring teaching assistants are well represented. As with the undergraduates, these meetings should be arranged without faculty present, and it is good practice to ask the departmental/school graduate student association (where one exists) to invite students to participate in this meeting.
- Vice-President Academic and Provost (subject to his/her availability)

Graduate reviews will conclude with a second/wrap-up meeting with the APGS; undergraduate reviews will conclude with a second/wrap-up meeting with the AVPA; and augmented reviews will typically conclude with a meeting that includes both the APGS and AVPA.

2.4 If possible, the review team should be provided by the program under review with an office in which the reviewers can leave their belongings, and have discussions among themselves.

2.5 The host program should discuss with the review team if, over lunch periods, the review team would like to be by itself, in order to discuss what has been learned, or whether it would appreciate the opportunity to meet with other people.

2.6 The program should allocate time in the evening after the first day of the site visit, and in the latter part of the second day, for the review team members to discuss among themselves what they have been learning, how they will structure their report, and how they will divide the tasks for writing the report. UW expects that the review team will submit its report within two weeks of the site visit. Thus, the review team members must be given sufficient time to make arrangements for the preparation of the report before they finish the site visit and depart from UW.

3. Guidelines for the Report from the Review Team

3.1 The review team will prepare a report which should be submitted to the AVPA or APGS within two weeks of the completion of the site visit. For augmented reviews, sections

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pertaining to the undergraduate and graduate programs should be clearly differentiated. The report should cover the evaluation criteria identified in the Quality Assurance Framework, although reviewers may find the external reviewers' report template to be useful. The report should include relevant details on the following:

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Part 1: The Review Process

- time of visit.
- documents reviewed.
- individuals and groups met.
- adequacy of site visit arrangements.

Part 2: Findings, Conclusions and Recommendations

3.2 In preparing its report, the review team should be aware that the Quality Assurance Framework specifies that a review of programs should address the review criteria 1 through 8 in the previous section "The Quality Council Evaluation Criteria". The review team is welcome to add other topics as long as attention is given to the points highlighted above.

3.3 The most useful report for UW will be one which is "constructively critical", identifying strengths which should be protected and enhanced, weaknesses or challenges that deserve attention, and new opportunities. When weaknesses or challenges are identified, the report will be more helpful if suggestions are presented regarding how they could be addressed.

3.4 The review team report will lose credibility within UW if it is perceived primarily to be a "booster report" for a discipline or profession, and only recommends providing more funding to the program. A more helpful report will consider what could be done by the program, by itself or in collaboration with its faculty and UW, in using limited resources more efficiently and effectively, along with considering where new resources would represent a strategic investment to allow a program to increase quality.

3.5 The review team report, if necessary, may include a confidential letter of transmittal to cover personnel issues. This letter would only be available to the Dean, AVPA/APGS, and the Vice-President Academic and Provost.

4. After the Site Visit

4.1 The review team report is submitted to the AVPA/APGS, and copies are then distributed to the Vice-President Academic and Provost, the dean of the faculty, and the chair/director of the program.

4.2 The external review team members submit their travel and accommodation expense claims to the office of the AVPA/APGS. Honoraria for the external reviewers are paid after receipt

of their final report.

4.3 The program under review is invited to provide comments to the AVPA/APGS, verbally or in writing, regarding the experience with the site visit, and especially to identify aspects of the site visit which could be improved. It is important that students also have an opportunity to provide comments related to the site visit.

4.4 The chair/director and the faculty members of the department/school have an opportunity to provide comments on factual errors in the review team report. Comments should be sent to the AVPA/APGS within four weeks of receiving a copy of the report. If no comments are received within that time period, unless other arrangements have been made, it will be concluded that the program has no initial comments to make about the report.

4.5 The chair/director, will submit a report ("program response") endorsed by the faculty dean to the AVPA/APGS addressing each of the following:

- plans and recommendations proposed in the self-study report
- recommendations advanced by the review team in its report

The program response should include a credible implementation plan that not only addresses the substantive issues identified from the program review process but also identifies clearly:

- what actions will follow from specific recommendations
- any changes in organization, policy or governance that would be necessary to follow the recommendations
- resources, financial or otherwise, required to support the implementation of selected recommendations
- who will be responsible for providing resources
- a proposed timeline and responsibility for oversight for implementation of any of those recommendations.
- priorities for implementation and realistic timelines for initiating and monitoring actions

The program response should be submitted within 10 weeks of the program receiving its copy of the review team report.

4.6 The AVPA/APGS provides a final assessment report ("FAR") to the Vice-President Academic and Provost, outlining the nature of the review process, the main findings, conclusions and recommendations from the review team report, and the program response, including the implementation plan. The FAR is submitted within four weeks of receiving the chair's/director's report described in 4.5 above. The FAR is presented for approval to Senate Undergraduate Council (for undergraduate program reviews) or Senate Graduate and Research Council (for graduate program reviews), or both (for augmented reviews).

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The program chair/director may be invited to these meetings to respond to questions.

4.7 The AVPA/APGS submits the FAR to Senate for information. The Vice-President and Provost reports to the Board of Governors once a year on which programs were reviewed the previous academic year. The FAR is available publicly in the Senate agenda; however, other documents associated with the program review (self-study, review team report, program response) are not public.

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4.8 The Vice-President Academic and Provost, or designate, will have responsibility for ensuring that all recommendations and issues arising from the reviews are dealt with in a manner that brings closure to the process, including provision of necessary resources.

4.9 The chair/director is responsible for a two-year progress report on steps taken since the program review was completed. This report is presented to Senate Undergraduate Council/Senate Graduate and Research Council for approval and then Senate for information. The two-year report is available publicly in the Senate agenda.

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4.10 The FAR as well as the two-year report are available to the Ontario Quality Council through UW's annual reporting.

Table 1. Summary of timelines for reviews of existing programs

Fall (September), previous academic year	Meeting of those responsible in department/school, with AVPA/APGS and resource persons; final decision as to whether review will be augmented or only undergraduate/only graduate
June 1	Complete draft of self-study submitted to AVPA/APGS
July 1	Final copies of v.I (self-study), v. II (faculty CVs) and v. III (proposed reviewers) submitted to AVPA/APGS
Fall/Winter	Site visit occurs
2 weeks after site visit	External reviewers submit report to AVPA/APGS
4 weeks after external reviewers' report received	Chair/director submits comments on factual errors/issues in report to AVPA/APGS or both for augmented reviews
10 weeks after external reviewers' report received	Program response submitted on what was learned from self-study and external reviewers' report, and plans for future
4 weeks after program response received	AVPA/APGS submits final assessment report (FAR) to Senate Undergraduate Council/Senate Graduate and Research Council for approval, and then to Senate for information. FAR is made available to the Quality Council in July
February of subsequent academic year	Provost reports to Board of Governors all programs reviewed in previous academic year cycle
2 years after site visit	Two-year progress report submitted by department/school to Senate Undergraduate Council/Senate Graduate and Research Council for approval, and Senate for information

2. Academic Programs Related to Professional Accreditation

The Quality Assurance Framework (section 4.2.7) states that "The IQAP may allow for and specify the substitution or addition of documents or processes associated with the accreditation of a program, for components of the institutional program review process, when it is fully consistent with the requirements established in this framework… A record of substitution or addition, and the grounds on which it was made, will be eligible for audit by the Quality Council."

The AVPA/APGS, as relevant, reviews the guidelines for the accreditation process, meets with the person(s) at UW responsible for the professional accreditation together with the director of

the program, to review the guidelines for the accreditation and UW reviews, and to determine what additional information, if any, is required for the UW review. Such discussions occur at the time when work begins by a program to prepare for the accreditation process, and a memo is filed documenting the decision taken. If necessary, the program under review will be asked to provide supplemental information to meet the needs of the UW review process.

When the review team is appointed by an accreditation organization, UW will seek to have a UW faculty member included as a member of the review team. If this is not possible, then UW may arrange to have a UW faculty member conduct interviews and examine documents related to the UW program review process to provide his or her perspective, and prepare a written report to supplement the accreditation report from the review team.

For master's programs which are subject to accreditation reviews, it is usually necessary to review the research components of the program. These aspects can be reviewed in conjunction with a review of the PhD program (if one exists) or research master's in the same unit (if one exists). If the only graduate program in the unit is a professional master's subject to accreditation, then a separate review of the research components is required.

3. Multi- or Interdisciplinary Programs

Reviews of interdisciplinary programs which lead to a degree should follow the same procedures as those for single discipline programs, as described above. The review of an inter-disciplinary program (including collaborative graduate programs) can be, where appropriate, combined with the review of a larger program. One of the considerations in such combined reviews is whether a review team can be assembled which has expertise in the various disciplinary areas. Separate report sections must also be written for each program.

Where an interdisciplinary undergraduate program does not lead to a separate degree (for example, an undergraduate option), the composition of the review team will follow the same process as for minors not attached to degree programs. The programs is reviewed by two arm's length reviewers, at least one of whom should have some relevant disciplinary experience. In this situation, one or both reviewers may be from the faculty in which the program resides. The director of the interdisciplinary program and the Dean (or equivalent in the Affiliated and Federated Institutions of Waterloo) who provide oversight of the program will be invited to suggest individuals to serve on the review committee. The composition of the review committee will be determined by the AVPA/APGS. The review process follows the same arrangement as for single-discipline reviews.

4. Programs Joint with other Universities

For programs offered jointly with another/other Ontario universities, the procedure is that one

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Comment [3]: Information on augmented reviews (original section 3) has been moved to Section A "Purpose and scope of reviews". It was out of place in the original document (and alsorepetitive)

Mario Coniglio 2015-1-25 4:06 PM
Deleted: 3.Combined Reviews of Undergraduate and Graduate ProgramsUW encourages combined reviews (augmented reviews).Augmented reviews can be more efficient and also have academic merit, there are frequently interactions between the undergraduate and graduate programs.Academic units proposing an augmented review should indicate their intention to the AVPA/APGS in good time (prior to the end of the previous calendar year).The AVPA/APGS will then allocate one of their two as having primary responsibility for the logistics of the review.The review will then follow the normal process appropriate to that .ugmented reviews will be presented both at Senate Undergraduate and Senate Graduate and Research Council.The /be invited to both meetings to respond to questions, the AVPA will be invited to Senate Graduate and Research Council, and the APGS to Senate Undergraduate Council, to ensure coherence in the response to the reviews of the undergraduate and graduate components.

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individual (normally the director or equivalent of the joint program) will prepare a self-study following the template of his/her university, in consultation with faculty, staff and students at the other institution(s). The review team will be chosen in consultation with both/all partners, and the "internal" reviewer can come from each partner, or be chosen to represent all partners. The review visit will include both/all campuses. The response to the review can be written by the director of the joint program in consultation with the appropriate chairs and deans at both/all participating institutions, and then sent through the regular process at both/all universities. If deemed more appropriate, separate responses could be prepared, one for each participating institution, to follow the normal process at each university.

For programs joint with other universities outside Ontario, UW will follow the review process for Ontario universities. This would not necessarily require a site visit to the other university, provided that the Quality Council has determined that the partner university is also subject to an appropriate quality review process in its own jurisdiction. However UW would obtain information about the components of the program completed outside Ontario as appropriate, and include this in the review within Ontario.

If, in future, UW develops partnerships to offer degree or diploma programs with other institutions such as colleges or institutes, the present document will be modified to include such programs.

5. Programs at the Federated or Affiliated Institutions

The University of Waterloo has one federated university (St. Jerome's University) and three affiliated university colleges (Conrad Grebel, Renison, St. Paul's). UW has made arrangements with the Affiliated and Federated Institutions of Waterloo to ensure that program reviews are completed in a coordinated manner. When a program is primarily based within one of the Affiliated and Federated Institutions of Waterloo, the lead role for the program review is taken by the relevant institution, with the self-study submitted to the AVPA at UW. During their program reviews, academic departments at UW are directed to identify when there are complementary disciplinary or program activities at one or more of the Affiliated and Federated Institutions of Waterloo, to ensure that such activities are considered in their self-study.

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The Affiliated and Federated Institutions of Waterloo may opt to have their program reviews considered at their own councils, in parallel to consideration at Senate Undergraduate Council/Senate Graduate and Research Council.

6. Credit-Bearing Diploma and Certificate Programs

Diplomas and certificates, where offered for credit, are reviewed on the same cycle as other programs. Where possible, they should be reviewed in conjunction with a related degree program.

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C. Reviews of New Programs

At University of Waterloo, reviews of new programs follow a similar procedure to reviews of existing programs, with appropriate modifications to the program proposal documentation and the external review (for example, there are no current students to interview or for whom to provide statistics). A comprehensive template is provided for the proposal document (volume I – Proposed Brief), as well as templates for the required supporting documentation (volume II – Faculty CVs, volume III – Proposed Reviewers).

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For new undergraduate programs, the AVPA has responsibility for the review, while for new graduate programs it is the APGS.

The steps for approval for new programs are similar to those for review of current programs.

1. An initial proposal document is developed, addressing the topics outlined in the Quality Council criteria. This proposal goes to the appropriate department/school committee and faculty council for discussion and approval. If the program includes co-op experience, a report from Co-operative Education and Career Services is required. The proposal specifies if the program is full cost-recovery or not.
2. If an external review with a site visit is required, this occurs following faculty council approval, and the unit concerned has the opportunity to respond to the review comments.
3. The proposal (modified if appropriate following the external review) then goes to either Senate Undergraduate Council, or Senate Graduate and Research Council, and then Senate, for approval.
4. At this point the proposal is sent to the Quality Council for approval, if approval is required, or for information (new undergraduate minors and options do not require notification to the Quality Council).
5. The Board of Governors receives information once a year about programs approved to commence in the previous year (along with information on completed reviews of existing programs).
6. If MTCU approval of funding is required, a submission is made to MTCU.
7. As is the case for reviews of existing programs, a two-year progress report is required for new programs. The purpose of the two-year progress report is to provide initial data on student progress and implementation of the program, and to respond to any issues raised by the external review. Copies of the two-year progress report are made available to the Quality Council for information (or, if required, for decision).
8. Thereafter the program enters into the regular review cycle.

Definition of a New Program

The Quality Assurance Framework defines a new [degree] program as "Any degree, degree program, or program of specialization, currently approved by Senate or equivalent governing body, which has not been previously approved for that institution by the Quality Council, its predecessors, or any intra-institutional approval processes that previously applied. A change of name, only, does not constitute a new program; nor does the inclusion of a new program of specialization where another with the same designation already exists (e.g., a new honours program where a major with the same designation already exists)." The Quality Assurance Framework further clarifies that "a 'new program' is brand-new: that is to say, the program has substantially different program requirements and substantially different learning outcomes from those of any existing approved programs offered by the institution".

Depending on the type of program, the levels at which approvals are required differ, as shown in Table 2 below. All new programs require internal approval (up to the Senate level), and depending on whether Quality Council and/or MTCU approval is also required, additional approval steps are needed.

Table 2. Level of approval required for new programs and major modifications[1]

Program Type	Senate	External reviewers	Quality Council	MTCU
Undergrad minor, option, certificate or diploma	Yes	No	No	No
Undergrad major or specialization	Yes	Yes if "brand-new"[2]	Yes if "brand-new"[2]	No
Undergraduate degree	Yes	Yes	Yes	Yes, in non-core areas
Graduate field[3]	Yes	No	No	No
Graduate collab. program	Yes	No	Yes[4]	Yes
New graduate degree	Yes	Yes	Yes	Yes
Graduate Diploma	Yes	No	Yes[4]	Yes, if stand-alone
Major change to existing program	Yes	No	No (but notification required)	No
Minor change to existing program	No	No	No	No

[1] Major modifications are defined in section D below
[2] See definition of new program above table; notification is required if the change is a major modification but not "brand-new"
[3] If graduate programs wish to advertize that a field has been approved by the Quality Council, it must be submitted for Expedited Approval
[4] Follows Expedited Approval process defined by the Quality Assurance Framework.

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Aims

The procedures for assessing proposals for new programs should ensure:

- the program achieves UW's academic excellence goals
- the program name is appropriate to the content and recognizable to employers
- the program reflects UW distinctiveness, is technologically current, is creative and innovative in its curriculum content and delivery, and entrepreneurial and appropriately inter-disciplinary in perspective
- the program has the potential to be one of the best in Canada and at least among the top quarter of similar programs in North America
- the program has the potential to attract excellent students
- the program has sufficient resources committed to it

Planning

The detailed planning process for new programs takes place in the academic unit that will host it. This planning is done in consultation with various groups, some of which are: the Registrar's Office; Institutional Analysis and Planning; other relevant academic departments in the university; Co-operative Education and Career Services (CECA) (if a co-op plan is being proposed); the offices of the dean and associate dean (undergraduate/graduate as appropriate) of the faculty. In addition it is the unit's responsibility to meet the Degree Level Expectations approved by the University and by MTCU, for non-core undergraduate programs and all graduate programs which are requesting approval for specific funding for BIU entitlement.

Program Proposal

A program proposal document is required, following the provided template (volume I – Proposed Brief).

Any proposed new program will be reviewed using the Quality Assurance Framework criteria for new programs, reproduced verbatim below:

1. Objectives

a) Consistency of the program with the institution's mission and academic plans.
b) Clarity and appropriateness of the program's requirements and associated learning outcomes in addressing the institution's own undergraduate or graduate Degree Level Expectations.
c) Appropriateness of degree nomenclature.

2. Admission requirements

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a) Appropriateness of the program's admission requirements for the learning outcomes established for completion of the program.
b) Sufficient explanation of alternative requirements, if any, for admission into a graduate, second-entry or undergraduate program, such as minimum grade point average, additional languages or portfolios, along with how the program recognizes prior work or learning experience.

3. Structure

a) Appropriateness of the program's structure and regulations to meet specified program learning outcomes and Degree Level Expectations.
b) For graduate programs, a clear rationale for program length that ensures that the program requirements can be reasonably completed within the proposed time period.

4. Program content

a) Ways in which the curriculum reflects the current state of the discipline or area of study.
b) Identification of any unique curriculum or program innovations or creative components.
c) For research-focused graduate programs, clear indication of the nature and suitability of the major research requirements for degree completion.
d) Evidence that each graduate student in the program is required to take a minimum of two-thirds of the course requirements from among graduate level courses.

5. Mode of delivery.

Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations.

6. Assessment of teaching and learning

a) Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations.
b) Completeness of plans for documenting and demonstrating the level of performance of students, consistent with the institution's statement of its Degree Level Expectations.

7. Resources for all programs

a) Adequacy of the administrative unit's planned utilization of existing human, physical and financial resources, and any institutional commitment to supplement those resources, to support the program.
b) Participation of a sufficient number and quality of faculty who are competent to teach and/or supervise in the program.
c) Evidence that there are adequate resources to sustain the quality of scholarship produced by undergraduate students as well as graduate students' scholarship and research activities, including library support, information technology support, and laboratory access.

8. Resources for graduate programs only

a) Evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation and foster an appropriate intellectual climate.

b) Where appropriate to the program, evidence that financial assistance for students will be sufficient to ensure adequate quality and numbers of students.
c) Evidence of how supervisory loads will be distributed, and the qualifications and appointment status of faculty who will provide instruction and supervision.

9. Resources for undergraduate programs only

Evidence of and planning for adequate numbers and quality of: (a) faculty and staff to achieve the goals of the program; or (b) of plans and the commitment to provide the necessary resources in step with the implementation of the program; (c) planned/anticipated class sizes; (d) provision of supervision of experiential learning opportunities (if required); and (e) the role of adjunct and part-time faculty.

10. Quality and other indicators

a) Definition and use of indicators that provide evidence of quality of the faculty (e.g. qualifications, research, innovation and scholarly record; appropriateness of collective faculty expertise to contribute substantively to the proposed program).
b) Evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience.

Approval Process

The normal approval process is as follows (with some variations according to the organization of the academic unit, and whether one or more academic units are involved):

- approval by departmental/school curriculum committee(s)
- approval by department/school as a whole at a department/school meeting
- approval by the appropriate faculty(ies) undergraduate/graduate council(s)
- approval by the appropriate faculty council(s)
- site visit by external reviewers (if required)
- departments/school response to external reviewers and modifications of proposal (if required)
- approval by Senate Undergraduate Council or Senate Graduate and Research Council
- approval by Senate; programs may be advertized once Senate approval has been granted and the proposal has been sent to the Quality Council, but should clearly state "subject to approval by the Quality Council"
- approval by the Quality Council
- approval for funding by MTCU, if required
- after a new program is approved to commence by the Quality Council, the program will begin within 36 months of the date of approval, otherwise the approval will lapse
- report to Board of Governors on new degrees, programs, certificates, diplomas, and

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minors approved in previous year

- two-year progress report to Senate Undergraduate Council/Senate Graduate and Research Council and then Senate, for new degrees, programs, certificates, diplomas and minors. This report should include responses to any questions posed by the external reviewers and provide preliminary information on student numbers and progress
- two-year progress report to the Quality Council, if requested

Site Visit (if required)

Guidelines for the site visit for existing programs should be used. The main difference is that there are no existing students who can be interviewed. However, it may be appropriate for some new programs to invite current students who are interested in the new program, to meet with the reviewers. This can include students who are interested in transferring into the new program (at the undergraduate level) or applying to the new graduate program.

Table 3: Timelines for approval of new programs[1]

Month 1	Approval by department
Month 2	Approval by faculty • co-op report commissioned • library report commissioned • list of possible external reviewers sent to office of AVPA/APGS • proposal brief prepared (allow 1 month for external reviewers to read document)
Months 5-6	External reviewer site visit; review report received within 2 weeks Chair/director ensures consultation and implementation of any changes recommended by reviewers; submits revised brief
Months 6-7	Approval by Senate Undergraduate Council/Senate Graduate and Research Council
Months 7-8	Approval by Senate; advertising permitted with qualification "subject to approval by the Quality Council"
Month 10	Approval by the Quality Council
Month 10	Submission to MTCU, if required
Two years after site visit	Two-year progress report submitted, as for existing programs

[1] Note: not all new programs require external reviews (for example, graduate collaborative programs, graduate diplomas); if so, the timeline will be shorter. Otherwise these represent the minimum time required.

D. Major Modifications of Existing Programs

Definition of a Major Modification

The Quality Assurance Framework defines a major modification to a program as one or more of the following changes:

a) Requirements for the program that differ significantly from those existing at the time of the previous cyclical program review
b) Significant changes to the learning outcomes
c) Significant changes to the faculty engaged in delivering the program and/or to the essential physical resources as may occur, for example, where there have been changes to the existing mode(s) of delivery

The following examples of major modifications are provided in the Quality Council's Quality Assurance Guide:

a) **(Examples of) Requirements that differ significantly from those existing at the time of the previous cyclical program review**

- The merger of two or more programs
- New bridging options for college diploma graduates
- Significant change in the laboratory time of an undergraduate program
- The introduction or deletion of an undergraduate thesis or capstone project
- The introduction or deletion of a work experience, co-op option, internship or practicum, or portfolio
- At the master's level, the introduction or deletion of a research project, research essay or thesis, course-only, co-op, internship or practicum option
- The creation, deletion or re-naming of a field in a graduate program
- Any change to the requirements for graduate program candidacy examinations, field studies or residence requirements
- Major changes to courses comprising a significant proportion of the program, where significant is defined as more than one-third of the courses

b) **(Examples of) Significant changes to the learning outcomes**
Changes to program content, other than those listed in "a" above, that affect the learning outcomes, but do not meet the threshold for a "new program"

c) **(Examples of) Significant changes to the faculty engaged in delivering the program and/or to the essential resources, for example, when there have been changes to the existing mode(s) of delivery (such as different campus, online delivery and inter-institutional collaboration)**

- Changes to the faculty delivering the program; for example, a large proportion of the faculty retires; new hires alter the areas of research and teaching interests
- A change in the language of program delivery
- The establishment of an existing degree program at another institution or location
- The offering of an existing program substantially online where it had previously been offered in face-to-face mode, or vice versa
- Change to full- or part-time program options, or vice versa
- Changes to the essential resources, where these changes impair the delivery of the approved program

If there is uncertainty as to whether a particular change is major or minor, the AVPA or APGS will be the arbiter for undergraduate and graduate programs, respectively. The Vice-President and Provost has the final say in this decision. The Vice-President and Provost has the right to choose to send a particular major modification to the Quality Council for an expedited review, as per section 3.3 of the Quality Assurance Framework, and if so would follow procedures similar to those for a new graduate field.

Procedure

Major modifications to existing programs require normal internal approval (approval at department/school, faculty, Senate Undergraduate Council or Senate Graduate and Research Council, and Senate). Minor modifications follow the same process, with the exception that Senate Undergraduate Council and Senate Graduate and Research Council are empowered to approve these changes on behalf of Senate, as per Senate Bylaw 2. If an existing program is offered in a new location, this requires notification at the department, faculty and Senate Undergraduate/Senate Graduate and Research Council levels.

Major modifications require reporting to the Quality Council on an annual basis.

E. Audit Process

The Quality Council will audit each institution once every eight years. The objective of the audit is to determine whether or not the university, since the last review, has acted in compliance with the provisions of its Institutional Quality Assurance Process (IQAP) for cyclical program reviews as ratified by the Quality Council. The Quality Council's Quality Assurance Framework indicates the means of selection of the auditors, together with the steps in the audit process.

F. References

Council of Ontario Universities, Ontario Council of Academic Vice Presidents (2005) *Guidelines for University Undergraduate Degree Level Expectations,* Toronto, Council of Ontario Universities, December 16, 3pp.

Quality Council (Ontario Universities Council on Quality Assurance) (2014) *Quality Assurance Framework*. Council of Ontario Universities, 41pp. Available electronically at http://oucqa.ca/resources-publications/quality-assurance-framework/

Quality Council (Ontario Universities Council on Quality Assurance) (2014) *Quality Assurance Guide*. Council of Ontario Universities, Available electronically at http://oucqa.ca/resources-publications/guide-to-quality-assurance-processes/

To: Members of Senate Executive Committee, Senate Finance Committee, Senate Graduate & Research Council, Senate Long Range Planning Committee, Senate Nominating Committee for Honorary Degrees and Senate Undergraduate Council

From: Logan Atkinson, University Secretary & General Counsel

Date: 22 December 2014

Subject: **Review of Ex-officio Membership and Appointment Terms**

In the process of deliberating and ultimately approving the revised set of Senate bylaws, there was some inquiry with regard to the specific memberships of Senate and its committees and councils. Senate has directed that each of its committees and councils review and report back on their own terms of reference in the context of the following considerations:

- Appropriateness of ex-officio membership: are additions or removals required for your body?
- Term length: some members are appointed on a term-limited basis and Senate was uncertain as to whether the particular length of the term for each committee is still appropriate
    - Currently, membership for certain elected members of committees or councils vary between one and two years
- Any other desirable general amendments, including to power and duties of the body in question
- Senate Executive Committee shall undertake the first step of a review of the membership of Senate, in addition to its own membership

The terms of reference for your respective committee or council is attached to this memo, and each body is hereby directed to undertake a review in the Winter 2015 term such that a report can be made to the 20 April 2015 meeting of Senate.

Excerpt from Senate Bylaw 2

A bylaw to establish Committees and Councils of Senate of the University of Waterloo.

...

4. Graduate & Research Council

4.01	There shall be a council of the university, appointed by and responsible to Senate, called the Graduate & Research Council.
4.02	**Graduate & Research Council Membership** The membership of this council shall consist of the following: *Ex Officio* i. The president of the university. ii. The vice-president, academic & provost. iii. The vice-president, university research, who shall co-chair this council. v. The associate provost, graduate studies, who shall co-chair this committee. v. The associate dean of graduate studies in the graduate studies office. vi. The associate vice-president, university research. vii. The associate vice-president, external research. iii. The chief ethics officer. x. The director, research partnerships. x. The director, graduate academic services. xi. The university librarian, or designate. xii. The president of the Graduate Student Association. Elected / Appointed i. Two faculty members with Approved Doctoral Dissertation Supervisor status from each faculty, one of whom must be an associate dean with a research and/or graduate studies portfolio. Associate deans serve without term limits; others serve for a two-year term. ii. One faculty member from the affiliated and federated institutions of Waterloo, who shall serve for a term of two years. iii. One graduate student from each faculty, each of whom shall serve for a term of two years.

4.03	**Powers and Duties of the Graduate & Research Council** The Graduate & Research Council shall consider all questions relating to the academic quality of graduate studies and research activity within the university and, without intending to restrict the generality of the foregoing, the Graduate & Research Council shall, Make recommendations to Senate with respect to the government, direction and management of, or any changes in rules, regulations or policies for graduate studies and research in the university. Advise the vice-president, academic & provost on all matters relating to graduate studies and research. Receive, consider, study and review briefs on any aspect of graduate studies and research from members of the university. Make recommendations to Senate with respect to any financial matter pertaining to graduate studies and research. Consider, study and review all proposals for new graduate programs, the deletion of graduate programs, major changes to existing graduate programs, arrange for internal appraisals as the council shall see fit, and make recommendations to Senate thereon. On behalf of Senate, consider and approve all new graduate courses, the deletion of graduate courses, and proposed minor changes to existing graduate courses and programs, and provide Senate with a brief summary of council's deliberations in this regard. Any matter of controversy that might arise may be referred to Senate. Consider, study and review all proposals for new centres and institutes, and the closure of centres and institutes, and make recommendations to Senate thereon. On behalf of Senate, consider and approve renewals for centres and institutes, and report such renewals to Senate for information. Any matter of controversy that might arise may be referred to Senate. On behalf of Senate, consider and approve all new graduate scholarships and awards. Any matter of controversy that might arise may be referred to Senate.

To: Board of Governors
Senate
Board Committees
Senate Committees and Councils
Executive Council
Faculty Relations Committee
Staff Relations Committee
Deans' Council
President, Federation of Students
President, Graduate Student Association

From: Feridun Hamdullahpur, President and Vice-Chancellor

Date: 19 January 2015

Subject: **Call for Nominations – Honorary Degrees and Convocation Speakers**

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

Guidelines for the awarding of honorary degrees, including selection guidelines, procedures, considerations to make in assessing a candidate's qualifications, and details on what to submit in a nomination package, can be found via the link.

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

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

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