

# **SENATE AGENDA**

1:30 p.m., Friday, March 13, 2015 University Community Centre, *Room 56* 

- 1. Minutes of the Meeting of February 13, 2015
- 2. Business Arising from the Minutes
- 3. Report of the President (A. Chakma)
- 4. Reports of Committees:

Operations/Agenda - EXHIBIT I (J. Weese)
Academic Policy and Awards - EXHIBIT II (B. Timney)
University Planning - EXHIBIT III (B.A. Younker)

- 5. Report of the Academic Colleague **EXHIBIT IV** (K. Okruhlik)
- 6. Announcements EXHIBIT V
- 7. Enquiries and New Business
- 8. Adjournment

Senate meetings are scheduled to begin at 1:30 p.m. and normally will end by 4:30 p.m. unless extended by a majority vote of those present.

#### **APPROVAL OF MINUTES**

#### REPORT OF THE PRESIDENT

#### **OPERATIONS/AGENDA COMMITTEE**

FOR ACTION Senate Memberships

FOR INFORMATION Officer of Convocation

# SENATE COMMITTEE ON ACADEMIC POLICY AND AWARDS (SCAPA)

FOR ACTION

School of Graduate and Postdoctoral Studies:

- a) Introduction of an Accelerated Option in the MSc in Physiology and Pharmacology Program
- b) Introduction of Two New Fields (Spokes) in the Master in Management of Applied Science (MMASc) Program

Articulation Agreement – King's University College and Fanshawe College (BMOS) Policy Revisions:

- a) Academic Sanctions
- b) Breadth Requirements for Bachelor Degrees

#### FOR INFORMATION

New Scholarships and Awards

SUPR-G report: Cyclical Program Reviews

Report of the Subcommittee on Teaching Awards (SUTA) - will be distributed on Thursday, March 12

# SENATE COMMITTEE ON UNIVERSITY PLANNING (SCUP)

FOR ACTION

Report on Entering Averages and First-Year Grades

### FOR INFORMATION

Report on Faculty Recruitment and Retention

Report of the Working Group on Information Security (WGIS) 2014 Annual Report

# REPORT OF THE ACADEMIC COLLEAGUE

Report on a Meeting of the Council of Ontario Universities (COU)

# **ANNOUNCEMENTS & COMMUNICATIONS**

FOR INFORMATION

Standard Report



### MINUTES OF THE MEETING OF SENATE

### February 13, 2015

The meeting was held at 1:30 p.m. in Room 56, University Community Centre.

SENATORS: 64

J. Aitken Schermer A. El-Boraie M.A. Andrusyszyn C. Farber J. Hatch D. Belliveau I. Birrell B. Hovius P. Bishop A. Hrymak N. Brooks C. Jones D. Brou J. Lamarche J. Burkell B. Leipert S. Camiletti J. Malkin J. Capone T. McMurrough A. Chakma R. Mercer C.L. Chambers M. Milde B. Cheadle J.-F. Millaire K. Cole L. Miller L. Crich S. Mischler J. Cuciurean K. Moser K. Danylchuk A. Nelson J. Deakin D. Neufeld C. Dean V. Nielsen G. Dekaban C. Nolan G. Dresser V. Nolte P.P. Pare J. Eberhard

D. Rogers P. St-Pierre M. Salvadori P. Scala V. Schwean I. Scott K. Siddiqui R. Sookraj V. Staroverov C. Steeves B. Steinbock M. Strona T. Sutherland S. Taylor B. Timnev J. Toswell J. Weese G. Westwood C. Wilkins B.A. Younker

Observers: M. Blagrave, J. Doerksen, J. Inoue, K. Okruhlik, C. Waugh

By Invitation: H. Connell

Members of Senate held a moment of silence to observe the untimely passing of Western's 21<sup>st</sup> chancellor, Joseph Rotman, on January 27, 2015.

# S.15-26 MINUTES OF THE PREVIOUS MEETING

The minutes of the meeting of January 23, 2015, were approved as circulated.

#### S.15-27 **REPORT OF THE PRESIDENT**

The President reported on the following items: re-appointment of Dr. Michael Strong as Dean of the Schulich School of Medicine & Dentistry; recent appointment of Jana Luker as Associate Vice-President (Student Experience); Barb MacQuarrie appointed to the Order of Ontario; former

student senator Jack Litchfield and current student senator Richard Sookraj were elected President and Vice-President, respectively, of the University Students' Council for 2015-16; the idea of a joint submission with McMaster and Waterloo universities with respect to a proposal for Advanced Manufacturing had been positively received by the provincial government officials with whom it has been discussed; and outreach by the U15 to the three federal parties.

### REPORT OF THE OPERATIONS/AGENDA COMMITTEE [Exhibit I]

### S.15-28 Senate Membership: Faculty of Science Constituency

It was moved by J. Weese, seconded by T. Sutherland,

That Duncan Murdoch, elected to Senate to represent the Faculty of Science constituency, be granted a leave of absence, and

That Burns Cheadle be elected to serve on Senate as his alternate (term to December 31, 2015).

**CARRIED** 

# REPORT OF THE NOMINATING COMMITTEE [Exhibit II]

# S.15-29 Selection Committee for the Vice-Provost (Academic Planning, Policy & Faculty)

The following were elected to the Selection Committee for the Vice-Provost (Academic Planning, Policy and Faculty): Michael Milde, Scott MacDougall-Shackleton and Jane Rylett.

Dr. Deakin said that Dr. Weedon's appointment has been extended to June 2016. Given his extensive knowledge about the workings of the University, plans are to secure the appointment of his replacement early with an interim title to enable that individual to shadow Dr. Weedon for a year before moving into the role.

# REPORT OF THE SENATE COMMITTEE ON ACADEMIC POLICY AND AWARDS [Exhibit III]

# S.15-30 Faculty of Social Science, Department of Economics: Withdrawal of the Economics Summer Co-op Program

It was moved by B. Timney, seconded by J. Aitken Schermer,

That effective May 1, 2015 the Economics Summer Co-op Program be withdrawn.

**CARRIED** 

# S.15-31 School of Graduate and Postdoctoral Studies: Dual-Credential PhD Degree Agreement between the Université Libre de Bruxelles (Belgium) and The University of Western Ontario

It was moved by B. Timney, seconded by P. Bishop,

That effective January 1, 2015 the introduction of a Dual-Credential PhD Degree Agreement between The Université Libre de Bruxelles (Belgium) and The University of Western Ontario be approved as shown in Exhibit III, Appendix 1.

**CARRIED** 

# S.15-32 Schulich School of Medicine & Dentistry and Faculty of Science: Revision of the Combined BMSc (Interdisciplinary Medical Sciences)/HBA Program

It was moved by B. Timney, seconded by M. Strong,

That the Year 4 BMSc requirements for the Combined BMSc (Interdisciplinary Medical Sciences)/HBA Program be revised effective September 1, 2015, as shown in Exhibit III, Appendix 2.

**CARRIED** 

# S.15-33 <u>Brescia University College: Introduction of the Specialization and Honors Specialization in Nonprofit Management (BMOS)</u>

It was moved by B. Timney, seconded by D. Rogers,

That effective September 1, 2015, the Specialization and Honors Specialization in Nonprofit Management leading to a BMOS degree be introduced at Brescia University College contingent upon the Quality Council's approval as shown in Exhibit III, Appendix 3.

**CARRIED** 

# S.15-34 <u>Brescia University College, Department of Sociology: Renaming and Revising the Honors Specialization in Crime and Communities, Major in the Sociology of Law, Crime and Deviance and Minor in Criminology</u>

It was moved by B. Timney, seconded by D. Rogers,

That effective September 1, 2015, the modules

- Honors Specialization in Crime and Communities
- Major in Sociology of Law, Crime and Deviance
- Minor in Criminology

be renamed and revised as shown in Exhibit III, Appendix 5, and

That students currently enrolled in these modules be allowed to graduate with the old designation by September 1, 2017.

**CARRIED** 

# S.15-35 SUPR-G Report: Cyclical Reviews of the Ivey School of Business Graduate Programs and the Scientific Computing (Collaborative Graduate Program)

The following cyclical reviews of graduate programs were approved by SCAPA:

Faculty/Affiliates	Program	Date of Review	SUPR-G recommendation
Ivey School of Business	Graduate programs	September 25-26, 2014	Good Quality
Science	Scientific Computing (Collaborative Graduate Program)	September 26, 2014	Good Quality

The detailed Final Summary Reports are attached as Exhibit III, Appendix 6.

# S.15-36 Policy Revisions

Senate received for information the following policy revisions:

# S.15-36a Revisions to the Part-Time Admission for Ontario Secondary School Diploma (OSSD) Students: WISE and SWAU Policy

The policy was revised to reflect the increased number of students that can be admitted under the SWAU program, as a result of the generous donation of the Joyce Foundation towards this initiative. An announcement of the donation was made in December, 2014: <a href="http://www.giving.westernu.ca/the-campaign/news/2014/the-joyce-foundation-donates.html">http://www.giving.westernu.ca/the-campaign/news/2014/the-joyce-foundation-donates.html</a>

The revised calendar copy is posted at http://www.uwo.ca/univsec/pdf/academic\_policies/admission/ptossd.pdf

# S.15-36b Revisions to the Structure of the Academic Year Policy

The policy is posted at: <a href="http://www.uwo.ca/univsec/pdf/academic\_policies/general/structure.pdf">http://www.uwo.ca/univsec/pdf/academic\_policies/general/structure.pdf</a>

Senate approved changes to this policy in January 2015 – see agenda item posted here: http://www.uwo.ca/univsec/pdf/senate/minutes/2015/a15jan23sen\_all.pdf. An additional minor editorial amendment was made to the policy after Senate approval regarding the deadline to submit In Absentia Convocation applications.

The policy read:

"\* Application deadline for the In Absentia Convocation is January 22, or, if the deadline falls on a weekend or holiday, the next business day. No ceremony is held".

It was revised as:

"\* Application deadline for the In Absentia Convocation is January 22. No ceremony is held".

Students are now able apply to graduate via the Student Centre on-line at any time, therefore, there is no need to accommodate weekends or holidays for this process.

#### S.15-37 **New Scholarships and Awards**

SCAPA approved on behalf of the Senate, the Terms of Reference for the new scholarships and awards shown in Exhibit III, Appendix 7, for recommendation to the Board of Governors through the Vice-Chancellor.

# S.15-38 **ANNOUNCEMENTS** [Exhibit IV]

Senate received for information Announcements detailed in Exhibit IV.

# <u>ADJOURNMENT</u>

	The	meeting	adjourned	at	1:45	p.m
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A. Chakma	I. Birrell
Chair	Secretary

# REPORT OF THE OPERATIONS/AGENDA COMMITTEE

Senate Membership: Faculty Constituencies
Senate Membership: King's University College

Officer of Convocation

### FOR APPROVAL

# 1. <u>Senate Membership – Faculty Constituencies</u>

**Recommended:** That the following nominees be appointed to Senate for the term of July 1, 2015

- June 30, 2017 in accordance with the Senate election procedures for the filling

of vacancies:

Brescia University College Colleen O'Connor \*
Ivey School of Business Matt Thomson
Education Susan Rodger
Huron University College Mark Blagrave

King's University College Renee Soulondre La France

Music Sophie Roland (Performance Studies)

Social Science Margaret McGlynn (History)

\*Reappointment

# 2. Senate Membership: King's University College

**Recommended:** That the seat held by Claude Olivier, representative of the King's University

College constituency on Senate, be declared vacant effective July 1, 2015 as a result of his sabbatical leave and that <u>Lynne Jackson</u> be elected to complete his

term until June 30, 2016.

#### **FOR INFORMATION**

# 3. Officer of Convocation

Dr. Greg M. Kelly has agreed to serve as Associate Marshal for a two-year term (to June 30, 2017).

# REPORT OF THE SENATE COMMITTEE ON ACADEMIC POLICY AND AWARDS (SCAPA)

School of Graduate and Postdoctoral Studies: Introduction of an Accelerated Option in the MSc in Physiology and Pharmacology Program

School of Graduate and Postdoctoral Studies: Introduction of Two New Fields (Spokes) in the Master in Management of Applied Science (MMASc) Program

Articulation Agreement – King's University College (BMOS) and Fanshawe College Business-Accounting Diploma

**Policy Revision: Academic Sanctions** 

Policy Revision: Breadth Requirements for Bachelor Degrees

SUPR-G report: Cyclical reviews of the Chemical and Biochemical Engineering <u>and</u> the Planetary Science (Collaborative Graduate Program)

Figure 1 Science (Collaborative Graduate Frogran

**New Scholarships and Awards** 

Report of the Subcommittee on Teaching Awards (SUTA)

#### 1. School of Graduate and Postdoctoral Studies:

1. a. Introduction of an Accelerated Option in the MSc in Physiology and Pharmacology Program

**Recommended:** That, effective May 1, 2015 an Accelerated Option in the MSc in Physiology and

Pharmacology Program be introduced in the School of Graduate and

Postdoctoral Studies as shown in Appendix 1.

# **Background**

The Department of Physiology and Pharmacology is proposing a new option within its existing Master of Science (MSc) program. This option will be a thesis degree, based on the development of an original, advanced research project, together with course work and non-course competency requirements. Completion of the Accelerated MSc is expected in 3-4 terms. This program will enable a student to complete the requirements for an MSc degree (and potentially a PhD degree, should the students transfer to the doctoral program) in less calendar time than would normally be required through sequential enrollment in a Bachelor's and MSc programs.

**1. b.** Introduction of Two New Fields (Spokes) in the Master in Management of Applied Science (MMASc)

Program

**Recommended:** That, effective September 1, 2015 the Data Analytics Field (Spoke) and the

Computer Science Field (Spoke) be introduced in the MMASc program as shown

in Appendix 2.

# Background:

The goal of the Data Analytics Field is to give students who are already trained in mathematical or computational sciences (including Mathematics, Applied Mathematics, Statistics, Computer Science, and related quantitative disciplines such as Engineering, Physics, and Economics) the essential business and communication skills and expertise in data analytics that extends their undergraduate training and gives them an edge in a very competitive marketplace. The goal of the new Computer Science Field is to give students who are already trained in Computer Science the essential business and communication skills and expertise in a Computer Science field of their choice that extends their undergraduate training and will give them an edge in the very competitive technological market.

Graduates of these new fields will be well prepared to take on upper administrative, management, and supervisory roles in a number of industries.

Senate Agenda EXHIBIT II
March 13, 2015 Page 2

2. <u>Articulation Agreement for Admission from the Fanshawe College Business-Accounting Diploma</u>
Program into Year 3 of the Management and Organizational Studies (Specialization in Accounting)
Program or Year 3 of the Management and Organizational Studies (Specialization in Finance and Administration) Program at King's University College

#### Recommended:

That Senate approve and recommend to the Board of Governors through the President and Vice-Chancellor, the Articulation Agreement regarding transfer credit for graduates of the Fanshawe College Business-Accounting Diploma program for admission into Year 3 of the Management and Organizational Studies (Specialization in Accounting) program or the (Specialization in Finance and Administration) program at King's University College, effective April 1, 2015 as set out in Appendix 3.

# **Background:**

This agreement relates to students studying in the Business-Accounting Diploma Program at Fanshawe College. Effective April 1, 2015, King's University College proposes to accept students from this program into Year 3 of the Management and Organizational Studies (Specialization in Accounting) program or Year 3 of the Management and Organizational Studies (Specialization in Finance and Administration) program as set out in an Articulation Agreement between the two institutions. The details of the agreement are set out in **Appendix 3**.

The objectives of the agreement are to provide graduates from Fanshawe who satisfy the criteria described in this agreement with the opportunity to apply for admission to the Bachelor of Management and Organizational Studies (BMOS) program at King's University College, and to meet the needs of aspiring Chartered Professional Accountants now enrolled at Fanshawe in order to complete their accounting credits and obtain a Western degree.

# 3. Policy Revisions:

### 3. a. Academic Sanctions

**Recommended:** That the policy on "Academic Sanctions" be amended as shown in **Appendix 4**.

#### **Background**

The policy on Academic Sanctions is currently listed in two separate locations in the Academic Calendar:

1) A Senate-approved policy that is listed in the "Academic rights and responsibilities" section

http://www.uwo.ca/univsec/pdf/academic policies/appeals/academic sanctions.pdf and

http://www.westerncalendar.uwo.ca/2015/pg115.html

2) In the "Student Financial Services" section http://www.westerncalendar.uwo.ca/2015/pg152.html

Over the years, amendments were made to the policy listed in the "Student Financial Services" section, as changes to this section can be approved by the Registrar; however, the Senate-approved policy did not keep up with these changes.

The intention of the proposed revisions is to 1) bring the Senate-approved policy in line with the current practice and 2) to remove the policy listed in the "Student Financial Services" section and replace it with a link leading to the Senate-approved policy.

#### **3. b.** Breadth Requirements for Bachelor Degrees

**Recommended:** That the policy on "Breadth Requirements for Bachelor Degrees" be revised as shown in **Appendix 5**.

# **Background**

The Office of the Registrar has received numerous inquiries from students regarding the need for mandatory breadth requirements for Western Bachelor Degrees. The proposed amendment provides a basic explanation to students about these requirements..

Senate Agenda EXHIBIT II March 13, 2015 Page 3

# **FOR INFORMATION**

# 4. <u>SUPR-G report: Cyclical reviews of the Chemical and Biochemical Engineering Graduate Program and the Planetary Science (Collaborative Graduate Program)</u>

The following cyclical reviews of graduate programs were approved by SCAPA:

Faculty/Affiliates	Program	Date of Review	SUPR-G recommendation
Engineering	Chemical and Biochemical Engineering	June 16-17, 2014	Conditional with Report in January 2016
Science	Planetary Science (Collaborative Graduate Program)	June 2, 2014	Conditional with Report in September 2016

The detailed Final Summary Reports are attached as **Appendix 6**.

# 5. New Scholarships and Awards

SCAPA approved on behalf of the Senate, the Terms of Reference for the new scholarships and awards shown in **Appendix 7**, for recommendation to the Board of Governors through the Vice-Chancellor.

# 6. Report of the Subcommittee on Teaching Awards (SUTA)

The Report of the Subcommittee on Teaching Awards is attached as Appendix 8.

# Master of Science (MSc) in Physiology and Pharmacology Introduction of a New Option "Accelerated MSc"

#### **OVERVIEW**

The Department of Physiology and Pharmacology is proposing a new option within its existing Master of Science (MSc) program. This option will be a thesis degree, based on the development of an original, advanced research project, together with course work and non-course competency requirements. Completion of the Accelerated MSc is expected in 3-4 terms. Students in the Accelerated MSc option will receive a stipend according to established policies in the Department of Physiology and Pharmacology regarding financial support for MSc students. This program will enable a student to complete the requirements for a MSc degree (and potentially a PhD degree, should the students transfer to the doctoral program) in less calendar time than would normally be required through sequential enrollment in a Bachelor's and MSc programs.

#### RATIONALE FOR THE DEVELOPMENT OF A NEW MSc OPTION

Several factors have been considered in the development of the Accelerated MSc Program in Physiology and Pharmacology. This option will allow the Graduate Program to channel identified exceptional students interested in pursuing a career in research at the undergraduate level, by providing an academically enriched environment prior to completing undergraduate training. Specifically, the Accelerated MSc will provide the opportunity to introduce advanced research competencies to undergraduate students at a stage when they may only just be beginning to consider their post undergraduate training options. As such, this can become a vehicle to retain undergraduate students in the upper academic echelons to remain at Western University for a graduate degree: Students who experience academic success at their university in their undergraduate courses will likely do well in graduate school. Further, with increased challenges in research funding, the Accelerated MSc can also facilitate the timely and possibly early completion of the MSc degree, or transition to a PhD degree.

The Graduate Program in Physiology and Pharmacology has traditionally attracted large numbers of students who are interested in pursuing careers in academia, government organizations, and private sector-related biotechnology. A large fraction of our graduate student population are also attracted towards pursuing professional degrees (i.e. Medicine, Dentistry, etc), and students with an MSc degree often have additional advantages when applying to those professional programs. However, with increasing opportunities for students to enroll in Accelerated MSc programs elsewhere, students are faced with choosing the graduate program they may be most interested in pursuing, *versus* enrolling in a program that will potentially allow them to progress to their next career step more efficiently. Strategically, through the development of the Accelerated MSc option, the Department of Physiology and Pharmacology will provide interested students with the opportunity to achieve both goals.

Another key element in the decision of the Department to develop an Accelerated MSc option was based on recent stakeholder surveys that included about 200 3<sup>rd</sup> and 4<sup>th</sup> year undergraduate students. Remarkably, 94% indicated they would consider a graduate studies option if offered financial support, and 62% indicated a preference for a research-, thesis-based MSc, rather than a course-based MSc. Further, 77% of respondents would choose a 1-year over a 2-year MSc. Finally, 70% indicated that, although several departments offered Accelerated MSc programs at the Schulich School of Medicine and Dentistry, they would prefer to enroll in Physiology and Pharmacology. Thus, there is considerable interest from the undergraduate student population in the option of an Accelerated MSc degree in Physiology and Pharmacology.

#### BENEFITS TO STUDENTS FROM AN ACCELERATED MSc OPTION

The advantages to prospective students from the proposed new MSc option in Physiology and Pharmacology include:

1. Increased high-quality job opportunities after graduation with an MSc degree, compared with an undergraduate degree alone. These professional opportunities include, but are not limited to, higher level research assistant positions in academic institutions, leadership positions as coordinators in clinical trial studies, as well as positions in biotechnology and pharmaceutical industries at supervisory levels.

- 2. The opportunity to students who are interested in biomedical research to complete the requirements for the MSc degree in three terms, rather than the typical period of six terms.
- 3. Those students who elect to pursue a PhD degree by transferring from the Accelerated MSc to the PhD program will also have the opportunity to complete the requirements earlier than the typical 5-year combined time period that a student who transfers from MSc to PhD takes to complete the doctoral program. This is possible because Physiology and Pharmacology doctoral students generally complete all course requirements within their first two years in the program, and the largest component of their PhD training is focused on obtaining experimental data for their thesis.
- 4. For those students who wish to pursue career options outside academia, a MSc degree has become increasingly valuable as a step towards a professional career with higher potentials for earning and professional advancement. However, the additional years of studies also mean lost income. An accelerated MSc will minimize this limitation.
- 5. The possibility to start working on a research stream during undergraduate studies will greatly facilitate the transition from undergraduate- to graduate-level work.

#### STRATEGIC VALUE TO WESTERN UNIVERSITY

The Western Strategic plan includes as an important target a sustained increase in graduate enrolment, which in turn will contribute to research and scholarship. The proposed new Accelerated MSc option aims at increasing the overall enrollment in the Physiology and Pharmacology graduate program. In addition, this objective is based on a clearly identified need to provide interested students with the opportunity to develop graduate skills at the Master's level in a shorter period, but with the same quality of training as the normal MSc stream, including a research-intensive education. The Department of Physiology and Pharmacology provides excellent graduate training in a broad variety of areas, including those identified by Western as Clusters of Research Excellence, which are key for the university's future growth.

#### DETAILS OF THE ACCELERATED MSc OPTION

The Accelerated MSc option in Physiology and Pharmacology will only be open to Western University undergraduate students who successfully complete (a) an undergraduate Research Project (Phys 4980 or Pharm 4980) in the Department of Physiology and Pharmacology during the summer between year 3 and year 4 of Western's BMSc program, and (b) a newly developed, research-intensive 4<sup>th</sup> year course (Physiology 4999E or Pharmacology 4999E). Registration in the summer Research Project will be exclusively available to 3<sup>rd</sup> year students interested in pursuing the Accelerated MSc program. Registration to this course also requires special permission from the Department, involves an oral interview with an Admissions Subcommittee of the Department, and is limited to students in the Physiology, Pharmacology, or Physiology & Pharmacology Honours Specialization modules. Successful completion of the summer offering of Phys 4980 or Pharm 4980 will allow students to complete 1.5 credits towards their undergraduate degree, in a manner identical to that of students who complete the Fall-Winter offering of this course. Fourth year undergraduate students who have completed the summer offering of Phys 4980 or Pharm 4980, and who are registered in Phy 4999E or Pharm 4999E will be able to apply for admission into the Accelerated MSc program within a time frame that will allow them to start graduate work in the summer or fall term, following completion of their undergraduate program. The admission requirements to the Accelerated MSc are identical to those for admission to the traditional MSc program in the department.

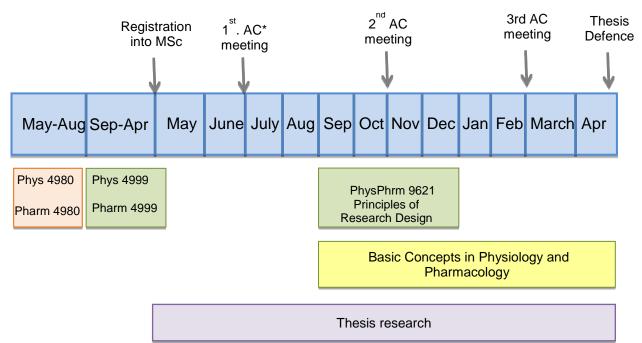
In the Accelerated MSc entry option, students who have successfully completed the summer offering of Phys 4980 or Pharm 4980 acquire additional research experience and experimental results through the "Advanced Research in Physiology and Pharmacology" course offered during the subsequent fall-winter terms (Phys 4999E or Pharm 4999E). The information and competencies developed in Phys 4999E or Pharm 4999E will be useful towards achieving Accelerated MSc program requirements. The Accelerated MSc option also allows registration in the MSc program as early as May 1<sup>st</sup>, following completion of the undergraduate degree. As a result, students also have the opportunity for early completion, relative to the traditional MSc program offered by the Department. Similar to the conventional MSc program, students in the Accelerated MSc option can transfer to the PhD program, following completion of two-to-three terms

of study (Please see item 3 in the "Benefits to Students" section, above). In addition, should they wish, students in the Accelerated MSc program will also be able to apply for admission to the collaborative programs available to all other graduate students in the Department of Physiology and Pharmacology. The timelines and milestones of the Accelerated MSc option are shown in the diagram below.

# Proposed timeline for Accelerated MSc program

Only students who have successfully completed the required prerequisite undergraduate courses offered by the Department of Physiology and Pharmacology are eligible to enroll in the proposed Accelerated MSc program. These required undergraduate course offerings are already available and running. Specifically, several 3<sup>rd</sup>-year undergraduate students successfully completed the 2014 summer offering of Phys 4980 and Pharm 4980, and are currently registered in Phys 4999/Pharm 4999. They will be completing the latter course in April 2015. Therefore, the graduate program is poised to begin to offer the Accelerated MSc option to those students in May, 2015. The following timeline, including the undergraduate prerequisite courses, will be followed:

- 1. Students who have completed their 3<sup>rd</sup> year in the undergraduate program, who fulfill the minimum average required (80%) register in the summer offering of the Seminar and Research course (Phys 4980 or Pharm 4980), which runs May-Aug.
- 2. In September, these students, who will begin their 4<sup>th</sup> year in the undergraduate program, register in the "Advanced Research in Physiology" (Phys 4999E) or "Advanced Research in Pharmacology" (Pharm 4999E) course. This is a two-term course.
- 3. Starting in May 2015, once the students have completed their undergraduate requirements, they can register in the Accelerated MSc program. Thesis research work begins at this time. Eligible students can also elect to start the Accelerated MSc program in the September term.
- 4. In September, students enroll in "Principles of Research Design" (PhysPhrm 9621). This is a Fall term course, and is available only to Accelerated MSc students.
- 5. In September, students enroll in "Basic Concepts in Physiology and Pharmacology".



Successful completion of this non-course requirement is mandatory for all graduate students in the Physiology and Pharmacology program.

<sup>\*</sup>AC = Advisory committee

# Description of courses and requirements: PHYSPHRM 9621 (Principles of Research Design)

The objective of this course is to prepare a grant proposal based on the topic of the student's own M.Sc. thesis research. This proposal is to be of a format and quality that would be suitable for submission to the National Sciences and Engineering Research Council (NSERC). Students will only complete the Research description part of these applications. Students will be able to consult with the course manager, to obtain information on the nature of this task, and to obtain recent publications focused on the way to prepare successful applications. Supervisors may provide advice on content, style and/or layout, but they should not participate in the preparation of the proposal, nor should they share with the student parts of their own grant proposals concerning the student's thesis project.

**Evaluation:** The proposal is reviewed by at least two members of the Physiology and Pharmacology graduate program. The evaluation provides:

- 1. A critique similar to that received from a NSERC panel reviewer.
- 2. Suggestions for improving the quality of the application. The proposal will be evaluated on a scale of 100 points. The passing mark is 80%.

# NON-COURSE REQUIREMENT: "Basic Knowledge in Physiology and Pharmacology".

This competency requirement is based on review by the student of on-line material focused on the fundamental principles of human physiology and pharmacology. Successful completion of on-line quizzes related to this material is required within two terms after enrollment. Adherence to this time line is required to demonstrate appropriate progression towards the MSc degree. The material is divided into 16 Physiology modules, with 4 quizzes, together with 17 Pharmacology modules and 4 quizzes. Students are required to obtain at least 80% in each quiz to successfully complete this requirement.

### **Data Analytics Field/Spoke**

The goal of this program is to give students who are already trained in mathematical or computational sciences (including Mathematics, Applied Mathematics, Statistics, Computer Science, and related quantitative disciplines such as Engineering, Physics, and Economics) the essential business and communication skills and expertise in data analytics that extends their undergraduate training and gives them an edge in a very competitive marketplace. Graduates of this field will be well prepared to take on upper administrative, management, and supervisory roles in a number of industries, and will be equipped with data analytics expertise to effectively turn raw data into valuable and actionable information.

# **Learning Outcomes**

- Ability to analyze and interpret data from a wide variety of sources, and to competently apply it to support decisions and make predictions.
- Ability to assess and constructively critique data analyses reported in literature and the media, identifying both the accuracies and shortcomings of these analyses.
- Ability to independently carry out applied research and to solve practical problems in the field of data analytics.
- Ability to plan a project, to establish feasibility, and to schedule and manage the steps needed to bring it to successful completion.
- Ability to communicate, verbally and in writing, in a professional manner, including the effective use of data in supporting and refuting positions and arguments.

# Admission Requirements

The School of Graduate and Postdoctoral Studies requires at least a 70% average across courses taken in the last two full-time years of the undergraduate degree. Equivalent qualifications may be considered based on the standards of the discipline or profession.

Applicants require a four-year Honour's degree (or equivalent) in the mathematical and computational sciences (including but not limited to Mathematics, Applied Mathematics, Statistics, Computer Science, and related quantitative disciplines such as Engineering, Physics, and Economics) from an accredited university, college or institute.

# English Language Proficiency

Applicants whose first language is not English must provide evidence of their proficiency in the use of the English language by a satisfactory achievement within the last two years in one of the following:

- The Test of English as a Foreign Language (TOEFL). The minimum acceptable score is 86, with
  no individual score below 20 for the internet based version, or 550 for the paper and pencil
  version, although some programs require a higher minimum score. [Western's TOEFL ID is
  0984].
- The International English Language Testing Service (IELTS) of the British Council. The minimum acceptable score is 6 out of 9. The IELTS is offered in 6 test centres in the US and 3 in Canada.
- The Michigan English Language Assessment Battery (MELAB) of the University of Michigan.
   Students must have at least 80 on each of the sections and an overall score of at least 85.
   Arrangements to write MELAB may be made online.
- The Canadian Academic English Language Assessment (CAEL Assessment). The minimum acceptable score is 60. The CAEL Assessment is offered in several countries throughout the world as well as Canada.
- Western English Language Centre. The requirement is successful completion of the High-Advanced level. Click here for information regarding a conditional offer of admission, pending completion of Western English Language Centre's program.
- CultureWorks. The requirement is successful completion of the High-Advanced level. Click here for information regarding a conditional offer of admission, pending CultureWorks completion.

• Fanshawe College's ESL Program. The requirement is graduation from Level 5, Advanced Academic Preparation, with a minimum 80% in all components.

An interview might be conducted (e.g. via telephone or video calling) to assess the applicant's proficiency in the use of the English language.

# **Degree Requirements**

The program is a three-term (one year) program. Degree requirements:

- Seminar Series in Leadership compulsory attendance
- Career Development Series compulsory attendance
- 6 from the choice of core courses defined in the Quality Council approved Hub of the MMASc Program
- 4 courses chosen from the Data Analytics Spoke (see Spoke Courses, below, for additional details):
  - Regression
  - Computational Tools for Data Analysis
  - Advanced Data Analysis
  - Data Mining and its Applications

In cases where undergraduate education provides suitable preparation in Regression or Computational Tools for Data Analysis, these courses may be each substituted with Spoke Course Credits chosen from among the remaining spoke courses.

- Milestone- MMASc Work Term
  - Students are required to pursue a posting in the Co-op Work Term. If extenuating
    circumstances preclude a student from securing a position, an alternate means to fulfil
    the course credit through a Major Research Project will be considered. The request to
    pursue the alternate course must be submitted in writing to the Graduate Chair explaining
    the extenuating circumstances. Students who pursue Major Research Projects are
    responsible for formulating the project and finding a faculty member who is willing to
    supervise them over the summer term.
  - Capstone: At the end of the summer term students will participate in a 'capstone' event, which brings them together as a multi- and interdisciplinary community to share their experiences by making presentations on their Co-op Work Terms or MRPs

#### **Progression requirements**

Progress through the MMASc requires the maintenance of a minimum cumulative average of 70%, with no course mark below 60%.

### Graduate Courses to be Offered Data Analytics in the Field (Spoke)

#### **Core Courses**

In order to ensure the MMASc program provides our students with the skills necessary for the workplace, we will monitor our course offerings over time to ensure that students have the opportunity to keep abreast of advances in the field. When changes or additions are made to our course offerings, we will ensure that the learning outcomes and program objectives are met and will follow proper process as required by Western's IQAP process.

Students with strong backgrounds may obtain advanced standing for one or more of the Spoke courses, in which case optional courses can be selected. For existing courses, the most recent instructor is listed while for new courses, the instructor is simply listed as To Be Announced (TBA).

	Graduate Courses Offered by the Data Analytics Spoke			
Course #	Title	Instructor / Coordinator	Description	
CS 9XXX	Computational Tools for Data Analytics (Required)	ТВА	An examination of the computational tools required for data analytics. Topics include fundamental programming concepts, software packages for mathematical analyses and data analysis (including a variety of commercial and open source alternatives), and an introduction to data access and management.	
CS 9555	Data Mining and its Applications (Required)	Charles Ling	How to discover implicit and useful knowledge from large datasets. Data mining techniques, algorithms, applications, and tools. Modern approaches such as decision tree learning, Bayesian learning, clustering, and association learning.	
CS 9XXX	Data Management and Database Systems (Optional)	ТВА	A study of modern database systems and their applications to and use in data analytics. Topics include database design, querying, administration, security, privacy, and data standards.	
CS 9XXX	Data Visualization (Optional)	Kamran Sedig	This course addresses three main issues: how information can and should be represented; how computers can allow us to interact with information; and how interactive information supports knowledge-driven activities. Case studies explore a variety of disciplines using various tools.	
SS 9859	Regression (Required)	lan McLeod	Multiple linear regression, Gauss-Markov theorem, Cochran's theorem, Craig's theorem, stepwise regression, polynomial regression, use of indicator variables, and regression diagnostics	
SS 9850	Advanced Data Analysis (Required)	lan McLeod	Modern methods of data analysis including linear and generalized linear models, modern nonparametric regression, principal component analysis, multilevel modelling and bootstrapping.	
SS 9055	Generalized Linear Models (Optional)	David Bellhouse	Estimation and tests for generalized linear models, including residual analysis and the use of statistical packages (R). Logistic regression, log-linear models. Additional topics may include generalized estimating equations, quasilikelihood and generalized additive models.	

# Computer Science Field/Spoke

The goal of this program is to give students who are already trained in Computer Science the essential business and communication skills and expertise in a Computer Science field of their choice that extends their undergraduate training and will give them an edge in the very competitive technological market. Graduates of this field shall be well prepared to take on upper administrative, management, and supervisory roles in the information and technology industry.

### **Learning Outcomes**

- Ability to analyze and interpret scientific data and literature in Computer Science, and to competently apply it to support decisions and make predictions.
- Ability to independently carry out Computer Science applied research and to solve practical problems.
- Ability to plan a project, to establish feasibility, and to schedule and manage the steps needed to bring it to successful completion.
- Ability to communicate, verbally and in writing, in a professional manner.
- Demonstrate depth of knowledge beyond undergraduate level in a selected field of Computer Science.

# Admission Requirements

The School of Graduate and Postdoctoral Studies requires at least a 70% average across courses taken in the last two full-time years of the undergraduate degree. Equivalent qualifications may be considered based on the standards of the discipline or profession.

Applicants require a four-year degree (or equivalent) in Computer Science from an accredited university, college or institute.

# English Language Proficiency

Applicants whose first language is not English must provide evidence of their proficiency in the use of the English language by a satisfactory achievement within the last two years in one of the following:

- The Test of English as a Foreign Language (TOEFL). The minimum acceptable score is 92, with no individual score below 20 for the internet based version, or 580 for the paper and pencil version. [Western's TOEFL ID is 0984].
- The International English Language Testing Service (IELTS) of the British Council. The minimum acceptable score is 6.5 out of 9. The IELTS is offered in 6 test centres in the US and 3 in Canada.
- The Michigan English Language Assessment Battery (MELAB) of the University of Michigan. Students must have at least 80 on each of the sections and an overall score of at least 85.
   Arrangements to write MELAB may be made online.
- The Canadian Academic English Language Assessment (CAEL Assessment). The minimum acceptable score is 60. The CAEL Assessment is offered in several countries throughout the world as well as Canada.
- Western English Language Centre. The requirement is successful completion of the High-Advanced level.
- CultureWorks. The requirement is successful completion of the High-Advanced level.
- Fanshawe College's ESL Program. The requirement is graduation from Level 5, Advanced Academic Preparation, with a minimum 80% in all components.

An interview might be conducted (e.g. via telephone or video calling) to assess the applicant's proficiency in the use of the English language.

# Degree Requirements

The program is a three-term (one year) program. Degree requirements:

- Seminar Series in Leadership compulsory attendance
- Career Development Series compulsory attendance
- 6 courses from the choice of Core Courses defined in the Quality Council approved Hub of the main MMASc program
- 3 courses chosen from the Computer Science Spoke. At least one course must be from Group II. Courses in Group II are included in the table below.
  - At most 2 courses can be cross-listed with a senior undergraduate course.
- One course chosen from either the Computer Science Spoke or from the Core Courses, different from the courses selected Milestone- MMASc Work Term
  - Students are required to pursue a posting in the Co-op Work Term. If extenuating
    circumstances preclude a student from securing a position, an alternate means to fulfil
    the course credit through a Major Research Project will be considered. The request to
    pursue the alternate course must be submitted in writing to the Graduate Chair explaining
    the extenuating circumstances. Students who pursue Major Research Projects are
    responsible for formulating the project and finding a faculty member who is willing to
    employ them over the summer term.
  - Capstone: At the end of the summer term students will participate in a 'capstone' event, which brings them together as a multi- and interdisciplinary community to share their experiences by making presentations on their Co-op Work Terms or MRPs

### Progression requirements

Progress through the Computer Science Spoke requires the maintenance of a minimum cumulative average of 70%, with no course mark below 60%.

### Graduate Courses to be Offered in the Computer Science Field (Spoke)

In order to ensure the MMASc program provides our students with the skills necessary for the workplace, we will monitor our course offerings over time to ensure that students have the opportunity to keep abreast of new technologies and developments in the field. When changes or additions are made to our course offerings, we will ensure that the learning outcomes and program objectives are met and will follow proper process as required by Western's IQAP process.

Graduate courses are divided into two groups. Students need to take at least one course from group II. Not all graduate courses are offered every year. Over the last three years there have been, on average, 11 graduate Computer Science courses offered each term, so that there will be a reasonable selection for the MMASc students.

Graduate Courses Offered by the Computer Science Spoke			
Course #	Title	Instructor / Coordinator	Description
Group I			
CS 9511	Game Engine Development	Mark Daley	Integration of sophisticated concepts and software technologies from computer graphics, artificial intelligence, networking, and other disciplines into a highly usable, highly interactive package with serious real-time

			performance constraints. The development of a game engine, providing core functionality to support one or more games. The development of game logic that runs on top of this engine, providing the specifics of a particular game.  Process intended to yield a compact
CS 9532	Image Compression	Mahmoud El-Sakka	representation of an image, hence, reducing the image storage/transmission requirements. Understanding of the fundamentals and the principles of various digital image compression schemes.
CS 9534	Cryptography and Security	Lucian Ilie	Principles and practice of cryptography and network security. Classical systems, symmetric block ciphers (DES, AES, other contemporary symmetric ciphers), linear and differential cryptanalysis, perfect secrecy, public-key cryptography (RSA, discrete logarithms), algorithms for factoring and discrete logarithms, cryptographic protocols, hash functions, authentication, key management, key exchange, signature schemes, security.
CS 9535	Distributed and Parallel Systems	Marc Moreno	Fundamental aspects of building distributed systems and developing distributed applications. Client-server application design using sockets and remote procedure calls. Developing reliable applications through the use of replication, group membership protocols, clock synchronization and logical timestamps.
CS 9541	Game Design	Michael Katchabaw	Principles of game design, game play, and balance. Game genres and genre-specific design issues; plot, story, and level design. Technical foundations from computing: graphics, artificial intelligence, networking, software engineering, physics, anatomy, language studies. Ethical issues in video games and the gaming industry and the future of gaming.
CS 9542	Artificial Intelligence II	Olga Veksler	Models, techniques and architectures for knowledge based systems. Reasoning activity, tentative, approximate and uncertain reasoning, and with fuzzy set. Time in reasoning, hypothetical, qualitative, classification based and analogy based reasoning. Multi-agent based reasoning and the blackboard model.
CS 9544	Analysis of Algorithms II	Roberto Solis- Oba	This course focuses on advanced techniques for the design and analysis of algorithms.  Among the topics covered are: approximation algorithms, randomized algorithms, on-line algorithms, zero-knowledge proofs, parallel algorithms, computational geometry, and distributed algorithms.

CS 9546	Computer Networks II	Michael Bauer	In-depth examination of advanced concepts in computer networks and data communications. Mobile and wireless data communications, Multimedia networking, network security, network management, and data communications modeling and simulation.
CS 9549	Software Design and Architecture	Nazim Madhavji	High-level view of a system, processing elements, data elements, and connecting elements. Software architectures and different types of architectures. The role or architecture in software systems and in software development.
CS 9551	Requirement Analysis	Nazim Madhavji	Activities involved in discovering, analyzing, documenting and maintaining a set of requirements for a computer-based system. Study how to elicit, analyse and validate requirements. Types of requirements and methods for formulating software requirements. Requirements management, requirements modeling tools, requirements processes.
CS 9552	Human Computer Interaction	Kamran Sedig	The design, evaluation and implementation of interactive computing systems for human use. Study of major phenomena surrounding interactive computing systems. Acquire theoretical knowledge of and practical experience in the fundamental aspects of designing, implementing and evaluating interactive systems that are useful and usable.
CS 9555	Data Mining and its Applications	Charles Ling	How to discover implicit and useful knowledge from large datasets.  Data mining techniques, applications, and tools.  Modern approaches such as decision tree learning, Bayesian learning, clustering, and association learning.
CS 9587	Algorithms for Image Analysis	Yuri Boykov	This course has two components. On the one hand, it is an introduction to digital image analysis presenting selected fundamental problems in medical image analysis, computer vision, photo/video editing, and graphics. We cover such basic concepts as image segmentation, registration, object recognition/matching, tracking, texture, etc. On the other hand, this is an applied course on standard computer science algorithms where students develop practical understanding of dynamic programming, graph based algorithms, computational geometry methods, etc. The course emphasizes the design, analysis, and implementation of algorithms in the context of 2D/3D medical images, photo and video data.
CS 9630	Image Processing and Analysis	John Barron	Filtering in the spatial and frequency domains (lowpass, highpass and bandpass filters) Edge detection, region growing, morphorological operations, histogramming, and segmentation

			Fourier transform and sampling.
CS 9645	Introduction to Computer Vision Techniques	Steven Beauchemin	This course examines the foundational techniques in the field of computer vision. Vision is one of our senses that allow us to build a powerful internal representation of the world. In this sense, machines that interpret visual data have an extended capability to interact with the world and humans. Such interactions include visually guided autonomous navigation, industrial inspection, cooperative robotics, facial recognition, and automated spatial missions.
Group II			
CS 9610	Distributed Systems	Hanan Lutfiyya	Architectures, programming techniques and distributed algorithms for large scale distributed systems. Study state-of-the-art solutions for large scale distributed systems such as those developed by Google, Amazon, Microsoft, Yahoo, etc.
CS 9624	High Performance Computing	Marc Moreno	Design and analysis of algorithms and software programs capable of taking advantage of parallel computing resources. Multi-threaded parallelism, cache complexity, and code optimization for parallelism and locality Hardware acceleration technologies (GPGPU, FPGA), auto-tuning techniques and other concurrency platforms (TBB, OpenMP, MPI).
CS 9601	Biological Sequence Analysis	Lucian Ilie	Introduction to techniques used for analyzing biological sequences. Topics include: sequence alignment, dynamic programming, BLAST, spaced seeds, suffix trees, suffix arrays, Markov chains and hidden Markov models, profile HMMs for sequence families, multiple sequence alignment methods, building phylogenetic trees, etc.
CS 9668	Internet Algorithmics	Roberto Solis- Oba	Algorithms used for solving problems that arise from the design and use of wide-area networks, such as the Internet Distributed algorithms for network problems, searching for information on the Web and Web crawling, caching and prefetching, Service placement and clustering, peer-to-peer systems, load balancing.
CS 9837	Vision for Graphics	Yuri Boykov	Realistic image synthesis is a central goal of computer graphics. Movies like Jurassic Park or Star Wars demonstrate thrilling possibilities - graphical models that look and move so realistically that they integrate seamlessly with live action footage.  In this course we will survey many of the computer vision techniques that have applications to the field of computer graphics research and production. The topics covered

			include image warping, matte extraction, motion estimation, mosaics, camera calibration, match move, shape recovery, texture analysis, and reflectance modeling. No prior background in computer vision is assumed. The fundamental concepts and mathematics that underlie these approaches will be covered in addition to the algorithms themselves.
CS 9840	Learning & Computer Vision	Olga Veksler	Recent advances in imaging and computing technology make it possible to capture and process large amounts of visual data efficiently. This lead to increasing use of machine learning techniques for model learning in computer vision. A model learned from large visual datasets is less likely to be brittle than a model hand-crafted by a designer. In this course, we will explore recent successful computer vision methods based on machine learning. The course will be organized as a combination of lectures by the instructor and paper presentation by the students. Each student will have to do one or two paper presentations, as well as a final programming project.
CS 9842	Advanced Topics in Distributed Systems	Hanan Lutfiyya	Architectures and programming techniques for large scale distributed systems State-of-the-art algorithms for large scale distributed systems such as those developed by Google, Amazon, Microsoft, and Yahoo.
CS 9860	Advanced Machine Learning	Charles Ling	Learning paradigms, methodologies and theories will be covered. Inductive learning from examples.
CS 9863	Empirical Research Methods	Nazim Madhavji	How to conduct empirical research in the field of Software Engineering Research methods in Computer and Information Technology.
CS 9556	Foundations of Computer Algebra	Eric Schost	Symbolic computations manipulate numbers by using their mathematical definitions rather than using floating point approximations. Consequently, their results are exact, complete and can be made canonical. However, intermediate expressions may be much bigger than the input and output. One of the main successes of the Computer Algebra community in the last 30 years is the discovery of algorithms, called modular methods that allow to keep the swell of the intermediate expressions under control. This will be the main topic of this course. In particular, we will discuss fast multiplication algorithms (FFT, Karatsuba, Strassen), Chinese remaindering algorithm, Newton's iteration and Hensel lifting, fast Linear Algebra and the LLL algorithm, polynomial gcds and resultants and factorization of Univariate Polynomials

CS 9832	Topics in Bioinformatics	Kaizhong Zhang	Bioinformatics studies biological problems using biological, computational, and mathematical methods. Computational biology studies computational techniques that can solve biological problems efficiently. This course covers some selected topics from Bioinformatics research: Tree comparison algorithms, RNA structure alignment algorithms, multiple sequence alignment with affine gap penalty, hidden Markov models, RNA secondary structure prediction by minimum energy folding, protein peptide de novo sequencing, normalized similarity and distance
CS 9863	Empirical Research Methods	Nazim Madhavji	This is a course on "research methods" with particular focus on how to conduct empirical research in the field of Software Engineering (SE). We shall also touch base on research methods in Computer Science (CS) and Information Technology (IT). While creativity is central to advancing scientific knowledge, conducting research requires the use of rigorous qualitative and quantitative methods.
CS 9857	Advanced Topics in Image Compression	Mahmoud El- Sakka	The course addresses recent research in image compression. This is a seminar/research course. Topics include: Context-based image compression, including context-based, adaptive, lossless image ooder, low complexity lossless compression for Images, and two-dimensional dictionary-based encoding; statistical data compression, including arithmetic encoding, context mixing, PPM (Prediction by Partial Matching), DMC (Dynamic Markov Compression), BWT (Burrows-Wheeler Transform), PAQ, and CSD (Classifying Sub-Dictionaries)
CS 9883	Topics in Digital Ink & Handwriting Recognition	Stephen Watt	Handwritten input is increasingly important in modern computing. Tablet PCs, electronic white boards and many telephones today accept hand written input. Document analysis systems strive to handle handwritten annotations or entire documents using multiple languages and scripts. Finally, large-scale business applications, such as mail sorting and cheque cashing, rely critically on computer-based handwriting recognition. This course examines concepts in digital ink and aspects of computer-based handwriting recognition. The course involves lectures, review and discussion of articles from the research literature, and a programming project.
CS 9888	Topics in programming languages and their implementation	Stephen Watt	This course examines concepts in modern computer programming languages and various strategies for implementing them. The course involves lectures, study of a topic from the literature, and a programming project. The subjects presented in class will be selected

from: memory management, functional programming and closures, lazy evaluation and parallel futures, polymorphic programming, types as first class values, type categories, dependent types, method dispatch and optimization in OO languages, iterators,
generators, co-routines and their optimization, topics in code optimization.

#### **ARTICULATION AGREEMENT**

#### THIS AGREEMENT made BETWEEN:

#### KING'S UNIVERSITY COLLEGE

(hereinafter called "King's")

and

#### THE UNIVERSITY OF WESTERN ONTARIO

(hereinafter called "Western")

and

#### **FANSHAWE COLLEGE**

(hereinafter called the "Fanshawe")

WHEREAS Western, King's, and Fanshawe wish to increase student mobility between Fanshawe College and King's University College, and the parties recognize that credit transfer is a key means to encourage such mobility;

AND WHEREAS the parties wish to facilitate the admission of qualified graduates of the Business-Accounting Diploma Program at Fanshawe into Year 3 of the Management and Organizational Studies (Specialization in Accounting or Specialization in Finance and Administration) at King's, by entering into an articulation agreement recognized by the Ontario Council for Articulation and Transfer (ONCAT), and Western agrees to grant transfer credit to successful applicants under the terms of this Agreement;

AND WHEREAS the parties wish to set out clearly defined processes for the movement of the graduates between Fanshawe and King's;

NOW THEREFORE in consideration of the mutual covenants herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follow:

# **ADMISSION**

- 1. King's agrees to consider for admission to full-time study to Year 3 of the Management & Organizational Studies (Specialization in Accounting or Specialization in Finance and Administration) graduates of the Business-Accounting Diploma Program who meet the following requirements:
  - a. completion of the two-year Business-Accounting Diploma program with a minimum overall average of "B+" or 3.5 GPA calculated on all courses within the diploma program only, and with no grade less than "C" or 2.0 GPA;
  - b. completion within the two years immediately prior to applying to the BMOS Program of a prescribed set of courses within the Business-Accounting Diploma program (see list in section 5 below);
  - c. completion of Fanshawe Mathematics 0013 and 0014, MCV4U, MATH 3079 (Calculus & Vectors); or Western Mathematics 0110A/B (Introductory Calculus); or equivalent;

- d. written endorsement of the Chair of the Lawrence Kinlin School of Business at Fanshawe.
- 2. To be considered for admission under this Agreement, Fanshawe students must notify the Registrar's Office at King's by March 1<sup>st</sup> of the year in which they are seeking admission of their intention to apply, and provide the King's Admissions Office with their academic transcripts by June 1<sup>st</sup>.
- **3.** King's may accept up to 30 Business-Accounting Diploma graduates annually under this Agreement.
- **4.** Admissions decisions are within the sole discretion of King's and are not appealable. Applicants who meet the requirements set out above are not guaranteed admission under this Agreement. The decision as to the number of students who will be accepted in any academic year may vary from year to year. Final determination of the validity of all admissions rests with the Registrar at Western in accordance with the provisions of the affiliation agreement between Western and King's.

#### **BLOCK TRANSFER CREDIT**

5. Block transfer credit shall be awarded to successful applicants for the following courses equivalent to the first two years of full-time study (10.0 courses in the Accounting Specialization or the Finance and Administration modules of the MOS Program, not advanced standing. This credit is not transferrable to other Faculties or Programs. The required Fanshawe courses for block credit consideration are listed below:

Course Number	Course Name	Credit Hours
ACCT 1004	Principles of Accounting I	4.0
ACCT 1097	Applied Computer Applications for Accounting 1	3.0
ACCT 1011	Principles of Accounting II	5.0
ACCT 3022	Cost Accounting I	3.0
ACCT 3036	Accounting I, Intermediate	5.0
ACCT 3037	Accounting II Intermediate	6.0
BUSI 1005	Introduction to Business Processes	3.0
BUSI 1060	Strategies for Success	1.0
COMM 3020	Professional Communication	3.0
ACCT 1098	Applied Computer Applications for Accounting 2	3.0
ECON 1002	Economics I	3.0
ECON 1005	Economics II	3.0
FINA 3007	Taxation I	6.0
FINA 3020	Taxation II	4.0
LAWS 3041	Business Law	3.0
MATH 1045	Statistics	3.0
MATH 1052	Business Math	3.0
MATH 1175	Financial Mathematics	3.0
MGMT 3041	Organizational Behaviour	3.0
MKTG 1012	Principles of Marketing I	3.0
SYST 3002	Business Information Systems	3.0
WRIT 1032	Reason & Writing – Business 1	3.0
(or WRIT 1034 or		
WRIT 1030		

- **6.** The course names and numbers set out in section 5 may be revised from time to time with the agreement in writing of the parties. Failure to provide timely notification to Western and King's of changes to the Fanshawe course names or numbers may result in denial of admission and transfer credit to qualified applicants.
- 7. The parties acknowledge that the granting of block transfer credit is based on an assessment of the Business-Accounting two-year diploma program curriculum and courses as of the date of this Agreement. It is the responsibility of the College to notify Western and King's of any subsequent changes or anticipated changes to the curriculum or content of the courses and provide sufficient information to enable Western to decide whether block transfer credit will continue to be granted for these courses.

#### **GENERAL**

- **8.** Students accepted under this Agreement must complete the courses set out in **Appendix 1** and maintain a cumulative and graduating average of at least 65% to graduate. These progression and degree requirements are subject to change during the term of this Agreement and King's will give Fanshawe written notice of any changes.
- **9.** Students who subsequently fail to meet progression or degree requirements for the King's Management & Organizational Studies (Specialization in Accounting or Specialization in Finance and Administration) Program but who do meet requirements for another program at King's or Western, may be permitted to transfer to another program at the discretion of the relevant Faculty. Students who transfer to another program or campus will have the block transfer credit removed from their academic record and credit for College courses will be assessed on a course-by-course basis.
- **10.** Fanshawe and King's agree to provide Fanshawe students with information about the block transfer credit and encourage qualified students to apply.
- 11. The parties shall each designate a Program representative to assist with the operation of this Agreement. The Program representatives and other relevant staff at each institution shall meet at least once every two years to review their processes and determine if changes are needed to meet the objectives of the parties.

#### **TERM**

- **12.(a)** This Agreement is effective April 1, 2015 and shall continue in force unless terminated by a party as set out herein.
- (b) Any party may terminate this Agreement upon three months' written notice of termination to the other parties. No applicants will be considered for admission after the date of such notice.
- (c) Notwithstanding paragraph (b), if Western or King's decides to terminate this Agreement due to changes to Fanshawe's curriculum or course content, this Agreement shall terminate on a date that is the earlier of three months after written notice of termination is given to Fanshawe and the date that the changes were made by Fanshawe.

\*I have authority to bind the institution.

(d) Students accepted into the University Program under this Agreement prior to issuance of a notice of termination shall be permitted to complete their studies under the terms of this Agreement.

IN WITNESS WHEREOF the parties have executed this Agreement under the hands of their duly authorized officers.

FANSHAWE COLLEGE	
David Belford Dean, Faculty of Business	Date
*I have authority to bind the institution.	
Peter Devlin President, Fanshawe College	Date
*I have authority to bind the institution.	
KING'S UNIVERSITY COLLEGE	
*	
Dr. David Sylvester Principal, King's University College	Date
*I have authority to bind the institution.	
THE UNIVERSITY OF WESTERN O	ONTARIO
*	
Dr. John Doerksen Vice-Provost (Academic Programs), Western University	Date

# **APPENDIX 1**

Articulation Agreement between King's University College, The University of Western Ontario, and Fanshawe College, Business-Accounting Diploma Program

# Course Requirements for Degree Completion King's Management & Organizational Studies (MOS) Program

# **Specialization in Accounting**

To graduate from the MOS Program at King's students admitted under this articulation agreement must successfully complete the 10.0 courses listed below. King's will provide Fanshawe with written notice of any changes to these course requirements. A final average of 65% must be achieved to graduate from the MOS program.

0 !!!	10/	I Martana Octobra Nama		
Credit	Western	Western Course Name		
Weight	Course			
	Number			
Year 3 Rec	quirements			
0.5	MOS 3310	Finance for Management & Organizational Studies		
0.5	MOS 3320	Marketing for Management & Organizational Studies		
0.5	MOS 3330	Operations Management		
0.5	MOS 3360	Intermediate Accounting I		
0.5	MOS 3361	Intermediate Accounting II		
0.5	MOS 3370	Management Accounting: Cost		
0.5	MOS 3371	Management Accounting for Decision Making		
0.5	MOS 2275	Business Law I		
0.5	MOS 2285	Global Business Environment		
0.5		Breadth Requirement: Category "B" Arts & Humanities course		
	_			
	uirements			
0.5	MOS 4410	Strategic Management for Management & Organizational Studies		
0.5	MOS 4465	Advanced Accounting		
1.0 or	MOS 3362	Intro to Tax in Canada		
equivalent	MOS 3390-	Special Topics		
from:	3392			
	MOS 3000			
	level or above			
1.0 or	MOS 3401	Corporate Social Responsibility		
equivalent	PHIL 2700	Introduction to Ethics and Value Theory		
from:	PHIL 2074	Business Ethics		
	PHIL 2075	Business Ethics in a Global Context		
1.0 or	MOS 3363	Intro to Auditing		
equivalent	MOS 4462	Advanced Issues in CA Taxation		
from:	MOS 4463	Advanced Audit		
	MOS 4464	Info Systems Audit		
	MOS 4466	Accounting Theory		
1.0		Designated Essay Course numbered 2000 or higher		

# Course Requirements for Degree Completion King's Management & Organizational Studies (MOS) Program

# **Specialization in Finance and Administration**

To graduate from the MOS Program at King's students admitted under this articulation agreement must successfully complete the 10.0 courses listed below. King's will provide Fanshawe with written notice of any changes to these course requirements. A cumulative final average of 65% must be achieved to graduate from the MOS program.

Year 3	Credit	Course	Western Course Name	
Requirements	Weight	Number		
	0.5	MOS 3310	Finance for Management & Organizational Studies	
	0.5	MOS 3320	Marketing for Management & Organizational	
			Studies	
	0.5	MOS 3360	Intermediate Accounting I	
	0.5	MOS 3361	Intermediate Accounting II	
	0.5	MOS 3370	Management Accounting: Cost	
	0.5	MOS 3371	Management Accounting for Decision Making	
	0.5	ECON 2150	Intermediate Microeconomic Theory I	
	0.5	ECON 2152	Intermediate Macroeconomic Theory and Policy I	
	0.5	MOS 2285	Global Business Environment	
	0.5	XXXX	Breadth Requirement: Category "B" Arts &	
			Humanities course	
Year 4	0.5	MOS 3330	Operations Management for Management &	
Requirements			Organizational Studies	
•	0.5	MOS 4410	Strategic Management for Management &	
			Organizational Studies	
	0.5	MOS 4465	Advanced Accounting	
	0.5	MOS 4466	Accounting Theory	
	1.0 or	MOS 3401	Corporate Social Responsibility	
	two 0.5	PHIL 2700	Introduction to Ethics and Value Theory	
from: PHIL 2074		PHIL 2074	Business Ethics	
			Business Ethics in a Global Context	
	1.0 or	AS 2053	Mathematics for Financial Analysis	
	two 0.5	ECON 2154	Money	
	from:	ECON 2156	Labor Economics Bargaining	
		ECON 2159	Public Finance Expenditure	
		ECON 2160	Public Finance Revenue	
		ECON 2184	Cost-Benefit Analysis	
	1.0	XXXX	Designated Essay Course numbered 2000 or	
			higher	

#### **Policy Revision: Academic Sanctions**

# **REVISED CALENDAR COPY**

http://www.uwo.ca/univsec/pdf/academic\_policies/appeals/academic\_sanctions.pdf http://www.westerncalendar.uwo.ca/2015/pg115.html http://www.westerncalendar.uwo.ca/2015/pg152.html (This policy is to be removed)

#### **ACADEMIC SANCTIONS**

Registration in the University and the right to effree access to the library, residences, specialized equipment and other University facilities implies a commitment on the part of the student to use such facilities in accordance with established rules. A student not fulfilling these obligations becomes liable to the imposition of academic sanctions.

In instances of misuse of University facilities and non-payment of prescribed tuition and other fees or fines and/or bills or of delinquency in the return or replacement of University property on loan, the University shall seal the academic record. When an academic record is sealed, the student will not be able to:

#### In addition, the University may:

- a) not issue an official Grade Report View grades
- b) not issue an official transcript or degree diploma Register in future courses
- c) not permit admission or readmission Receive transcripts or a degree diploma
- d) not permit registration Obtain admission or readmission

The above prohibitions shall be in force until such time as indebtedness to the University, including payment of fee for removal of the seal, has been cleared to the satisfaction of the University.

#### Policy Revision: Breadth Requirements for Bachelor Degrees

#### REVISED CALENDAR COPY

http://www.uwo.ca/univsec/pdf/academic policies/registration progression.pdf

### REGISTRATION IN UNIVERSITY COURSES

Permission to register in any university course will be granted only upon prior fulfillment of the requirements for university admission.

#### STRUCTURE OF THE DEGREE

### **Breadth Requirements for Bachelor Degrees**

Students are required to meet the breadth requirements for bachelor degrees in order to widen their knowledge and understanding across a broader range of disciplines. Exposure to different disciplines enables students to develop insight and experience in areas distinct from their main fields of study.

### First-Year Program

Students registering in general first-year programs must choose courses that fulfill the basic requirement of 5.0 courses numbered 1000-1999. The 5.0 courses must include at least four different subjects with no more than 2.0 courses in one subject. Additionally, students are subject to the Breadth Requirements outlined below. Students are encouraged to take an essay course in first year.

Except with Special Permission, a student must not register for a full program of senior courses (numbered 2000 to 4999) until the 5.0 courses of first year have been completed satisfactorily.

Students are responsible for choosing courses that fulfill the prerequisites for senior courses (numbered 2000 - 4999). Specific prerequisites are included in the individual course descriptions listed in the UNDERGRADUATE COURSE INFORMATION. If in doubt, students should seek appropriate counselling and consult directly with the department(s) concerned. Prospective first-year students should seek help in choosing courses during the Summer Academic Orientation. Part-time students who have completed 1.0 first-year course are eligible to register in senior courses (numbered 2000 - 4999) for which they have completed the prerequisite(s). Part-time students who have a substantial background and interest in a particular subject area are eligible, on written recommendation of the Dean of their Faculty, to register in a senior course pertinent to that subject prior to the completion of a first-year course. All part-time students must complete successfully the 5.0 first-year courses within their first 10.0 courses attempted.

#### **Breadth Requirements for First Year**

First-year students must include 1.0 course from **each of two of the three categories** (A, B, and C) shown below.

#### **Breadth Requirements for Graduation**

At least 1.0 course must be chosen from **each of the three categories** (A, B, and C) shown below. Any outstanding breadth requirement not completed in first year must be completed prior to graduation. Note: Not all subjects listed below offer first-year courses.

The rest of the policy is unchanged

# Final Assessment Report Submitted by SUPR-G to SCAPA

Program:	Chemical and Biochemical Engineeri	ng	
Degrees Offered:	M.E.Sc., M.Eng, Ph.D.		
Approved Fields:	Biomaterials and Biochemical Engineering		
	Environmental and Green Engineering		
	Particle Technologies and Fluidization		
	Reaction and Process Systems Engineering		
	NEW- Macromolecular and Materials Engineering		
	NEW- Water and Energy		
External	Phillip Choi	James McLellan	
Consultants:	University of Alberta	Queen's University	
Internal Reviewers:	Pam McKenzie	James Kryklywy	
	FIMS	Neuroscience	
Date of Site Visit:	June 16-17 2014		
Evaluation:	Conditional with report in January 20	016	

### **Executive Summary**

On June 16th and 17th, 2014, the review team interviewed a large group of graduate students (~ 30 of them) on the main campus and at ICFAR, the Dean and Associate Dean of the Faculty of Engineering, the Chair, Graduate Chair and the Director of the MEng Program, both junior and senior faculty members and the administrative and laboratory support staff. We also visited many laboratories including those at ICFAR. We were impressed that laboratories are well equipped for carrying out research projects in the theme areas defined by the Department. We collected a great deal of valuable information about the Department.

# **Significant Strengths of Program:**

The program is of high quality overall.

- Research activity is significant with very good productivity and a broad range of themes; the department maintains a key position in a few key areas
- The program is a healthy size with a strong proportion of doctoral students
- Completion times are good
- The department is well equipped with specialized equipment and the ICFAR facility is excellent.
- There is strong leadership from the Chair and the Graduate Co-Ordinator and good support from the Graduate Assistant, technologists, and Western Libraries.
- The department has the human, physical, and financial resources to be one of the leading chemical engineering research programs in Canada.

# **Opportunities for improvement & Enhancement:**

The reviewers identified a number of concerns from the site visit and review of the supporting briefs.

- The department is a collection of individuals and largely independent research programs with limited communication, very strong individual identities, and an inability to come together to work cohesively toward common goals. This lack of cohesion detracts from the overall strength of the department. The department is approaching a retirement wave over the next 10 years and there seems to be no common vision for the future and no succession plan to ensure that the department maintains healthy programs of research and teaching and establishes and maintains common goals and vision.
- Individual labs are located in physically distributed research facilities and students identify more
  with their supervisor and lab than with the Department. This combination exacerbates the lack of
  departmental cohesiveness for faculty and students alike and poses challenges for remote
  students' participation in TAships and graduate courses.
- Competition among faculty members results in less than optimal use of lab space and access to equipment.
- The single Assistant Professor in the department is tasked with the role of Graduate Co-ordinator with no course release.
- During our tours, we observed a number of graduate students and research associates/postdocs not wearing the proper Personal protective equipment (PPE, e.g., safety glasses, goggles, lab

- coats). There was some concern about whether they were receiving sufficient safety training specific to their equipment, and whether Standard Operating Procedures (SOPs) were sufficient.
- There was considerable discussion and divergent opinions on the structure of the course work, particularly with respect to the concept of Core Courses.
- Some concern was expressed about ensuring the quality of graduate courses, and ensuring that they are revised to stay current with technical developments.
- During discussions with graduate student and faculty groups, the underutilization of the Supervisory Committee structure for doctoral student programs was a recurring theme.
- Major concern was expressed by both faculty and graduate students that the 78% rule for retaining a Western Engineering Scholarship is leading to grade inflation in graduate courses in the department and more broadly across the Faculty of Engineering.
- There appears to be a lack of awareness (and possibly agreement) as to the purpose of an M.Eng. program. M.Eng. students tend not to be as strong or as well-prepared as research students and are seeking broader, more applied treatment of material in the courses taken commonly.
- Students seemed to be unaware of opportunities for communications training.
- Concerns were raised about the scope, breadth, and attendance at the weekly seminar program.
- Faculty raised concerns, common among graduate chemical engineering programs across
  Canada, about the ability to recruit qualified Canadian graduate students. Conversely, common to
  other Ontario universities, international students exact a financial penalty on the department
  compared to domestic students.
- Graduate student stipends are low in comparison to other chemical engineering graduate programs in Canada.
- Concerns were expressed amongst the graduate student group that in some instances, TA
  expectations from instructors exceed the number of paid hours for the TA.

Recommendations for implementation:	Responsibility	Resources	Timeline
Hold regular meetings between Graduate Chair and Associate Dean to ensure co-ordination of response across the Faculty	Graduate Chair, Associate Dean		Immediately
Institute a periodic review of graduate courses to: 1. ensure that course scheduling and progression supports the participation of all students, on-campus and off, M.Eng and M.E.Sc/ Ph.D.; 2. balance and communicate the demands of core Chemical Engineering knowledge with strongly interdisciplinary work; 3. ensure the effectiveness of programming on communications; communicate and encourage opportunities to students.	Graduate Chair, Graduate Assistants, Department Chair		Ongoing
Investigate strategies for recruiting more and stronger domestic students; Review student support stipend packages to ensure they are competitive with other programs; Review 78% scholarship policy.	Graduate Chair, Graduate Assistants, Department Chair, Faculty		Ongoing
Ensure effective and appropriate use of research equipment:  1. Develop space allocation and equipment plan and policies to ensure full and effective use of research space, equipment, and consumables.  2. Establish training, standard operating procedures, and enforcement policy for the use of personal protective equipment.	Department Chair, Dean		Immediately
Encourage building student cohesion and identity across the department as a whole.	Department		
Require at least one meeting annually between thesis students and their advisory committees to ensure progress	Graduate faculty, Graduate Chair, Graduate Assistants		Ongoing
Review the implementation of and adherence to the provisions of the GTA collective agreement with respect to mid-term review of the Duties Specification Agreement.	Department		

# **Final Assessment Report**Submitted by SUPR-G to SCAPA

Program:	Planetary Science Collaborative Graduate Program		
Degrees Offered:	MSc and Ph.D.		
Approved Fields:	MSc in Geology (Planetary Science) or Geophysics (Planetary Science) PhD in Geology (Planetary Science) or Geophysics (Planetary Science) MSc in Physics (Planetary Science) PhD in Physics (Planetary Science) MSc in Astronomy (Planetary Science) PhD in Astronomy (Planetary Science)		
External Consultants:	Michael Higgins Sciences Appliquées, Université du Québec à Chicoutimi	Martin Duncan Department of Physics, Engineering Physics and Astronomy, Queen's University	
Internal Reviewers:	P. Fraser Johnson Ivey Business School	Yann Benetreau-Dupin, Philosophy PhD Graduate Student	
Date of Site Visit:	June 2, 2014		
Evaluation:	Conditional with Report in September 2016		

#### **Executive Summary**

Planetary science incorporates and synthesizes the disciplines of Astronomy, Biology, Chemistry, Earth Sciences, Geography, Physics and many other related subject areas. The recognition of this discipline is relatively recent – planetary science in its modern form is less than 60 years old, and the field is rapidly evolving. Planetary science research focuses on understanding the formation and development of planets and planetary systems, with particular emphasis on our own solar system.

The objective of the collaborative graduate program is to provide significant value-added educational exposure to the broad area of planetary science to students at Western involved in thesis research covered under the rubric of planetary science. This is accomplished by ensuring the student is exposed to areas of planetary science research outside of their home department, thereby integrating them into the Western planetary science research community. This is specifically done through graduate student attendance and participation in a planetary science journal seminar series, a common introductory planetary science graduate short course and mandatory attendance at planetary science colloquia given by external visiting speakers. Additionally, a suite of more specialized planetary science graduate courses are available to provide interested students with a more formal background in the sub-disciplines most germane to their own research communities.

All of these components of the Planetary Science Collaborative Graduate Program bring graduate students in the program more deeply into the interdisciplinary community of planetary science researchers, fundamentally adding to their experience above and beyond what the home programs alone offer.

#### **Significant Strengths of Program:**

- Integrated into a leading center of Planetary research in Canada.
- Strong demand: The program ranks among the top five worldwide in terms of number of students. It attracts top caliber students, who hold major scholarships, including Trillium, NSERC, and Vanier Canada Graduate Scholarships.
- Interdisciplinary collaborative program that spans several Western departments.

### **Opportunities for improvement & Enhancement:**

Recommendations for implementation:	Responsibility	Resources	Timeline
Extension of program to engineering	PS graduate coordinator, CPSX director, Dean of Engineering	None	December 2015
Diversification of thesis supervisors	PS graduate coordinator	None	Ongoing

EXHIBIT II, Appendix 6 Page 4

Coordinate with host programs to	PS graduate coordinator,	consultation with	September
produce clearly articulated degree	Associate Dean (Grad Programs)	host programs	2015
requirements for students			
Harmonization of course weights	PS graduate coordinator,	consultation with	September
between different host programs	Associate Dean (Grad Programs)	host programs	2015
Define a plan for long-term stability	PS graduate coordinator,	budgetary	January
of the program	Associate Dean (Grad		2016
	Programs), Dean		
Academic Director	Dean of Science	None	September
			2015

#### **New Scholarships and Awards**

<u>Judy and Maurice Davidson Ontario Graduate Scholarship</u> (School of Graduate and Postdoctoral Studies, Geography)

Awarded annually to a graduate student conducting research in Geography at the Master's or Doctoral level who is a current holder of an Ontario Graduate Scholarship based on academic achievement and research merit. The School of Graduate and Postdoctoral Studies will select the recipient in consultation with the Department of Geography. This scholarship was established by a generous gift from Maurice and Judy Davidson.

Value: 1 at \$5,000

Effective Date: May 2014 to April 2019 inclusive

## Winnifred and Ross Harrison Bursary (Any Undergraduate Program)

Awarded to full-time undergraduate students entering Year 1, in any degree program, who have demonstrated financial need. Online financial assistance applications are available through the Office of the Registrar's website and must be submitted by October 31st. The recipient must be a Canadian Citizen. The Office of the Registrar will select the recipients. This bursary was established with a generous gift from Mrs. Winnifred Harrison, and her late husband Ross Harrison, who have always believed in the transformative power of education.

Value: 2 at \$5,000

Effective Date: 2015-2016 academic year only

## Rawal Family Entrance Scholarship (Faculty of Law)

Awarded annually to an undergraduate student entering Year 1 in the Faculty of Law, based on demonstrated financial need, leadership, extra-curricular activities and academic achievement. Online financial assistance applications are available through the Office of the Registrar and must be submitted by September 30th. The recipient will be selected by the Scholarship and Awards Committee in the Faculty of Law after the Office of the Registrar assesses for financial need. This scholarship was established by Mr. Prem Rawal (LLB '02).

Value: 1 at \$1,500

Effective: 2015-2016 to 2019-2020 academic years inclusive

#### James G. Wetmore Scholarship in Economics (Faculty of Social Science, Economics)

Awarded annually to a full-time undergraduate student in Year 3 or 4 of an Honors Specialization or double Major in an Honors degree in Economics, in the Faculty of Social Science, based on academic achievement (minimum 80% average). The recipient will be selected by the Scholarship/Awards Committee in the Faculty of Social Science each fall. This scholarship was established by a generous gift from Mr. James Wetmore (BA '06, Economics).

Value: 1 at \$1,500

Effective: 2015-2016 to 2019-2020 academic years inclusive

#### Mr. Donald H. Crawford Q.C. Scholarship in Law (Faculty of Law)

Awarded annually to a full-time undergraduate student in Year 2 or 3 in the Faculty of Law who achieves the highest mark in the Criminal Procedure course. The scholarship/awards committee in the Faculty of Law will select the recipient each May. This scholarship was established by a generous gift from Mr. Donald H. Crawford Q.C. (BA '65, LLB '68).

Value: 1 at \$1,500

Effective: 2014-2015 to 2018-2019 academic years inclusive

## <u>Brisson-Toal Master of Financial Economics Graduating Award</u> (School of Graduate and Postdoctoral Studies, Financial Economics)

Awarded annually to full-time graduate students entering their final term in the Master of Financial Economics (MFE) degree program, with demonstrated academic achievement. Preference will be given to students who demonstrate financial need. A one-page statement outlining how this award will assist them financially must be submitted to the MFE Program Office by June 15th. The recipients will be selected by a committee appointed by the Director of the MFE program, with at least one representative

holding membership in the School of Graduate and Postdoctoral Studies. The awards will be issued at the start of the fourth and final term. These awards were established by a generous gift from Mr. Paul Brisson and Ms. Anne H. Toal (BSc '78, Honors Mathematics).

Value: 2 at \$5,000

Effective: May 2015 to April 2018 inclusive

<u>Brisson-Toal Master of Financial Economics - Econometrics Award (School of Graduate and Postdoctoral Studies, Financial Economics)</u>

Awarded annually to a full-time graduate student in the Master of Financial Economics (MFE) program who has received the highest overall grade in ECON9505 Econometrics. The recipient will be selected by a committee appointed by the Director of the MFE program, with at least one representative holding membership in the School of Graduate and Postdoctoral Studies. This award was established by a generous gift from Mr. Paul Brisson and Ms. Anne H. Toal (BSc '78, Honors Mathematics).

Value: 1 at \$1,000

Effective: May 2015 to April 2018 inclusive

<u>Brisson-Toal Master of Financial Economics – Most Improved Award (</u>School of Graduate and Postdoctoral Studies, Financial Economics)

Awarded annually to a full-time graduate student in the Master of Financial Economics (MFE) program who has the most improved Grade Point Average at the end of Term 2. The recipient will be selected by a committee appointed by the Director of the MFE program, with at least one representative holding membership in the School of Graduate and Postdoctoral Studies. This award was established by a generous gift from Mr. Paul Brisson and Ms. Anne H. Toal (BSc '78, Honors Mathematics).

Value: 1 at \$1,000

Effective: May 2015 to April 2018 inclusive

<u>Brisson-Toal Master of Financial Economics – Quantitative Finance Award (School of Graduate and Postdoctoral Studies, Financial Economics)</u>

Awarded annually to a full-time graduate student in the Master of Financial Economics (MFE) program who has the highest overall grade in FM9522 Introduction to Financial Markets and Quantitative Finance with Excel. The recipient will be selected by a committee appointed by the Director of the MFE program, with at least one representative holding membership in the School of Graduate and Postdoctoral Studies. This award was established by a generous gift from Mr. Paul Brisson and Ms. Anne H. Toal (BSc '78, Honors Mathematics).

Value: 1 at \$1,000

Effective: May 2015 to April 2018 inclusive

<u>Brisson-Toal Master of Financial Economics – Securities Regulation Award</u> (School of Graduate and Postdoctoral Studies, Financial Economics)

Awarded annually to a full-time graduate student in the Master of Financial Economics (MFE) program who has the highest overall grade in LAW9560 Securities Regulation. The recipient will be selected by a committee appointed by the Director of the MFE program, with at least one representative holding membership in the School of Graduate and Postdoctoral Studies. This award was established by a generous gift from Mr. Paul Brisson and Ms. Anne H. Toal (BSc '78, Honors Mathematics).

Value: 1 at \$1,000

Effective: May 2015 to April 2018 inclusive

<u>Brisson-Toal Master of Financial Economics – Corporate Finance Award</u> (School of Graduate and Postdoctoral Studies, Financial Economics)

Awarded annually to a full-time graduate student in the Master of Financial Economics (MFE) program who has the highest overall grade in BUS9821 Corporate Finance. The recipient will be selected by a committee appointed by the Director of the MFE program, with at least one representative holding membership in the School of Graduate and Postdoctoral Studies. This award was established by a generous gift from Mr. Paul Brisson and Ms. Anne H. Toal (BSc '78, Honors Mathematics).

Value: 1 at \$1,000

Effective: May 2015 to April 2018 inclusive

## STEP Canada Award in Trusts (Faculty of Law)

Awarded annually to an undergraduate student in Year 2 or 3 in the Faculty of Law who has achieved the highest standing in Trusts. This award was established through the generosity of the Society of Trust and Estate Practitioners (Canada).

Value: 1 at \$1,000

Effective: 2014-2015 to 2018-2019 academic years inclusive

Dr. Elaine Bjorklund Global Opportunities Award in China (Any Undergraduate or Graduate Program) Awarded to a full-time undergraduate or graduate student who is participating in an international exchange or study abroad program in China. This includes exchange programs; approved study abroad programs; curriculum based international field courses, international study, or international community service; and other University led international credit or non-credit learning experiences. Students participating in this program who are registered at the constituent University may be considered. Students must have completed their prescribed academic program the previous year and currently be registered as a full-time student (minimum 3.5 full courses). Students may only receive a Global Opportunities award once during their academic career at Western. Online applications are available on the Global Opportunities website, Western International. Transcripts are required for students who studied elsewhere in their previous academic year. Applications are due on March 14th (for decisions in early May). Students will be selected based on a combination of academic achievement, as well as a statement outlining how this experience will contribute to their development as a global citizen, what they expect to learn through their program of study and how they will be an effective Ambassador for Western. This award was established by a generous gift from an anonymous donor.

Value: 1 at \$1,000

Effective: 2014-2015 academic year only

## Jeanne E. Gillies and Donald K.A. Gillies Bursary (Any Undergraduate Program)

Awarded annually to an undergraduate student entering first year in any program, who has demonstrated financial need. Online financial assistance applications are available through the Office of the Registrar's website and must be completed by October 31st. The Office of the Registrar will select the recipient. Preference will be given to a student who attended Fort Frances High School in Fort Frances, Ontario or London South Collegiate Institute in London, Ontario. If there are no eligible candidates from these two high schools, preference will be given to a student from the Rainy River District or the Thames Valley District School Board in Ontario. This bursary was established by Mrs. Jeanne E. Gillies (BA '47) and Mr. Donald K.A. Gillies (BA '47). This gift is supported by the Ontario Student Opportunity Trust Fund program and recipients must meet Ontario residency requirements.

Value: 1 at \$1,000

Effective: 2015-2016 academic year

Jeanne Eleanor (de Jausserand) Gillies and Donald K.A. Gillies both received their BA from Western in 1947. Donald went on to receive his Master of Arts degree from the University of Toronto in 1950. Both Jeanne and Donald believed in the transformational power of education and were grateful for the opportunities that Western gave them. Jeanne passed away in 2013 at age 89, and Donald passed away in 2000 at age 76.

Engineering Ontario Graduate Scholarship (School of Graduate and Postdoctoral Studies, Engineering) Awarded annually to a full-time graduate student in the Chemical & Biochemical Engineering program at the Master's or Doctoral level who is a current holder of an Ontario Graduate Scholarship (OGS) or a Queen Elizabeth II Graduate Scholarship in Science and Technology (QEIIGSST), based on academic achievement and research merit. The School of Graduate and Postdoctoral Studies will select the recipient, in cooperation with the Graduate Chair in the Department of Chemical & Biochemical Engineering. If, during any year, there is no OGS or QEIIGSST holder in Chemical & Biochemical Engineering, then the scholarship will be awarded to a non-OGS/QEIIGSST student in Chemical & Biochemical Engineering. This scholarship was made possible by a generous gift by an anonymous donor.

Value: 1 at \$5,000 Effective Date: May 2015

Lipson-Baines Award in Chemistry (School of Graduate and Postdoctoral Studies, Chemistry) Awarded annually to two full-time Master's or Doctoral students in Chemistry who have achieved the highest marks in the course Chemistry 9658 "Seminar" (minimum 85% average). The Department of Chemistry's scholarship committee will select the recipients each spring. At least one member of this committee will hold membership in the School of Graduate and Postdoctoral Studies. This award was established by Professor Robert H. Lipson in appreciation of one of the finest Chemistry departments in Canada where he spent twenty-five years as a faculty member and five years as Chair (2000-2005). Professor Lipson wishes to also recognize the contributions Professor Kim M. Baines has made as Chair (2005-2014), and their lasting friendship.

Value: 2 at \$1,000

Effective Date: May 2015 to April 2018 inclusive

#### Robert D. Preston Entrance Award in Law (Faculty of Law)

Awarded annually to a full-time undergraduate student entering first year in the Faculty of Law, who has demonstrated financial need and an interest or background in entrepreneurship. Online financial assistance applications can be accessed through the Office of the Registrar's website. Students must also include as part of their application, a statement of their interest in entrepreneurship to be submitted to the Dean's Office in the Faculty of Law. The Admissions Committee in the Faculty of Law will select the recipient once the Registrar's Office has determined financial need. This award was established by a generous gift from Ricketts, Harris LLP, Barristers & Solicitors, in memory of their partner, colleague and friend Robert (Bob) D. Preston (BA '65, LLB '69).

Value: 1 at \$2,000

Effective Date: 2015-2016 academic year

Bob was still enjoying his work as Managing Partner at Ricketts Harris LLP in Toronto when he passed away in 2013 at age 68. Bob was a renaissance man with wide ranging interests and skills as a lawyer, a skier, squash player, golfer, and world traveller.

#### Dorothy Monteith Ontario Graduate Scholarship in Nursing (Nursing)

Awarded annually to a full-time graduate student at the Masters or Doctoral level in Nursing, based on academic achievement and research merit. If there is an Ontario Graduate Scholarship (OGS) or a Queen Elizabeth II Graduate Scholarship in Science and Technology (QEIIGSST) recipient in any given year, the value of the award will be used to support Western's contribution to the OGS/QEIIGSST. The School of Graduate and Postdoctoral Studies, in cooperation with the Graduate program in Nursing, will select the recipient. If there is no OGS or QEIISST holder, then a non-OGS/QEIIGSST student will be selected. This scholarship was made possible by a generous estate gift from Dorothy Monteith (BScN '59).

Value: 1 at \$5,000\*

Effective Date: May 2014 to April 2023

\* Ontario Graduate Scholarships (OGS) and Queen Elizabeth II Graduate Scholarships in Science and Technology (QEIIGSST) ensure a 2:1 match through the Provincial Government, increasing the value of the scholarship to \$15,000 each.

Dorothy was born in 1919 in Weyburn, Saskatchewan. She completed her BScN at Western University and then her Masters in Nursing from Columbia University, New York. Her notable surgical nursing career included time in Guelph, Chicago and Sudbury. She continued her career in various leadership capacities with the Ontario Ministry of Health in Toronto. Dorothy passed away in 2011 at age 92.

## Distributed via e-mail on March 12, 2015

## REPORT OF THE SUBCOMMITTEE ON TEACHING AWARDS

#### **FOR INFORMATION**

## 1. Excellence in Teaching Award Winners for 2014 - 2015

The Subcommittee on Teaching Awards (SUTA) has chosen the following members of faculty as recipients of Western's Excellence in Teaching Awards:

## The Edward G. Pleva Award for Excellence in Teaching

Jennifer Irwin, Faculty of Health Sciences, School of Health Studies

Lars Konermann, Faculty of Science, Department of Chemistry

Kibret Mequanint, Faculty of Engineering, Chemical and Biochemical Engineering

Charles Trick, Faculty of Science, Department of Biology and Schulich School of Medicine & Dentistry

## The Marilyn Robinson Award for Excellence in Teaching

Elizabeth Greene, Faculty of Arts and Humanities, Classical Studies

## The Angela Armitt Award for Excellence in Teaching by Part-time Faculty

Warren Steele, Faculty of Information and Media Studies

## REPORT OF THE SENATE COMMITTEE ON UNIVERSITY PLANNING

(SCUP)

2015 Entrance Standards for Undergraduate First-Year Admissions

**Five-Year Enrolment Projections** 

**Report on Year One Class and Entering Averages** 

**Report on Faculty Recruitment and Retention** 

Report of the Working Group on Information Security (WGIS) – 2014 Annual Report

#### FOR APPROVAL

## 1. <u>2015 Entrance Standards for Undergraduate First-Year Admissions</u>

**Recommended:** That Senate approve the targets and processes for first-year, first-entry

undergraduate enrolment for the Constituent University and Affiliated University

Colleges as outlined in Appendix 1.

Background:

See Appendix 1.

## 2. Five-Year Enrolment Projections

**Recommended:** That the five-year enrolment projections/plans presented in **Appendix 2** be used

for University budget planning purposes.

Background:

See Appendix 2.

#### **FOR INFORMATION**

3. Report on Year One Class and Entering Averages

See Appendix 3.

4. Report on Faculty Recruitment and Retention

See Appendix 4.

5. Report of the Working Group on Information Security (WGIS) – 2014 Annual Report

See Appendix 5.

#### Western University

SCUP's Subcommittee on Enrolment Planning and Policy (SUEPP)

## Fall 2015 Entrance Standards for First-Year Undergraduate Admissions

## A. Background/Context

## **History**

Over the past twenty years, Western's enrolment planning has placed the highest priority in increasing the quality of our incoming first-year class – which has moved the overall average grade of our first-year class from a position of "below the Ontario average" in 1993 to the top spot in Ontario in 2014. Our approach to first-year admissions – approved by Senate in November 2010 – included the following high-level priorities:

- 1. Our objective should be to continue to increase the quality of our incoming class and we should continue to maintain and increase entrance standards.
- 2. The approach of using the common minimum entrance requirement for the large direct-entry programs should be continued. For limited-enrolment programs based on annual reviews by the Provost and the Deans the entrance requirements could be higher. The result of this approach is that student demand/choice drives program-specific enrolments.
- 3. We should work to increasing our first-year international enrolments.
- 4. We should continue to monitor the gap in entrance requirements between Western and the Ontario average with the objective of maintaining/increasing the gap.
- 5. We should continue to monitor the size of our overall first-year class in order to ensure that the undergraduate population does not reach a level that cannot be accommodated within our current physical infrastructure.

In 2010, in order to be aligned with the Constituent University's strategy on enrolment planning, the Affiliated University Colleges committed to narrowing the gap in entrance requirements between the Colleges and the Constituent University – by 2014-15.

#### Current Strategic Plan Priorities

Our current Strategic Plan – *Achieving Excellence on the World Stage* – includes the following enrolment-planning related objectives:

- a. Attract the brightest students as demonstrated through the highest entering grade average.
- b. Achieve the highest student retention and graduation rates among Canada's leading research-intensive universities.
- c. Increase international undergraduate enrolment to at least 15% and domestic out-of-province student enrolment to at least 10% of the undergraduate student body.
- d. Increase graduate student enrolment to at least 20% of the total student body.

## B. Update on the Fall 2014 Entering Class and Entrance Standards

#### Constituent University

- 1. The Constituent University's full-time first-year enrolment was 5,211. Of this, 527 (or 10.1%) were international students.
- 2. The common minimum entrance requirement was a mid-year offer grade of 84% (for Arts & Humanities, Science, and Social Science). For all other programs the mid-year offer grades were higher ranging from 84.5% to 90.0%. For all programs, at offer time, the condition was that the final grade must be at least 83% except for Nursing, which had a final grade requirement of 85%.
- 3. For information, full-time graduate enrolment was 5,221 which equates to 18% of total full-time enrolment.

## **Affiliated University Colleges**

- 4. Full-time first-year enrolment at the Colleges were as follows:
  - Brescia 315
  - Huron 274
  - King's 740
- 5. The final grade requirement at each of the Colleges was 78% (i.e. compared to the 83% at the Constituent University) and, at this level, the Colleges met the commitment made back in 2010. At the end of the current admissions cycle, Western's Provost and the Principals of the Affiliated University Colleges will be reviewing the gap in entrance standards in the context of student performance and outcomes measures.

## C. Fall 2015 Admissions Plans

#### Constituent University

- 1. The admissions strategy of the recent years will continue for the fall 2015 admissions cycle and it is expected that our mid-year offer grade (for all programs) will be no less that 84%, with a final grade requirement of at least 83%.
- 2. Based on the current applications data, we expect the first-year class to be in the range of 5,000 to 5,100. For budget planning purposes, we have used a first-year class of 5,040 which includes 600 international students.

## Affiliated University Colleges

- 3. The final grade requirement at each of the Colleges will be no less than 78%.
- 4. As is the case at present, in situations where additional assessment is required (for students with exceptional/unusual circumstances), the Colleges may admit students with grades below the minimum final grade requirement. The proportion with final grades below the minimum requirement (i.e. 78%) shall not exceed 2% of the entering class.
- 5. Where applicable, the Colleges will be bound to the minimum entrance standards established by the Constituent University for limited-enrolment programs including B.H.Sc. and Kinesiology.
- 6. The planned first-year class sizes are as follows:
  - Brescia 338
  - Huron 405
  - King's 820

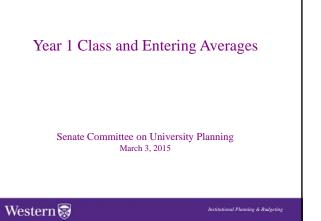
## SUMMARY OF ENROLMENT FORECAST

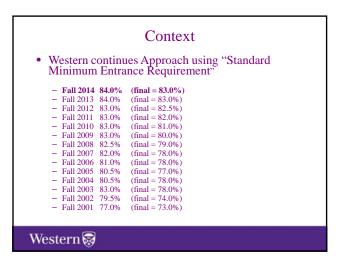
		Actual			Forecast						
		2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
1	Constituent University										
2	Full-Time Undergraduates										
3	Arts & Humanities	1,260	1,232	1,180	1,147	1,121	1,070	1,049	1,047	1,036	1,034
4	Business (HBA)	935	979	1,065	1,116	1,100	1,130	1,130	1,130	1,130	1,130
5	Dentistry	251	260	266	264	262	263	262	262	264	264
6	Education	732	700	677	597	657	334	668	668	668	668
7	Engineering	1,147	1,262	1,335	1,449	1,546	1,590	1,633	1,669	1,673	1,673
8	Health Sciences										
9	BHSc Program	1,117	1,185	1,160	1,170	1,163	1,088	1,066	1,040	1,004	999
10	Kinesiology	1,204	1,246	1,203	1,169	1,240	1,219	1,229	1,256	1,250	1,250
11	Nursing	797	808	820	825	835	825	825	825	825	825
12	Therapies	0	0	0	0	0	0	0	0	0	0
13	Sub-Total	3,118	3,239	3,183	3,164	3,238	3,132	3,120	3,121	3,079	3,074
14	Law	458	465	476	480	486	485	490	495	495	495
15	Media, Information, & Tech	972	963	919	930	924	947	944	943	941	941
16	Medicine										
17	MD Program	621	646	667	680	683	684	683	684	684	684
18	BMedSci Program	653	688	778	862	892	892	892	892	892	892
19	Music	535	527	542	512	457	410	380	363	358	357
20	Science	4,020	4,222	4,334	4,482	4,606	4,691	4,720	4,697	4,624	4,613
21	Social Science	6,433	6,618	6,648	6,674	6,601	6,592	6,605	6,650	6,666	6,670
22	Total Full-Time Undergraduates	21,135	21,801	22,070	22,357	22,573	22,220	22,576	22,621	22,510	22,495
23	Concurrent Programs	121	144	155	173	201	215	215	215	215	215
24	Medical Residents	798	810	829	853	913	950	950	950	950	950
25	Full-Time Graduates										
26	Masters	2,800	2,823	2,756	2,977	3,146	3,403	3,524	3,736	3,825	3,900
27	Ph.D.	1,904	1,947	2,021	2,026	2,075	2,240	2,243	2,274	2,287	2,300
28	Total Full-Time Graduates	4,704	4,770	4,777	5,003	5,221	5,643	5,767	6,010	6,112	6,200
29	Total Full-Time Enrolment	26,758	27,525	27,831	28,386	28,908	29,028	29,508	29,796	29,787	29,860
30	Part-Time FTEs										
31	Undergraduate	2,197	2,243	2,317	2,251	2,123	2,150	2,150	2,150	2,150	2,150
32	Education (AQs)	803	745	673	635	607	600	515	600	600	600
33	Masters	134	140	175	149	99	80	80	80	80	80
34	Ph.D.	21	26	22	27	29	30	30	30	30	30
35	Total Part-Time FTEs	3,155	3,154	3,187	3,062	2,858	2,860	2,775	2,860	2,860	2,860
	Total Constituent FTEs	29,913	30,679	31,018	31,448	31,766	31,888	32,283	32,656	32,647	32,720
	Affiliated University Colleges										
38	Full-Time Undergraduates	0.64	1.065		1.150	4.000				4.450	
39	Brescia	964	1,067	1,121	1,150	1,269	1,312	1,362	1,397	1,459	1,516
40	Huron	1,254	1,272	1,230	1,250	1,144	1,280	1,285	1,290	1,295	1,300
41	King's	3,216	3,286	3,244 5,505	3,169	3,063	3,128	3,198	3,284	3,371	3,437
42	Total Full-Time Undergraduates	5,434	5,625	5,595	5,569	5,476	5,720	5,845	5,971	6,125	6,253
43	Part-Time Undergraduate FTEs	0.2	0.4	0.4	0.2	0.6	00	00	00	00	00
44	Brescia	83	94	94	83	86	80	80	80	80	80
45	Huron	56	70	63	65	65	60	60	60	60	60
46	King's	245	252	239	252	277	254	263	270	276	276
47	Total Part-Time FTEs	384	416	396	400	428	394	403	410	416	416
48	Graduate FTEs	20	20	22	22	20	20	20	20	20	20
49	Brescia	30	29	32	32	28	30	30	30	30	30
50	Huron	12	14	10	8	11	18	18	18	18	18
51	King's (still under review)	34	31	33 <b>75</b>	31	33	33	33	33	33	33
52 53	Total Affiliate ETEs	76 5 804	74	75	71	72 5 076	81	81	81	81	81
	Total Affiliate FTEs	5,894	6,115	6,066	6,040	5,976	6,195	6,329	6,462	6,622	6,750
54	Total UWO FTEs	35,807	36,794	37,084	37,488	37,742	38,083	38,612	39,118	39,269	39,470

## SUMMARY OF ENROLMENT FORECAST

		Actual				Forecast					
			2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
	Rows 55 to 86 Included above										
55	International Students										
56	Constituent Full-Time										
57	Undergraduates	703	923	1,257	1,611	1,895	2,165	2,300	2,365	2,440	2,440
58	Medical Residents	121	127	108	112	134	140	140	140	140	140
59	Masters (excluding Ivey)	378	452	463	439	495	499	531	558	582	582
60	MBA (Regular), Ivey MSc	27	30	22	43	39	54	64	86	91	91
61	Executive MBA	80	44	22	40	35	64	35	35	35	35
62	Ph.D.	463	510	499	516	547	559	564	570	568	568
63	Affiliates										
64	Undergraduates	524	497	476	497	577	595	647	696	740	784
65	Masters	2	2	4	3	0	1	1	1	1	1
66	Year 1 Only										
67	Constituent										
68	Arts & Humanities	258	272	236	213	267	230	230	230	230	230
69	Engineering	351	416	412	430	511	510	510	510	510	510
70	Health Sciences										
71	BHSc Program	273	314	292	338	347	285	285	285	285	285
72	Kinesiology	330	366	331	315	386	350	350	350	350	350
73	Nursing	133	128	128	132	131	125	125	125	125	125
74	Media, Information, & Tech	361	334	314	332	336	325	325	325	325	325
75	MOS Program	717	846	816	741	857	835	835	835	835	835
76	Music	141	142	144	121	99	95	95	95	95	95
77	Science	1,366	1,388	1,313	1,347	1,474	1,455	1,455	1,455	1,455	1,455
78	Social Science	794	850	837	878	803	830	830	830	830	830
79	Total Year 1 - Constituent	4,724	5,056	4,823	4,847	5,211	5,040	5,040	5,040	5,040	5,040
80	Affiliated University Colleges										
81	Brescia	260	292	284	309	315	338	349	360	374	388
82	Huron	404	381	367	388	274	405	405	405	405	405
83	King's	916	878	821	848	740	820	840	860	880	880
84	Total Year 1 - Affiliates	1,580	1,551	1,472	1,545	1,329	1,563	1,594	1,625	1,659	1,673
85	Total UWO Year 1	6,304	6,607	6,295	6,392	6,540	6,603	6,634	6,665	6,699	6,713
86	Masters										
87	All Programs (excluding MBAs)	2,364	2,380	2,420	2,583	2,781	2,999	3,117	3,271	3,340	3,415
88	Ivey (excl EMBA)	188	183	144	181	161	175	207	265	285	285
89	Executive MBA	248	260	192	213	204	229	200	200	200	200
For Information											
90	Year 1 Constituent International Students	146	347	476	532	527	600	600	600	600	600

UWO-IPB 26-Feb-15

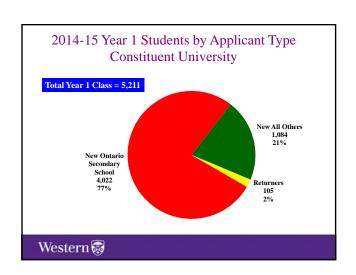


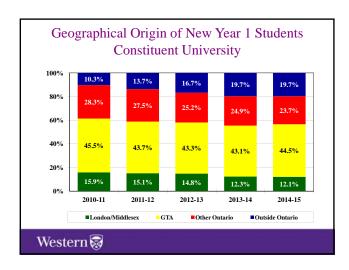


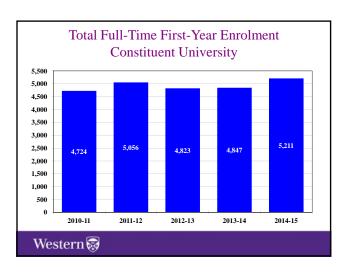
Student Profile: Applicant Type & Geographical Origin

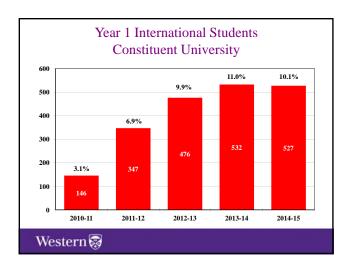
Constituent University

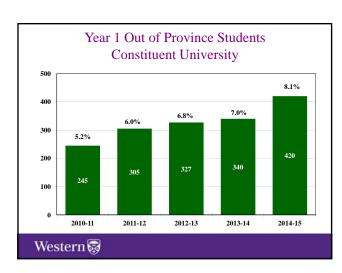
Western





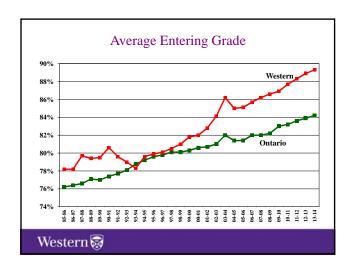


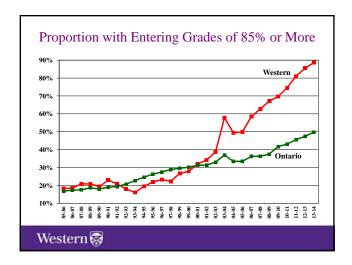


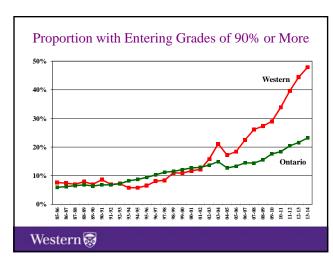


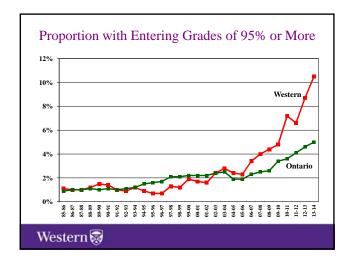
Entering Grades of
New Ontario Secondary
School Students

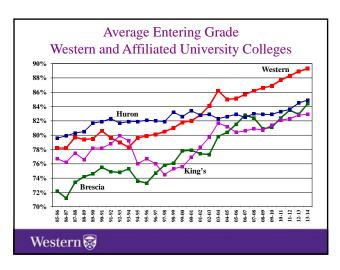
Western

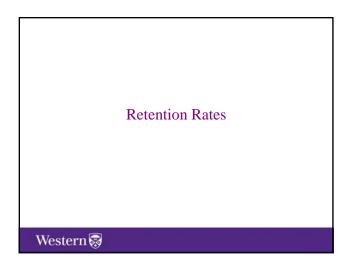


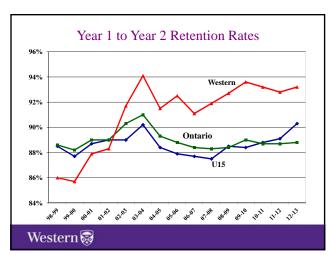


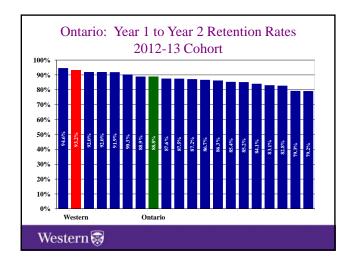


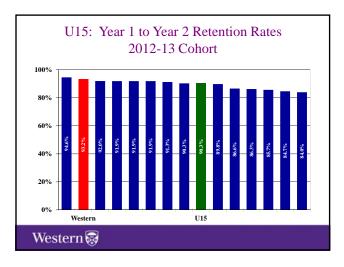


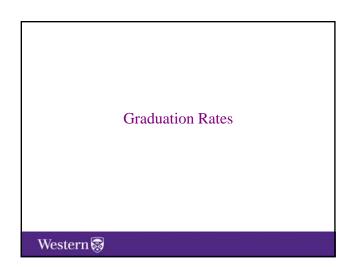


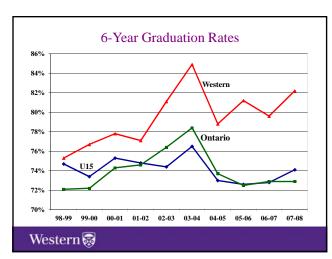


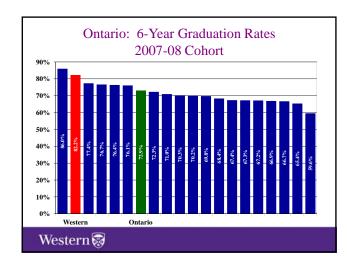


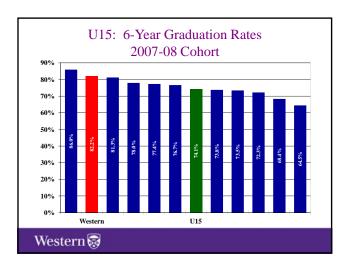






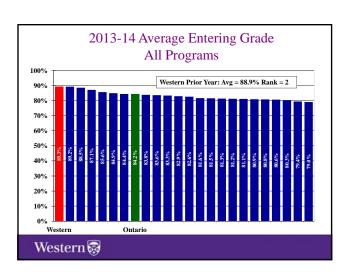


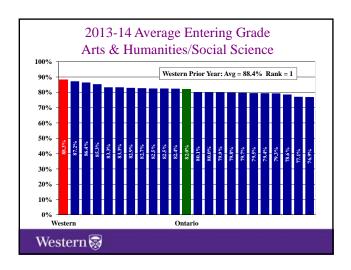


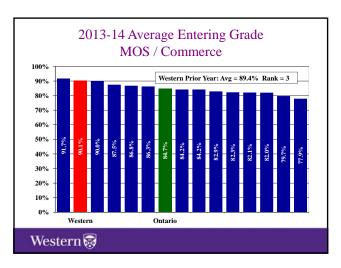


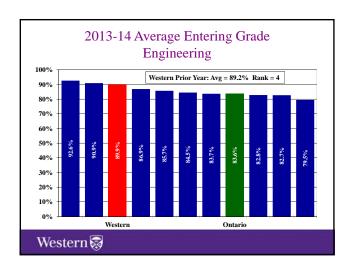
Entering Grades of New Ontario Secondary School Students, by University & Program 2013-14

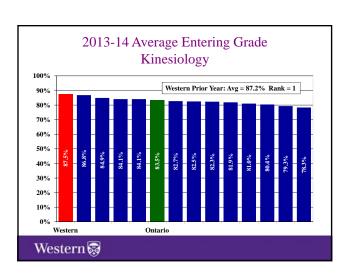
Western 🗟

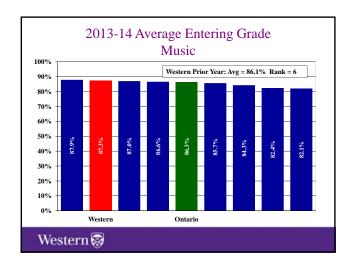


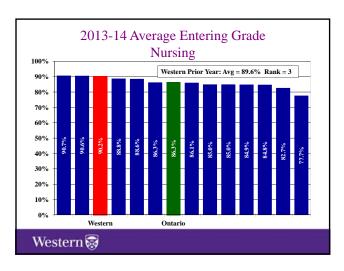


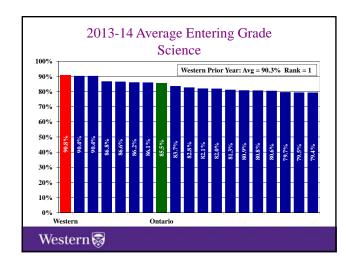
















## **Contents:**

- Probationary and Tenured Faculty
  - Appointments
  - Resignations
  - Retirements
- Part-Time Faculty
- Limited-Term Faculty
- Full-Time Clinical Faculty



Faculty Recruitment and Retention

onuor: 2015

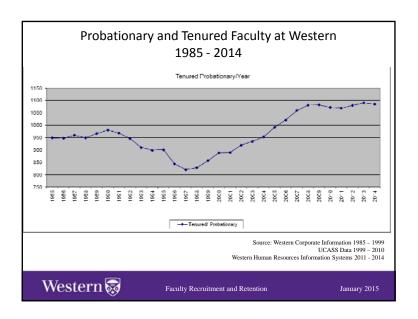
## Report to SCUP on Faculty Recruitment and Retention

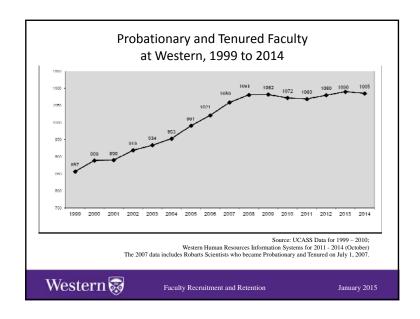
Office of the Vice Provost (Academic Planning, Policy and Faculty)

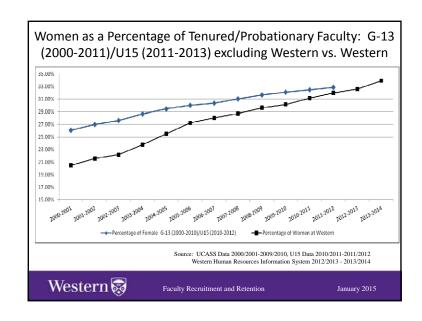
January 2015

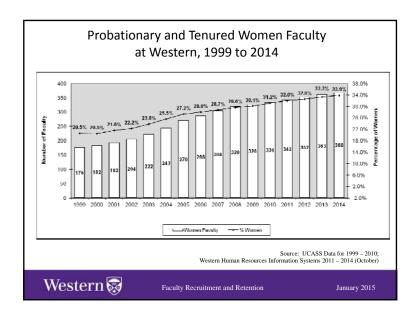
Available at http://uwo.ca/facultyrelations/pdf/Recruitment\_Retention\_ Report\_January\_2015.pdf



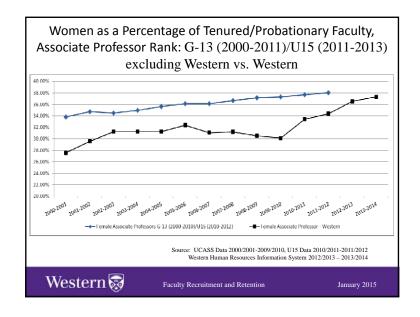


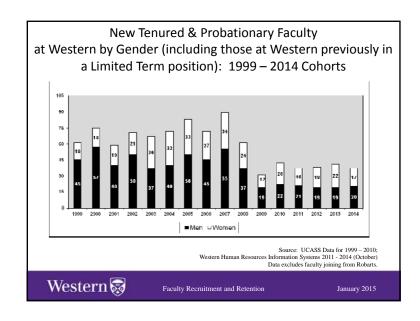


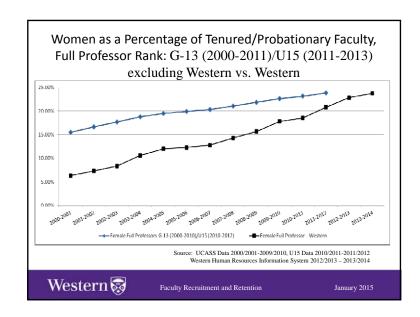


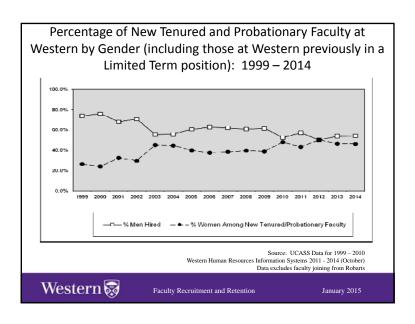


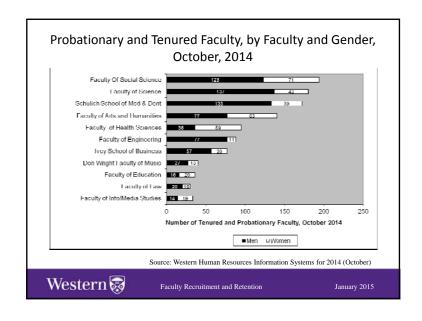


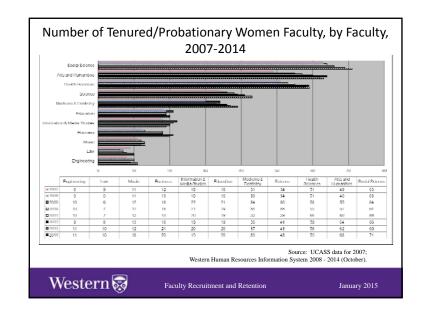


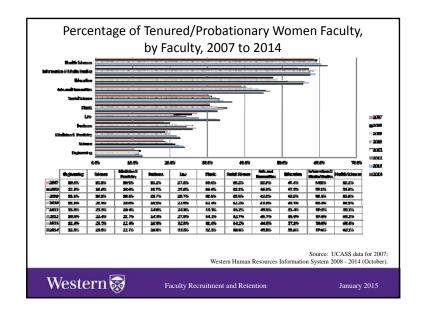


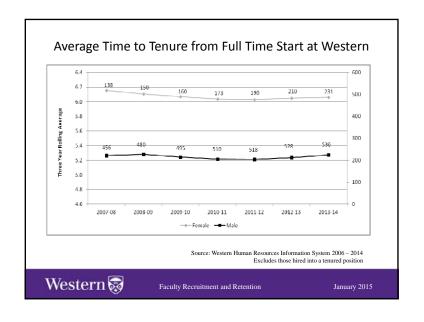


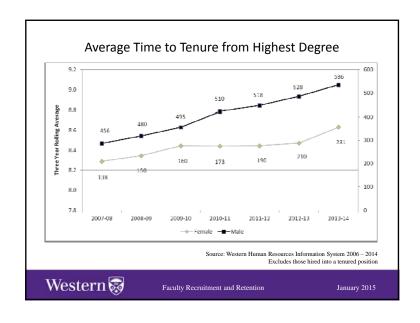


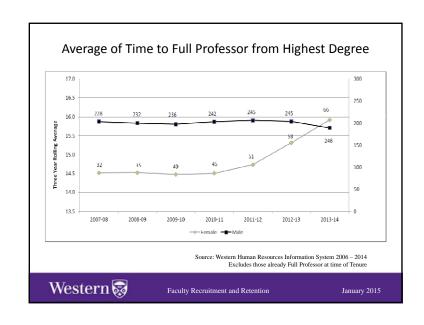


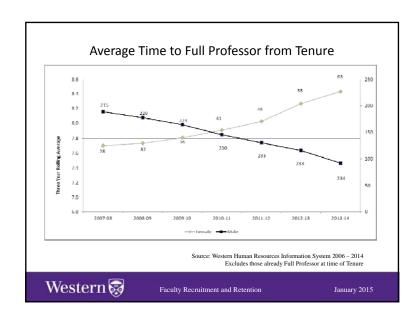


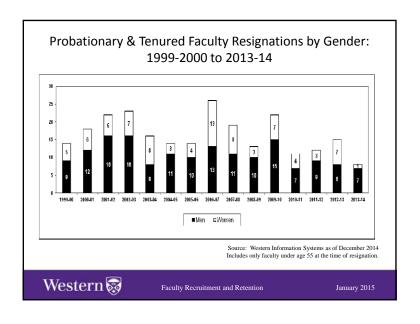


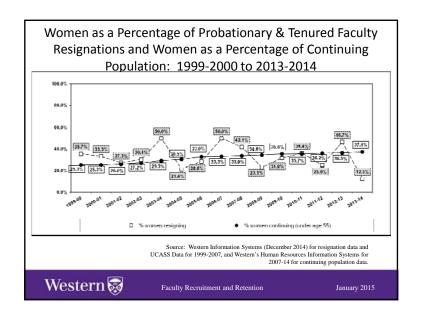




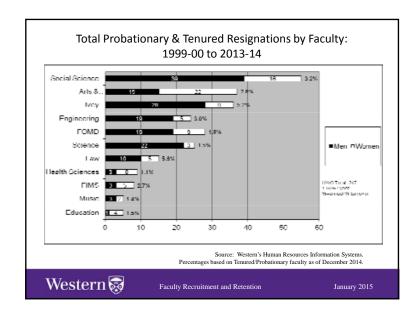


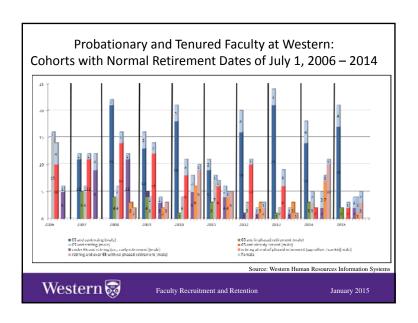


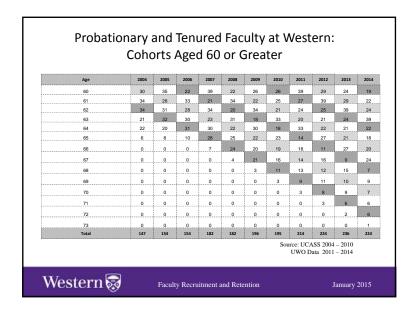


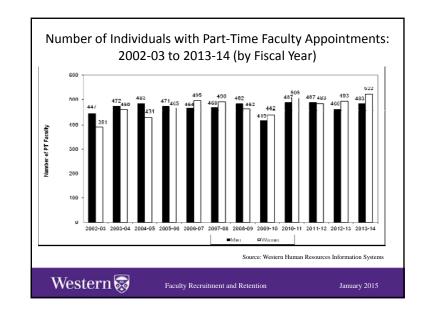


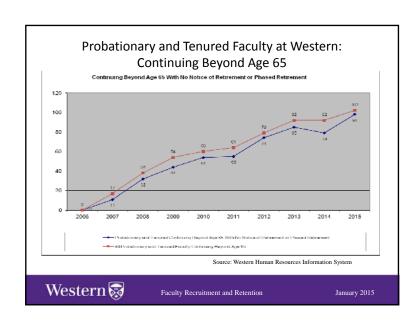


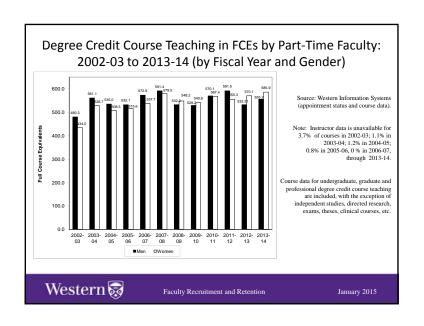


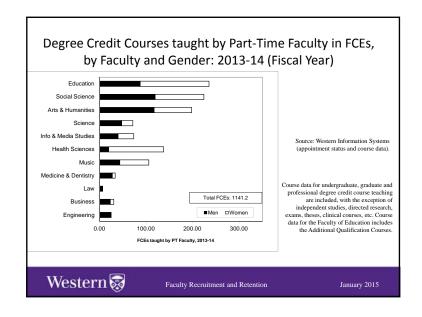


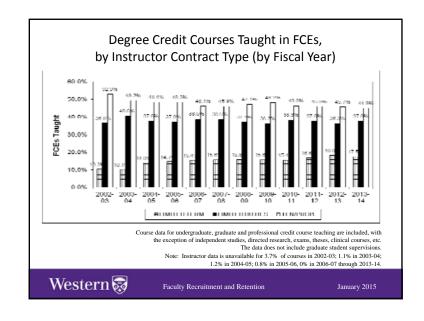


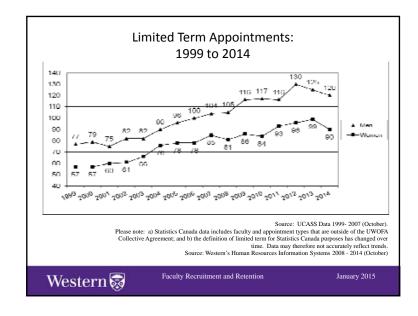


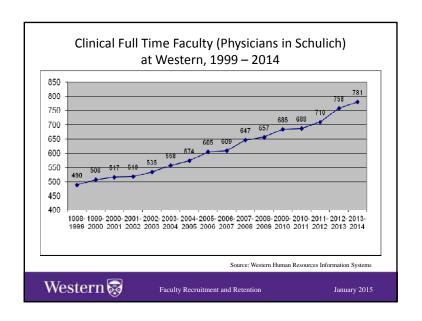


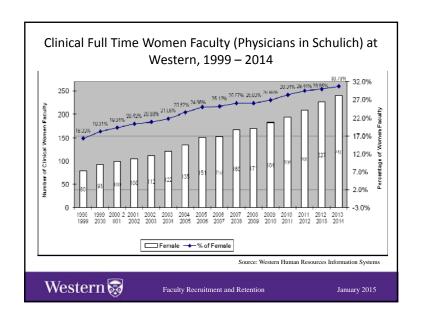


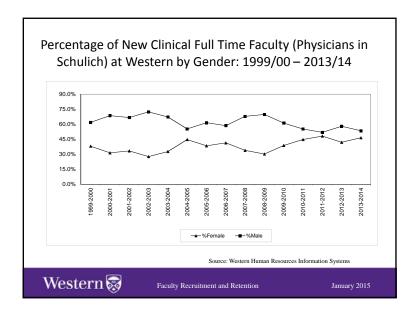


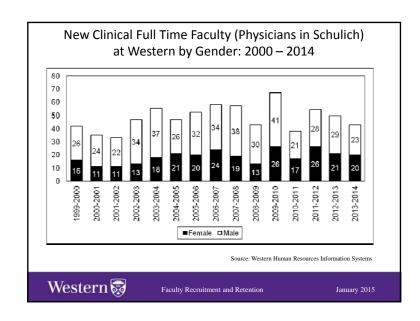


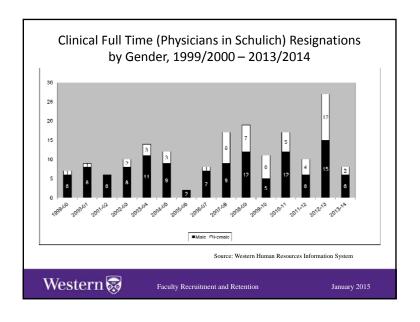












# Western University The Working Group on Information Security (WGIS) 2014 Annual Report

WGIS is a multi-disciplinary team representing a broad cross-section of the University community. Information assets are critical to Western's operational success as a University. The primary objective of the WGIS team is to pursue proactive strategies to manage security risks to our information and the information systems that safeguard it.

WGIS's initiatives this past year include continued focus on increasing security/risk awareness within the Western community, ongoing effort to further refine 'Data Classification' standards, review or formulate related information security policies, avoid 'phishing' attacks designed to acquire user credentials, and ongoing information security risk assessment efforts, and advocate and influence information security governance at an institutional level.

New security threats continue to emerge with the proliferation of mobile devices and the commoditization of computing services (also known as 'cloud' services). With the implementation of the Data Classification standard, Western will be better positioned to focus specific initiatives and activities directed at protecting high risk and sensitive information involving these technology trends.

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## **Summary of Sub-Committee Activities**

## **Information Security Awareness – CyberSmart**

The lack of general awareness around information security continues to be a high priority focus area for Western. The focus for the sub-committee over the past year was to institutionalize awareness as an ongoing process rather that a reactive response to specific events; to identify resources needed to support this effort; and to broaden participation in this group. Progress has been made toward each of these objectives.

## **ACTIVITIES**

#### **Annual Awareness Plan**

The annual awareness plan has been completed. General communications for the whole Western community, as well as, communications specific to the main target groups – students, faculty, staff, and visitors have been identified. This includes defining key touch point opportunities at which we can reach large numbers of people as well as specific times or events (e.g. exams, orientations) to target particular messaging.

The next phase will be to incorporate Data Classification into the plan. Towards this end, the CyberSmart sub-committee will work in conjunction with the Data Classification sub-committee.

## **Security Website**

Substantial updates have been made to the Security and CyberSmart websites. An environmental scan of other University and IT Security Best practice websites was conducted. The CyberSmart team has determined its desired look and feel and type of content. ITS implemented and published the new website content in December 2014.

## **Funding**

The group was successful in obtaining funding that will enable refreshed security awareness posters, ongoing website improvements, and other promotional activities that ITS will implement in early 2015 with support from Communications and Public Affairs.

## **Online Security Training**

CyberSmart submitted a module to the Western 1010 Learn to Succeed program for first year students. This training focuses on an understanding of the most important aspects of IT security that students need to be aware of. In conjunction with other Canadian Universities, Western has acquired an online security awareness training program. The training has been shortened and customized to reflect the Western environment. This more in-depth training is now available to all Faculty & Staff but the course needs to be further promoted in concert with the overall Campus Security awareness program.

## **Ongoing "Phishing" Attack Mitigation Efforts**

Western's end-user computing community continued to be challenged throughout 2014 by a steady stream of both generic and targeted "phishing" (*aka* "spear-phishing") attempts by increasingly sophisticated malefactors who continue to evolve their efforts to acquire user credentials through different social engineering and technical attack mechanisms.

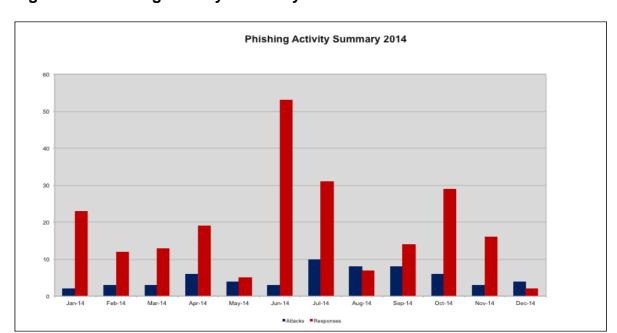


Figure 1 - Phishing Activity Summary

Evidence continued to surface that showed Western's public Directory contained a vulnerability that allowed it to be harvested for email addresses, as reported last year. Indeed, the Directory was successfully harvested in at least one attack. Accordingly, ITS defined and implemented a technical solution that 'obfuscated' the directory so that it could not be automatically harvested using web-crawling bots. This solution prevented the automated harvesting of emails from Western's public directory without impacting the normal usability of this service for Faculty, Staff, Students, or visitors.

Based on the number of Western's community members reporting phishing emails, awareness of the need to report phishing emails showed signs of increase. This suggests that as a community Western is becoming more aware of the threat and taking appropriate steps to mitigate it. That said, the quality of the spear-phishing continues to become surprisingly sophisticated. One recent phishing attempt targeted employees using the falsified credentials of their supervisor. Although this attempt was particularly skilled and believable, it was detected early and stopped. Nevertheless the increasing skill and sophistication behind this type of attack continues to be an ongoing concern. It is believed that this type of threat will also be mitigated going forward by the recently implemented changes to Western's public directory.

Another important element of Western's Phishing mitigation strategy continues to be SPAM management. Faculty, Staff, and Student continue to rely heavily on email as core communications vehicle. ITS continues to refine Email and SPAM management processes to streamline the amount of "required and valid" email that needs to be passed to and from members of our community.

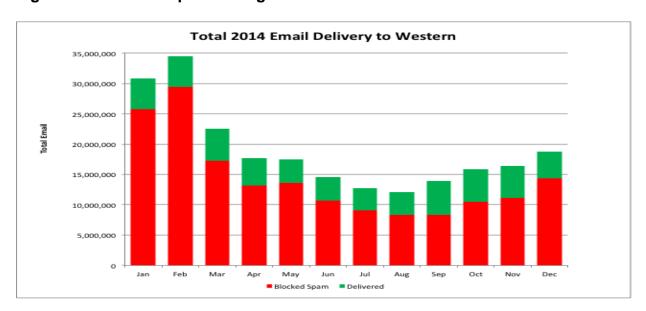


Figure 2. Email and Spam Management

## Risk Assessment

The Risk Assessment Sub-Committee continued to meet with administrative departments and Faculties to validate Western's institutional approach to Risk Assessment. Discussions with these units continued to highlight the need for greater awareness and use of the Data Classification standards.

Western's top information threats are as follows:

- 1. Leaks, losses, or breaches of sensitive information from information systems that are not directly controlled by Western (i.e. cloud services), and mobile computing devices such as tablets or smart phones.
- 2. Data leak or disclosure of sensitive information from information systems that are tagged for disposal or destruction due to a lack of formal destruction procedures and services.
- Unauthorized access or disclosure of sensitive information where the intended use is not clearly articulated in a data sharing agreement with other research partners or between Departments, Faculties, and research units.

Information Security risk is recognized to be on the rise. Despite the presence of broadbased information security policies at Western, there is a general risk of lack of uniformity in both the identification and mitigation of information security risks at the detailed procedural level both within and across multiple departments and Faculties across Campus. The following were the most notable message themes:

- Mobile devices continue to be a significant risk with respect to potential loss or breach of research and institutional data. Since 1 September 27 laptops or mobile devices were reported as stolen.
- Sensitive information frequently flows between university and external research partners or hospital staff. Treatment and standards governing protection and handling of this information continues to be ad hoc and left up to individual researchers or research groups; yet, the associated risks are recognized to be institutional. Greater awareness of the Data Classification standards both at Western and within these partner institutions is required.
- Adoption of 'cloud services' by various Faculties and administrative units across Campus continues to increase. An assessment and implementation framework for these services is necessary to assist with proactive mitigation of security risks inherent in these services. A specific ITS initiative to develop and implement this framework will be started early in 2015.
- Communication of Western's computing asset disposal procedures needs to be broadened and improved - in particular, the issue of disposing hard drives or other sensitive information systems should be standardized via a common approach across Western.
- Sharing data internally and the requirement for data sharing agreements between departments continues to be an area that is of concern for some units as there are no documented assurances as to how shared data will be safeguarded by others.

This feedback has been taken into consideration and will be used to formulate the WGIS committee's focus and action plan for 2015.

#### **Service Protection**

Western continues to improve overall network security through more effective use of its network firewalls. All threats and vulnerabilities identified as 'high' or 'critical' continue to be blocked and this has reduced the number of Western machines reported to be involved in network- based security attacks.

This year ITS conducted an audit of the Campus network for unauthorized / unregistered but connected machines. This initial result of this review identified 1703 such machines existing on the network in July 2014. Working with each faculty or department unit, all unregistered hosts have now been either registered or removed from the network. In the majority of situations, the machine in question was an "upgrade" of an older machine that had not been properly documented in RAMP, Western's network asset management tool.

Over 800 printers were using public IP addresses, meaning that they were accessible from the outside Internet. This represents a security risk to Western as some security attacks (eg. Distributed Denial of Service) can misuse the public IP address of the printer as a gateway to circumvent normal network security protocols. ITS, in collaboration with IT colleagues on Campus and other Faculty and Department owners have converted, all but 50 of these printers into private IP address spaces as of December 2014. ITS will continue to work with the remaining units in early 2015 to further reduce this exposure.

## Policies, Procedures, and Best Practices

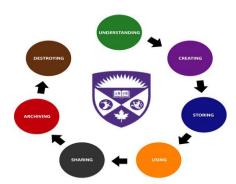
## **Data Classification Standards**

Building on the past activities of ITS and WGIS, the Data Classification subcommittee concentrates on the definition, dissemination, and socialization of the understanding of our corporate, research, and organizational information across the Western landscape.

## **Accomplishments:**

In 2013, a great deal of work was invested in ratifying a set of reference terms that could be used to inform our Data Classification framework. These terms were distilled into 3 categories for the purposes of the information in our environment: Confidential, Sensitive, and Public. A broad set of use cases were developed by the sub-committee during this timeframe, which were in turn appropriated into a comprehensive online site presence.

Further, a document of the information life cycle was developed to describe how data moves through the organization and how data may be leveraged at different points throughout the cycle. Within each step of the cycle lies processes and procedures which are meant to mitigate risk in the organization. Conversely, each step in the process has embedded differentiated challenges and opportunities that need to be considered as the employment of the Data Classification Standard is realized.



Over the course of the past 12 months, the Data Classification process has been concerned with knowledge mobilization and socialization activities.

- In Spring 2014, a communication was delivered to all members identified in the
  organization as Privacy Officers. These individuals represent the full spectrum of
  faculties and support units within the Western organization. The communication
  sent at that time detailed the ratification of the information categories, the
  information lifecycle, and a signal to the membership that more concerted
  mobilization processes were forthcoming.
- In Summer 2014, we began a systematic schedule of meetings with specific units within Western for the purposes of Risk Assessment. We enabled these meeting to also contain information about the Data Classification process.
- In Fall 2014, a process to edit and revise the Data Classification Standard was undertaken based on feedback from the unit meetings and from the Privacy Officer community.

## Future Activities:

- Continued systematic meeting schedule with faculties and support units (January and on) as part of the CyberSmart Annual awareness plan
- A second communication to stakeholders (Privacy Officers) with amendments and a revised website to support our activities (December 2014)
- A meeting with the Associate Deans Research (January)
- A meeting with the Deans (May)

## **Security Policy Review**

A subset of the WGIS committee reviewed the applicable information security policies during this period. Western's policies are formally reviewed every 3 years; the last review was done in 2011. In addition to the minor changes noted in the 2011 review it was noted the policies should accommodate the Data Classification Standards as they continue to develop going forward and should also be adapted to address the changing environment of mobile technologies and Bring Your Own Device (BYOD).

The *Policy on Establishing University Policies & Procedures MAPP 1.51* was adopted since the 2011 review occurred. To undertake the above changes we believe all policies related to information security should be revisited and aligned with MAPP 1.51. Discussions have occurred with University Secretary and Legal Counsel to determine the feasibility of this process. Both areas agreed this would be a valid undertaking and expect this would take place over the next two years.

## Financial Information Protection: Payment Card Industry (PCI) Compliance

Several WGIS members are actively involved with PCI compliance through the Western Bank Card Committee. As a result, WGIS remains aware of the developments in the payment card industry security practices and are currently pursuing confirmation that Western's compliance to PCI DSS (Payment Card Industry Data Security Standards) conforms to the newest version of the standard (version 3.0).

Western's payment card environment complies with the older versions of the PCI Data Security Standard. However, emerging payment technologies and new ecommerce systems on campus and a changing payment card security standard require that Western's PCI environment be reviewed by the Bank Card Committee to determine the implications to Western's PCI status.

The additional network controls discussed in last year's report have been implemented and separated. Migration of Networked Payment Card devices into separate logical networks has begun in order to better protect and inventory them. This work will continue throughout 2015.

## **Controlled Goods Program**

The Canadian Government's *Controlled Goods Program* strengthens Canada's defense trade controls by establishing Information Security through Controlled Goods Regulations, effectively extending the Government's own information classification and security policy to include its partners in securing the very sensitive information to which those partners have access. The policy does this by establishing minimum standards of Physical Security (PHYSSEC), Human Security (HUMSEC), Information Security (INFOSEC), and Operational Security (OPSEC) etc. There are several instances of highly sensitive research or enterprise at Western that is currently bound or covered by this legislation.

Western continues to receive highly sensitive information from the Government of Canada or foreign governments and is required to protect this data, some of which is classified SECRET or PROTECTED by specific Federal legislation. ITS, in conjunction with the Campus Police and Western's Designated Officer for Controlled Goods have implemented technology controls that enable the separation and isolation of computing devices associated with these programs into logically separate networks where necessary to increase and simplify the protection of these highly data sensitive initiatives.

As part of an internal succession planning effort, Procurement Services, Campus Police Services, Research Development Services, and ITS have undertaken a joint review of the roles and responsibilities for Western's Designated Officials. It is expected that streamlining changes to the current job description and reporting relationship of primary Western's Designated Officer will be recommended for implementation in 2015.

## Other Efforts and Conclusions

As an outcome of the 2014/2015 planning process, ITS received approval to proceed with the purchase of a Security Incident and Event Management (SIEM) system. This new technology solution will enable Western to more effectively, efficiently, and proactively manage security incident information that is today captured in various system logs across the University and correlated manually for purposes of security incident forensics. This initiative is currently underway with the objective of implementing the new solution in the summer of 2015.

## **Incident Response & Investigations**

Western continued to see an overall increase in threats against its information and information systems. The most significant and notable of these incidents related to Heartbleed, a security bug that potentially enabled inappropriate access to computer networks and systems. Western's initial response to this threat was rapid and well coordinated, system software upgrades were quickly implemented and notifications were subsequently sent to all users highlighting the need to regularly change passwords as an ongoing best practice.

## **2015 Plans**

In conclusion, 2014 has been another busy year for WGIS – most particularly related to efforts to publish Western's Data Classification Standards and to revitalizing and further institutionalizing our Security Awareness program through the CyberSmart committee.

Looking ahead to 2015, WGIS will be focusing on the following main areas

- Formal rollout of Westerns Data Classification Standards including communications plans, targeted Administrative applications, and implementation of feedback mechanisms.
- 2. Design, Develop, and implement a cloud services security assessment standard in response to the risk assessment process recommendations.
- 3. Continue to develop uniformity across the institution with respect to detailed information security standards and practices.
- 4. Continued formal risk assessment with business units and faculties and review of information security management processes. Along with the priorities identified throughout this process, WGIS uses this Risk Assessment to introduce high priority topics for discussion. This allows flexibility to address emerging concerns and/or urgent security priorities.

## Appendix A – List of Current WGIS Members as of End of 2014

Dr. Kevin Wamsley (Chair)

Ed Gibson (ITS, Technical Advisor)

Ed Zuidema (ITS, WGIS Scribe)

Jeffery Gardiner (ITS, Central Information Security Officer)

Jeffery Grieve (ITS Designate, Acting Director of ITS)

John Carson (CCPS, Technical Advisor)

Stephen Watt (Faculty Representative, Computer Science)

Julie Whitehead (Faculty Representative, Health Sciences)

Krishna Patel (Registrar's Designate, Director of Student Services Support Group)

Peggy Wakabayashi (Housing Designate, Director of Residences)

Rob Brennan (Western Information Systems Group Designate, Director of WISG)

John Leidl, IVEY Business School, Information Technology

Colin Couchman, Faculty of Education, Information Technology

Chris Wedlake, Robarts Research Institute, Information Technology

Dave Ghantous, Associate Director, ITS

Scott May, Communications & Public Affairs

Mina Mekhail, Research Services

Geoff Pimlatt (Ex-Officio, USC Communications Officer)

Sharon Farnell (Ex-Officio, Director of Internal Audit)

Paul Eluchok (Ex-Officio, Legal Council, Privacy Officer)

Jeff Grieve (Ex-Officio, Director of ITS)

## Council of Ontario Universities Report to Senate of the Academic Colleague Kathleen Okruhlik, March 2015

The COU Academic Colleagues met in Toronto February 26-27, 2015. There was no meeting of the full Council.

**Supporting Aboriginal Students:** This was the topic of Friday evening's dinner discussion, led by Jonathan Hamilton-Diabo, Director of Aboriginal Student Services at the University of Toronto. There seemed to be quite a range of institutional commitments, and it was subsequently suggested that we should look more closely at the relationship between specific institutional commitments to Aboriginal services and corresponding student success rates.

**Funding Formula Review:** MTCU will announce a review soon. There are likely to be four objectives: support for differentiation, a shift of emphasis from access to quality (access goals having been largely met), a move to performance-based funding, and support for financial sustainability.

**Outcomes Survey:** MTCU currently surveys undergrads two years after degree completion and publishes detailed survey results. The Ministry is interested in expanding the survey to include those who have completed graduate programs. One suggestion from OCAV is development of a more robust survey that would be administered by universities. The National Graduate Outcomes Survey developed by UBC has been suggested as a possible model. It surveys students five years out (not two) and collects a range of outcome measures (not just labor market outcomes). It has also been suggested that undergrads should be included in the more robust survey.

**Online Initiative:** An additional \$500,000 has been made available to support development of new courses and modules. The Ontario Online Consortium is incorporated, and the plan is to launch a web-based portal in the fall of 2015. The first phase of the portal will include a search tool for online college and university courses; initiation of registration for university courses with facilitated Letter of Permission and registration processes; and links to pedagogical supports for faculty and instructors. Academic Colleagues continue to stress the importance of recognizing faculty members as content experts. Concerns about intellectual property rights also continue to be expressed. There are no faculty members on the Board of Directors at present, although that situation may change.

**Program Approvals:** The Ministry has outlined an expedited review process based on SMA alignment. It is not clear whether programs reviewed in the expedited process will get faster approvals, and there is some concern about how "SMA alignment" will be defined. MTCU now requires expanded program development reports as part of its approval process.

**Update on the Political Environment:** It is anticipated that the provincial deficit will be \$10.5B. The province also has large commitments to transit, ORPP, and the Pan Am/Para Pan Am Games. So it is likely that spending cuts will be part of the next budget, including in post-secondary education. As we have seen, there has already been some movement toward an accountability agenda with the funding formula review, program approvals, performance funding, and SMAs. Universities will have to find new ways to describe our work in this context.

**Action Plan on Sexual Violence:** COU has commended Premier Wynne "for taking decisive and sweeping action against sexual violence."

**A Change at the Top:** Bonnie Patterson is stepping down as President and CEO of the Council of Ontario Universities. A search firm has been engaged to help find a successor.

I will be happy to answer questions about these and other issues on the floor of Senate.

## **ANNOUNCEMENTS**

## **FOR INFORMATION**

## **ANNOUNCEMENTS**

The following academic administrative post(s) was approved on behalf of the Board of Governors:

Name	Department/School	Faculty	Admin Post	Effective Date	End Date
Paul Coates	Film Studies	Arts and Humanities	Acting Chair	January 1, 2015	June 30, 2015