

December 13, 2010

To : Graduate Council Members

From : Medy Espiritu   
Assistant Secretary & SynApps System Administrator

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The next meeting of Graduate Council will be held on **Friday, December 17, 2010** at **1:30 p.m.** in the **Council Chambers, Gilmour Hall 111**.

Listed below are the agenda items for discussion.

If you are unable to attend this meeting, please call extension 24204 or email [espiritu@mcmaster.ca](mailto:espiritu@mcmaster.ca).

#### A G E N D A

- I. Minutes of the October 26, 2010 meeting - *enclosed*
- II. Business Arising
- III. Report from the Associate Vice-President and Dean of Graduate Studies
- IV. Report from the Associate Deans of Graduate Studies
- V. New scholarship  
- The Pioneer Petroleum Ontario Graduate Scholarship - *enclosed*
- VI. Report from the Faculty of Business Graduate Curriculum and Policy Committee – *enclosed* (Dr. J. Medcof)
- VII. New program: M.Eng. in Energy Systems - *enclosed* (**Note:** Graduate Council discussion/ approval is contingent upon approval of the Faculty of Engineering Graduate Curriculum and Policy Committee, which will meet on Tuesday, December 14, 2010.)
- VIII. Discussion:
  - (a) Institutional Quality Assurance Process (IQAP) – *enclosed*
  - (b) Certificate for Leadership and Community Engagement - *to be circulated*
- IX. Other business

**GRADUATE COUNCIL**  
**OCTOBER 26, 2010, 1:30 PM**  
**MUSC-311/313**

**PRESENT:** Dr. H. Sheardown (Chair), Ms. S. Baschiera, Dr. P. Bennett, Dr. D. Cassidy, Dr. N. Charupat, Dr. K. Dalnoki-Veress, Dr. L. Finsten, Dr. P. Graefe, Dr. C. Hayward, Dr. K. Kanagaretnam, Dr. N. Kevlahan, Dr. L. Magee, Dr. T. Maibaum, Dr. L. Platt, Dr. E. Service, Dr. D. Welch, Mrs. M. Espiritu (Assistant Secretary)

**BY INVITATION:** Dr. M. Ahmed, Dr. J. Fox, Dr. G. Moyal, Ms. L. Letts

**REGRETS:** Dr. P. Baxter, Mr. R. Collier, Dr. S. Crosta, Dr. P. Deane, Ms. M. Emami, Dr. A. Holloway, Dr. G. Kehler, Dr. A. Knights, Dr. S. Porter

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Dr. Sheardown chaired the meeting in place of Dr. Sekuler who was away from campus. After the introductions, Dr. Sheardown informed the Council that the order of the agenda has been slightly changed to accommodate the early departure of one of the presenters.

**I. Minutes of meeting**

The minutes of the September 22, 2010 meeting were approved on a motion by Dr. Hayward, seconded by Dr. Dalnoki-Veress, with the following amendments: Page 1, paragraph 1, first sentence, was replaced with: *Dr. Sekuler welcomed the new members of Graduate Council: Dr. George Steiner (School of Business), Dr. Thomas Maibaum (Department of Computing and Software), Dr. Alison Holloway (Department of Obstetrics & Gynecology), Dr. Elisabet Service (Department of Linguistics & Languages), Dr. Liss Platt (Department of Communication Studies & Multimedia), Dr. Patrick Bennett (Department of Psychology), Dr. Laura Finsten (Department of Anthropology), and Dr. Peter Graefe (Department of Political Science).* Page 2, Section IV – Report from the Graduate Associate Deans, line 2, was replaced with: *Dr. Welch reported that the online version of the SGS #101 course will soon be in operation.*

**II. Business Arising**

There was no business arising from the minutes of the previous meeting.

**III. Report from the Associate Vice-President and Dean of Graduate Studies**

Dr. Sheardown reviewed the status of graduate programs submitted to the Ontario Council on Graduate Studies (OCGS) for appraisal:

Site visit (in Toronto) is scheduled for the M.Eng. Design and Manufacturing program for October 28-29, 2010.

The School of Graduate Studies received the OCGS consultants' reports for English (M.A., Ph.D.), Statistics (M.Sc.), Psychology (M.Sc., Ph.D.), Biology (M.Sc., Ph.D.), and Globalization Studies (M.A.). The new program, Master of Technology, Entrepreneurship and Innovation was submitted to OCGS for appraisal. The Gender Studies & Feminist Research (M.A., GDip2) is still waiting funding approval from the Ministry of Training Colleges and Universities.

Dr. Sheardown referred to the membership list of the sub-committees of Graduate Council, which was circulated to the members. She explained that the chairs of the sub-committees will soon be contacting the members to commence discussion of the topics for each committee.

#### **IV. Report from the Associate Deans of Graduate Studies**

Dr. Welch reported that there are roughly 800 students scheduled to graduate this fall who have already completed the SGS #101 online course. Dr. Hayward reported that the Faculty of Health Sciences Graduate Policy and Curriculum Council has appointed new members to represent the interdisciplinary programs within the Faculty of Health Sciences.

#### **V. 2010 Fall Graduands**

Dr. Sheardown reviewed the list of the 2010 Fall Graduands for the Faculties of Business, Engineering, Health Sciences, Humanities, Science, and Social Sciences.

Dr. Welch moved, and Dr. Hayward seconded,

**“that Graduate Council approve the list of the 2010 Fall Graduands for the Faculties of Business, Engineering, Health Sciences, Humanities, Science, and Social Sciences, with amendments/corrections to be made as necessary by the Associate Graduate Registrar.”**

Dr. Sheardown reported for Council information the total number of 2010 Fall graduands for the different Faculties: Business - 19; Engineering – 160; Health Sciences – 243; Humanities – 89; Science – 120; Social Sciences – 163.

The motion was carried.

#### **VI. Sociology: Changes to the M.A. and Ph.D. programs**

Dr. Fox explained that the current calendar wording does not reflect the existing practices of the department concerning its M.A. and Ph.D. programs. The changes being proposed will reflect the long-standing practices of the Department of Sociology as outlined in their Graduate Handbook and the 2006 OCGS appraisal report. Dr. Fox referred to the documents and briefly reviewed the recommended changes for the M.A. and Ph.D programs.

##### M.A. program

-clear identification of methods courses (Sociology \*740, \*742, and \*743);

- limitations on the number of courses that may be fulfilled by a Supervised Research Course (Sociology \*730);
- limitations on the number of courses that may be taken at the 600-level;
- limitations on courses that may be taken outside of the department;
- set schedule for courses and proposal so that students can switch to the coursework option at the end of term 1 with no loss of time.

#### Ph.D. program

- minimum grades for theory and method courses to meet the theory, quantitative, and qualitative or historical methods requirement;
- no courses at 600-level except Sociology \*6Z03;
- limitations on courses that may be taken outside of the department;
- schedule clarifications.

In response to a query, Dr. Fox explained that students in the Ph.D. program can pass the methods and research course with a mark lower than B+; however, in order to meet the program's theory and methods requirement, students must receive a mark of a B+ or better in the course. Dr. Fox added that students can re-take the course if they do not obtain a mark of B+ or better the first time. He added that, in the past, only 5% of students fail the course.

Dr. Welch moved, and Dr. Charupat seconded,

**“that Graduate Council approve the proposed changes to the M.A. and Ph.D. programs in the Sociology department, as described in the documents.”**

The motion was carried.

#### **VII. Occupational Therapy/Physiotherapy: Leaves of Absence Policy for M.Sc. (OT) and M.Sc. (PT); Parental Leave of Absence Policy for M.Sc. (OT) and M.Sc. (PT)**

Dr. Hayward recalled that at the last Graduate Council meeting, the M.Sc. (OT) and M.Sc. (PT) policies on leaves of absence and parental leave of absence were not approved due to some issues raised by the members. Dr. Hayward then briefly discussed the revised documents submitted by the OT/PT programs concerning these leaves. After a brief discussion, the members agreed that the issues previously raised have been addressed.

Dr. Hayward moved, and Dr. Welch seconded,

**“that Graduate Council approve the proposed Policy for Leaves of Absence for Students in the M.Sc. (OT) and M.Sc. (PT) Programs, and the Policy for Leave of Absence for a Graduate Student who is a new parent in the M.Sc. (OT) and M.Sc. (PT) Programs, as described in the documents.”**

The motion was carried.

### **VIII. Policy for handling approvals for non-supervisory and supervisory faculty participation in the Faculty of Health Sciences affiliated graduate programs**

For information of Graduate Council, Dr. Hayward explained that the Faculty of Health Sciences has developed a policy for handling applications for faculty member participation in the affiliated graduate programs in Health Sciences. The Faculty of Health Sciences Graduate Policy and Curriculum Council approved the proposal by email ballot conducted on October 14, 2010. Dr. Hayward further explained that faculty members wishing to apply for graduate program participation in the Health Sciences affiliated graduate programs are required to submit an application for supervisory or non-supervisory privileges. Dr. Hayward referred to the document and explained to the Council the application procedure and approval process. She added that the policy is not applicable to emeritus faculty members applying for graduate student supervision since McMaster has a separate procedure for this purpose.

### **IX. New Program: Ph.D. French**

Dr. Maroussia Ahmed presented the proposed Ph.D. program in French. The proposed program already obtained approvals from the Joint Faculties of Humanities and Social Sciences Graduate Curriculum and Policy Committee, and the Faculty of Humanities. Dr. Ahmed explained that the program's objective is to prepare candidates in teaching and research, as well as a career that requires knowledge of Francophone languages, cultures, and literatures. She further said students in the program will acquire skills that are necessary for careers in international relations, diplomatic service, and NGO administration. Dr. Ahmed stated that the new Ph.D. program has three fields: Francophone Theories, Languages and Literatures of the 20<sup>th</sup> and 21<sup>st</sup> Century; Colonial and Post-colonial Contexts in the Francophone World; and Discourse and Representation of the *Ancien Régime* and 19<sup>th</sup> Century. In addition, Dr. Ahmed briefly reviewed the admission and course requirements of the program.

Discussion ensued, and the committee suggested removing *Appendix 3.4 – Anticipated Developments/Department's Request for Space* as this should not be submitted as part of the OCGS Volume 1 document. A member referred to the objectives of the proposed program on page 3, and commented that the fourth objective—*“possibility of spending a period of time (in a francophone setting) abroad (up to one academic year) doing research and/or practical field work—* seems ambiguous. The member suggested revising this statement to clarify if the program will enable all students to spend time abroad, and the process involved (e.g., whether it will be in a francophone setting, funding, contacts, placements, etc.).

There was a query regarding the difference between the fields in the program and the areas of concentration. Dr. Moyal explained that the areas of concentration were defined according to the expertise of the faculty members. He said the department then identified these areas as fields of the program. Another member inquired about the evaluation of articles submitted to peer-reviewed journals in lieu of comprehensive exams—in particular, how the program would establish the quality of such journals. Dr. Moyal explained that there are guidelines that are

recognized universally, such as the MLA periodicals list. He said colleagues in specialized fields can normally be expected to recognize leading journals in their areas by experience.

Dr. Welch moved, and Dr. Maibaum seconded,

**“that Graduate Council approve the proposed Ph.D. program in French, subject to removing Appendix 3.4 and addressing the concerns and suggestions of the members, as discussed above.”**

The motion was carried.

There was no other business, and the meeting adjourned at 2:20 p.m.

## **NEW SCHOLARSHIP – FOR GRADUATE COUNCIL APPROVAL**

### **The Pioneer Petroleums Ontario Graduate Scholarship**

Established in 2010 by Pioneer Petroleums, to contribute to the funding of an Ontario Graduate Scholarship. To be awarded by the School of Graduate Studies to master's or doctoral students enrolled at McMaster University. Preference to be given to a graduate student whose research is entrepreneurial in nature.

**REPORT TO GRADUATE COUNCIL  
FROM THE FACULTY OF BUSINESS GRADUATE CURRICULUM AND POLICY COMMITTEE**

At its meeting on December 9, 2010, the Faculty of Business Graduate Curriculum and Policy Committee approved the following items:

**For Approval of Graduate Council**

- Ph.D. Accounting Field
- Change in admission policy for the MBA Accelerated program

**For information of Graduate Council**

- Change in prerequisites:
  - \*A703 – Advanced Financial Accounting
  - \*A733 – Canadian Taxation II
- Cross-listing of \*A722 with \*F722
- Adding \*A722 as an elective course for the minor in Accounting and Financial Management Services



**DeGroote School of Business**  
**Accounting and Financial Management Services Area**  
**The Accounting Field of the Ph.D. Program**

**PROGRAM OBJECTIVE**

The primary objective of the Accounting field of the Ph.D. program is to prepare students who are planning to assume an academic career in a university setting to become excellent accounting researchers and educators.

**MINIMUM APPLICATION REQUIREMENTS**

The DeGroote School of Business requires all applicants to meet the following minimum requirements:

- Successful completion of a master's degree with a minimum B+ grade point average or equivalent. The master's degree should be in business administration or a related field as outlined in the 'Fields of Study' section of this calendar. Applicants in the final stages of a master's degree will be considered and if selected, may be granted admission conditional on the completion of the degree prior to registration in the Ph.D. program.
- A minimum Graduate Management Admission Test (GMAT) score of 600. In lieu of a GMAT score, a comparable Graduate Records Exam (GRE) score will be considered.

Applicants whose native language is not English will be required to demonstrate English language proficiency by providing a valid TOEFL test score at the time of application. Successful applicants will normally achieve a score of at least 100 and a minimum of 22 in the reading component, 22 in the listening component, 26 in the speaking component and 24 in the writing component on the Internet-Based Test (IBT); or 600 on the Paper-Based Test (PBT); or 250 on the Computer-Based Test (CBT). We may also consider the equivalent score on other recognized tests. Applicants are exempted from this requirement if they have completed a university degree where English was the language of instruction.

Applicants should be aware that the above requirements represent our minimum standards only and do not guarantee admission to the program.

**PROGRAM REQUIREMENTS**

***Program Overview***

The Accounting field of the Ph.D. program at the DeGroote School of Business is a full-time integrated program of coursework and research. The student's program must satisfy all requirements of the School of Graduate Studies of the University as described in the School of Graduate Studies Calendar as well as specific requirements of the DeGroote School of Business.

The program is structured for full-time study only. Doctoral level courses taken elsewhere, if equivalent to courses required and approved by the supervisor of the Accounting field of the Ph.D. program and Director of the Ph.D. program, may allow the student to apply for course exemption or course waiver. Students must complete a minimum of six to a maximum of 12 one-term courses for credit in the Ph.D. program.

### ***Accounting Background***

The program assumes that incoming doctoral candidates have a background equivalent to an undergraduate degree in accounting. This background does not necessarily require a formal accounting degree, so long as the candidate has taken enough accounting courses to establish a reasonable accounting background. Although candidates apply to the program are expected to have an educational background and work experience in accounting; highly qualified applicants with backgrounds in other fields such as economics, finance, mathematics, engineering, engineering and management, or computer science are encouraged to apply.

### ***Quantitative skills***

Applicants should possess strong quantitative skills as evidenced by successful completion of coursework in calculus and linear algebra.

Successful applicants who do not have sufficient background in accounting, microeconomics and/or econometrics will be required to take specific courses in accounting, microeconomics and/or econometrics for credit, normally in the coursework phase of the Ph.D. program. Applicants, however, may be required to complete these courses prior to registration in the Ph.D. program.

### ***Program of Study***

The program of study for the Accounting field of the Ph.D. program consists of nine required courses: \*B778, \*765, \*721, \*722, \*761, \*762, \*A771, \*A772 and \*A773, where asterisk (\*) denotes half courses (or one-term courses) with three hours of meeting per week for a minimum of 36 hours in a term.

#### ***A. Common Core Course for all fields in the Ph.D. Program***

\*B778 Management Theory

#### ***B. Non-Field Required Courses from the Department of Economics***

\*765 Mathematical Methods (non-credit)<sup>1</sup>

\*721 Microeconomic Theory I

\*722 Microeconomic Theory II

\*761 Econometrics I

\*762 Econometrics II

#### ***C. Field-Specific Required Courses - Accounting Research Seminars***

\*A771 Seminar in Research Methods and Design in Accounting Research

\*A772 Seminar in Financial Accounting Research

\*A773 Seminar in Managerial Accounting Research

As students must complete a minimum of six to a maximum of 12 one-term courses for credit in the program, candidates in the Accounting field of the Ph.D. program may complete up to three courses from the following list of Elective Courses, or any other courses approved by their supervisor of the Accounting field of the Ph.D. program and the Director of the Ph.D. program.

### ***Elective Courses***

\*A717 Seminar in Accounting Theory

\*A727 Financial Fraud and Market Surveillance

\*A745 Assurance

\*A750 Financial Statement Analysis

\*F773 Empirical Methods in Finance

\*F774 Seminar in Finance

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<sup>1</sup> \*765 is offered by the Department of Economics is a one- or two-week course scheduled at the beginning of the Fall term.

***Comprehensive Examination***

Comprehensive examination (written and/or oral) is administered after completion of all doctoral course work requirements. The comprehensive examination normally should be taken no later than 24 months from the start of the candidate's Ph.D. program of study.

***Dissertation***

The final requirement of the Accounting field of the Ph.D. program is a research thesis. Normally, within six months from the completion of the comprehensive examination, the Ph.D. candidate is expected to submit a doctoral dissertation proposal and make a formal presentation to faculty members of the Accounting and Financial Management Services Area. Candidates must pass an oral defence of their dissertation proposal and the dissertation examination, which will take place in accordance with the regulations of the School of Graduate Studies.

## **Sample Program Sequence**

### **FALL (Year 1)**

- \*B778 Management Theory
- \*765 Mathematical Methods (Non-Credit)
- \*721 Microeconomic Theory I
- \*761 Econometrics I

### **WINTER (Year 1)**

- \*722 Microeconomic Theory II
- \*762 Econometrics II
- plus electives (if any)

### **SUMMER (Year 1)**

- \*A771 Seminar in Research Methods and Design in Accounting Research
- plus electives (if any)

### **FALL (Year 2)**

- \*A772 Seminar in Financial Accounting Research
- plus electives (if any)

### **WINTER (Year 2)**

- \*A773 Seminar in Managerial Accounting Research
- plus electives (if any)

### **SUMMER (Year 2)**

### **COMPREHENSIVE EXAMINATION**

### **Years 3 & 4**

### **DISSERTATION / THESIS RESEARCH**

The doctoral dissertation requires original research which adds to the body of knowledge in the field of study. It is a formal academic document reflecting the candidate's thorough understanding of the topic studied.

## **COURSE DESCRIPTION**

### **\*A717 / Seminar in Accounting Theory**

This course provides an in-depth examination of the various theories and contemporary research findings which describe and explain important accounting and auditing phenomena observed in practice. Particular attention is given to the contracting paradigm, information content of accounting figures, accounting and auditing regulations, and aspects of economic behaviour.

### **\*A727/ Financial Fraud and Market Surveillance**

With the well publicized financial fraud debacles involving Enron, WorldCom, Parmalat, questions such as, “Where is the money?”, “What happened to our money (investments, pensions and alike)?” are on the news screens worldwide. Students will gain an appreciation of the magnitude and impact of financial fraud (fraud is an extremely costly business problem), and its consequences; an overview of common fraud schemes and their linkages to various business functions and processes; the relevant legal, regulatory, and accounting standards; management and mitigation of fraud through risk assessment, controls to deter and detect fraud, auditing, investigation, and remediation. Thus, this course aims to equip financial and business professionals with the investigative skills they need to understand, pre-empt (uncover) fraud. A salient aspect of the course quite apart from lectures and cases is the regulatory perspective undertaken with presentations from professionals from the OSC, RCMP, Regulation Services (RS) and an introduction to market surveillance.

### **\*A745 / Assurance**

This course considers the development of the audit function, the auditor’s opinion, the theory of audit evidence and internal control evaluation, the selection, scope, and application of auditing procedures, legal requirements and professional standards, and operational auditing. The roles of internal and external auditors are compared.

### **\*A750 / Financial Statement Analysis**

This course provides a comprehensive and up-to-date treatment of the analysis of financial statements as an aid to decision making. Topics covered include: financial ratio analysis, the effect of various accounting alternatives on financial ratios, forecasting accounting and financial numbers, bond rating and financial statement information, financial distress prediction, and corporate restructuring. The relationship between financial markets and financial statements is studied using computerized data sets.

### **\*A771 / Seminar in Research Methods and Design in Accounting Research**

This seminar provides an exposure to issues and techniques of various research methods and designs in the context of accounting research. A research proposal by the end of course is required.

### **\*A772 / Seminar in Financial Accounting Research**

This seminar provides a broad overview of contemporary empirical research in financial accounting. Most of the research relies on archival data utilizing accounting and stock market databases. Topics include the impact of accounting information on security prices, post-earnings announcement drift and other market anomalies, voluntary firm level disclosure policy, accounting policy choices and earnings management, earnings/returns associations, market response to accounting data, stock analyst, corporate governance, cost of capital and etc.

### **\*A773 / Seminar in Managerial Accounting Research**

This seminar provides a broad overview of contemporary analytical research in accounting. Emphasis is placed on competing theories of the role of management accounting in organizations and society, as well as the issues and problems surrounding the implementation of management accounting techniques in practice. Topics include agency models of performance evaluation and compensation contracts; decentralization, planning and control; financial and non-financial information for performance measurement and transfer pricing.

**\*B778 Management Theory**

The seminar provides a broad overview of the role of theory and theory building in management. The student will engage in systematic scientific inquiry pertaining to different schools of management relevant to business. The underlying theory of management driving each school of thought will be the focus of analysis. An attempt will be made to integrate the diverse schools of thought toward an inclusive theory of management that would serve as the backdrop for future management research and practice.

**\*F773 / Empirical Methods in Finance**

This course examines empirical methods employed by researchers to test financial theories. Topics include the testing of asset-pricing models, the event-study methodology and the distribution of security returns.

**\*F774 / Seminar in Finance**

This course exposes students to a wide range of finance literature. All finance Ph.D. students are required to attend, but only those in their second year take it for credit. The course allows students to develop ideas for their dissertations. Students will present papers related to their own interests as well as critical evaluation of the extant literature.

**\*721 / Microeconomic Theory I**

This course covers basic graduate-level microeconomic theory, including constrained optimization, theory of the household and the firm, decision-making under uncertainty, and general equilibrium analysis.

**\*722 / Microeconomic Theory II**

Topics include the theory of public goods and externalities, non-cooperative game theory and the economics of information such as adverse selection, moral hazard, and mechanism design. Applications can include bargaining, monopoly and oligopoly pricing, insurance and employment contracts, and auctions.

**\*761 / Econometrics I**

Topics include linear regression and generalized least squares. Other topics such as hypothesis testing, diagnostic testing and generalized least squares will also be discussed.

**\*762 / Econometrics II**

Topics include time series analysis and simultaneous equations models.

**\*765 / Mathematical Methods (Non-Credit)**

This course provides a systematic review of mathematical and statistical methods commonly used in economic and modelling.

## **For inclusion in the School of Graduate Studies Calendar:**

### **Ph.D. Degree**

The Accounting field of study is designed to prepare students who are planning to assume an academic career in a university setting to become excellent accounting researchers and educators. The program of study provides students an exposure to issues and techniques of various research methods and designs in the context of accounting research. Typically, successful applicants will have a university degree in accounting or related fields. Applicants with other university programs of study, including economics, finance, computer science, engineering, engineering and management, and mathematics may also be qualified.

### **Qualification Requirements**

Accounting candidates, preferably, must demonstrate competence in a variety of subject areas in business management, including accounting, economics and finance. Candidates from other fields, including computer science, engineering, engineering and management, and mathematics may also qualify for the program. Candidates must also demonstrate proficiency in calculus and linear algebra for study and research in the Accounting field.

### **Program Requirements**

For the Accounting field, the three Accounting Ph.D. courses (\*A771, \*A772 and \*A773) and five courses from the Department of Economics ( \* 721, \*722, \*761, \*762 and \*765 (non-credit)) must be taken. Candidates may take up to three courses chosen from the following list: \*A717, \*A727, \*A745, \*A750, \*F773 and \*F774 or any other courses approved by their supervisor of the Accounting field of the Ph.D. program, up to a maximum of 12 one-term courses for credit.

**For the School's website:****Fields of Study**

The Accounting field of study is designed to prepare students who are planning to assume an academic career in a university setting to become excellent accounting researchers and educators. The program of study provides students an exposure to issues and techniques of various research methods and designs in the context of accounting research. Typically, successful applicants will have a university degree in accounting or related fields. Applicants with other university programs of study, including economics, finance, computer science, engineering, engineering and management, and mathematics may also be qualified.

Potential Faculty Supervisor: Lilian Chan, Kiridaran (Giri) Kanagaretnam, Susan McCracken, Emad Mohammad, Khalid Nainar, Mohamed Shehata.

**Program Requirement****Required Courses****Accounting**

- Three Accounting Ph.D. courses (\*A771, \*A772 and \*A773)
- Five courses from the Department of Economics (\*721, \*722, \*761, \*762 and \*765 (non-credit))

Candidates in the Accounting field may take up to three courses for credit from the following list: \*A717, \*A727, \*A745, \*A750, \*F773 and \*F774, or any other courses approved by their supervisor of the Accounting field of the Ph.D. program and the Director of the Ph.D. program, up to a maximum of 12 one-term courses for credit.



**Proposed  
Change in Admission Policy for the MBA Accelerated Program**

Approved, Faculty of Business, December 9, 2010

This proposal details the current admission policy for the MBA Accelerated Program and presents recommendations for a modification to that policy. Included is a comparison to the admission policies for other DeGroote MBA Programs and to top Ontario MBA Accelerated Programs.

**Recommendation**

That the admission policy be modified such that MBA Accelerated Program students require:

1. B average in each of the most recent two years of university study
2. B grade in each relevant course (Relevant courses are those waived in the first year of the MBA program to allow accelerated entry directly to the second year).

**Current State**

Currently, DeGroote MBA Accelerated students' admission requirements are:

1. B average in each of the most recent two years of university study
2. B grade in each relevant course.
- 3. An overall average of at least B in their undergraduate required commerce/business and economics courses**

The admission marks requirement for other DeGroote MBA Programs is only a B average in each of the most recent two years of university study, the first criterion for the accelerated students.

It is not proposed here to remove criterion number 2 for the accelerated students, of a B average in each relevant course.

The current third criterion for DeGroote MBA Accelerated students, to have at least a B in their undergraduate required commerce/business and economic courses, is not consistent with the admission requirements of other DeGroote MBA Programs (Coop, Full-time, Part-time). Essentially, the MBA Accelerated students currently must meet an additional threshold in order to be admitted into the program.

The third requirement is also not consistent with the current waiver process which requires students to have a B minimum (B- if a DeGroote Commerce Grad) in each of the courses they are applying to waive. An overall B average in their undergraduate required commerce/business and economics courses is not a prerequisite for waivers.

### **Comparison with Other DeGroote MBA Programs**

DeGroote has now been successfully offering the MBA Accelerated Program for 5 years. The MBA Accelerated students perform at the same level, or often at a higher level, as students in other DeGroote MBA programs. Thus, concerns over the quality and performance of DeGroote MBA Accelerated students have been shown to be unwarranted. The MBA Accelerated students are performing at the required level for a graduate of a DeGroote MBA Program.

The table below depicts the average GPA's of graduates for each of the DeGroote MBA Programs for the Fall of 2009 and Winter of 2010.

<b>Program</b>	<b>Fall 2009 Graduates' Average GPA</b>	<b>Winter 2010 Graduates' Average GPA</b>
<b>Accelerated</b>	<b>6.6</b>	<b>6.9</b>
Coop	6.7	6.5
Full-time	5.8	6.3
Part-time	6.6	7.4

### **Comparison with Top Ontario MBA Accelerated Programs**

A review of the admission requirements for other MBA Accelerated Programs demonstrates that the DeGroote admission policy is more stringent. Not one of the top MBA Schools in Ontario (Rotman, Schulich, Ivey, Queen's) require students to have a B average in undergraduate required commerce/business and economic courses. The table below illustrates the admission requirements for Top Ontario MBA Accelerated Programs.

<b>MBA School</b>	<b>Accelerated Program Offered?</b>	<b>Admission Requirements</b>
<b>DeGroote School of Business (McMaster)</b>	<b>yes</b>	<ul style="list-style-type: none"> <li>• Minimum B average in each of the most recent two years of university study</li> <li>• B grade in each relevant course</li> <li>• overall average of at least B in their undergraduate required commerce/business and economics courses</li> </ul>

Schulich School of Business (York)	yes	Minimum B average in the last two years of academic work
Rotman School of Management (UofT)	no	Minimum GPA of 3.0 (75%) during the last year of undergraduate or graduate education
Ivey School of Business (Western)	yes (for Ivey HBA's only)	Minimum 74% or B average in final two years of study
Queen's School of Business	yes	Minimum B (70%) average in Bachelor's Degree from accredited undergraduate business program

### **Benefits**

Currently, DeGroote is turning away well-qualified MBA candidates each year because of this additional requirement of a B average in undergraduate required commerce/business and economic courses. We are rejecting these qualified candidates and yet our competitors are accepting them. Many students struggle in the first and second year of an undergraduate degree due to the transition from high school to university and the difficulty of required first and second year courses. This is reflected in most universities only assessing a student's performance in the last year or last two years of university when making an admission decision.

The removal of this additional requirement of a B average in undergraduate required commerce/business and economic courses would allow DeGroote to offer admission to additional highly qualified applicants. As shown above, DeGroote MBA Accelerated students perform at a level comparable to other DeGroote MBA students, and in fact, often outperform the other students. Thus, quality of DeGroote MBA Accelerated students is no longer a concern.

In addition, the removal of the additional requirement will ensure DeGroote is competitive with other top MBA Accelerated Programs.

### **Risks**

The risk of modifying the admission requirements for the MBA Accelerated Program, such that students do not need a B average in their undergraduate required commerce/business and economic courses, is that incoming DeGroote MBA Accelerated students are not at an acceptable quality level and thus, may have difficulty completing the MBA program. As demonstrated above, this risk is minimal as past DeGroote MBA Accelerated students have performed well relative to students in other DeGroote MBA Programs.



## SCHOOL OF GRADUATE STUDIES

### RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

**PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:**

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2. An electronic version of this form must be emailed to the Assistant Secretary and SynApps System Administrator (Email: [espiritu@mcmaster.ca](mailto:espiritu@mcmaster.ca)).
3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

<b>DEPARTMENT/PROGRAM</b>		DeGroote School of Business		
<b>COURSE TITLE</b>		Advanced Financial Accounting		
<b>COURSE NUMBER</b>	*A703	<b>COURSE CREDIT</b>		
		<b>FULL COURSE ( )</b>	<b>HALF COURSE (x)</b>	<b>QUARTER (MODULE) ( )</b>
<b>INSTRUCTOR(S)</b>		Eckhard Schumann		
<b>PREREQUISITE(S)</b>		A610		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>				
<b>NEW COURSE</b>	<input type="checkbox"/>	<b>DATE TO BE OFFERED:</b>	<b>WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?</b> If YES, PROVIDE THE DATE:	
<b>WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.</b>				
<b>CHANGE IN COURSE TITLE</b>	<input type="checkbox"/>	<b>PROVIDE THE CURRENT COURSE TITLE:</b>		
<b>CHANGE IN COURSE DESCRIPTION</b>	<input type="checkbox"/>	<b>600-LEVEL COURSE (Undergraduate course for graduate credit) Please see #4 on page 2 of this form</b>		
<b>CHANGE TO FULL COURSE</b>	<input type="checkbox"/>	<b>CHANGE TO HALF COURSE</b>	<input type="checkbox"/>	<b>CHANGE TO QUARTER COURSE</b>
<b>COURSE CANCELLATION</b>	<input type="checkbox"/>	<b>PROVIDE THE REASON FOR COURSE CANCELLATION:</b>		
<b>OTHER</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Change in prerequisite.		
<b>BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description (maximum 6 lines) to be included in the Graduate Calendar.</b> This course focuses on the accounting for mergers, acquisitions, and takeovers. The course emphasizes the techniques and conceptual background of accounting for business combinations and intercorporate investments, and the preparation of consolidated financial statements. Other topics covered may include accounting for foreign operations, and segment and interim reporting.				
<b>CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.</b> Current prerequisite: A610  Proposed prerequisite: Completion of A701 or A702; or concurrent registration in A701 or A702  The proposed prerequisite ensures that students will have more background and preparation in financial accounting (A701 and A702) which is essential to the study of advanced financial accounting topics.				

<p><b>1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)</b></p> <p>MBA students interested in pursuing professional accounting designations will be better prepared for writing professional accounting examinations.</p>
<p><b>2. EXPECTED ENROLMENT:</b></p> <p>20 to 35 students</p>
<p><b>3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):</b></p> <p>Lecture.</p>
<p><b>4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)</b></p> <p>Assignments, cases, midterm and final examinations.</p>
<p><b>5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).</b></p> <p>No.</p>
<p><b>6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?</b></p> <p>No.</p>
<p><b>PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b></p>     <p>Name: Eckhard Schumann      Email: schumann@mcmaster.ca      Extension: 23991      Date: November 18, 2010</p>

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006



# SCHOOL OF GRADUATE STUDIES

## RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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<b>DEPARTMENT/PROGRAM</b>		DeGroote School of Business		
<b>COURSE TITLE</b>		Canadian Taxation II		
<b>COURSE NUMBER</b>	*A733	<b>COURSE CREDIT</b> <b>FULL COURSE ( )</b> <b>HALF COURSE (x)</b> <b>QUARTER (MODULE) ( )</b>		
<b>INSTRUCTOR(S)</b>	TBA			
<b>PREREQUISITE(S)</b>	A730 (Antirequisite: A732)			
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>				
<b>NEW COURSE</b>	<input type="checkbox"/>	<b>DATE TO BE OFFERED:</b>	<b>WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?</b> If YES, PROVIDE THE DATE:	
<b>WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.</b>				
<b>CHANGE IN COURSE TITLE</b>	<input type="checkbox"/>	<b>PROVIDE THE CURRENT COURSE TITLE:</b>		
<b>CHANGE IN COURSE DESCRIPTION</b>	<input type="checkbox"/>	<b>600-LEVEL COURSE (Undergraduate course for graduate credit) Please see #4 on page 2 of this form</b>		
<b>CHANGE TO FULL COURSE</b>	<input type="checkbox"/>	<b>CHANGE TO HALF COURSE</b>	<input type="checkbox"/>	<b>CHANGE TO QUARTER COURSE</b>
<b>COURSE CANCELLATION</b>	<input type="checkbox"/>	<b>PROVIDE THE REASON FOR COURSE CANCELLATION:</b>		
<b>OTHER</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Change in prerequisite.		
<b>BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description (maximum 6 lines) to be included in the Graduate Calendar.</b> The objective of this course is to advance the student's knowledge of Canadian federal income taxation in the area of business activities of corporations and transactions with shareholders. Other topics include computation of corporate taxable income and tax for various types of corporations, corporate surplus distribution, the sale of a corporation, and rights and obligations under the Income Tax Act.				
<b>CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.</b> Current prerequisite: A730 Antirequisite: A732  Proposed prerequisite: A730; completion of A701 or A702; or concurrent registration in A701 or A702. Antirequisite: A732  The proposed prerequisite ensures that students will be better prepared for learning Canadian taxation for corporation.				

<p><b>1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)</b></p> <p>MBA students interested in pursuing professional accounting designations will be better prepared for writing professional accounting examinations.</p>
<p><b>2. EXPECTED ENROLMENT:</b></p> <p>10 to 15 students</p>
<p><b>3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):</b></p> <p>Lecture.</p>
<p><b>4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)</b></p> <p>Midterm and final examinations.</p>
<p><b>5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).</b></p> <p>No.</p>
<p><b>6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?</b></p> <p>No.</p>
<p><b>PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b></p>          <p>Name: Y. Lilian Chan      Email: ylchan@mcmaster.ca      Extension: 23974      Date: November 18, 2010</p>

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

SGS/December 2006



## SCHOOL OF GRADUATE STUDIES

### RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING COURSES

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3. A representative from the department is required to attend the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.

<b>DEPARTMENT/PROGRAM</b>		DeGroote School of Business		
<b>COURSE TITLE</b>		Market Trading and Risk Management		
<b>COURSE NUMBER</b>	A722	<b>COURSE CREDIT</b>		
		<b>FULL COURSE ( )</b>	<b>HALF COURSE (x)</b>	<b>QUARTER (MODULE) ( )</b>
<b>INSTRUCTOR(S)</b>		John Siam		
<b>PREREQUISITE(S)</b>		F600 (Managerial Finance)		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>				
<b>NEW COURSE</b>	<input type="checkbox"/>	<b>DATE TO BE OFFERED:</b>	<b>WAS THE PROPOSED COURSE OFFERED ON DEAN'S APPROVAL?</b> If YES, PROVIDE THE DATE:	
<b>WILL THE COURSE BE CROSS-LISTED WITH ANOTHER DEPARTMENT? YES</b> IF YES, ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S). <b>NOTE: CROSS-LISTING OF COURSES REQUIRES APPROVAL FROM EACH DEPARTMENT AND FACULTY CONCERNED.</b>				
<b>CHANGE IN COURSE TITLE</b>	<input type="checkbox"/>	<b>PROVIDE THE CURRENT COURSE TITLE:</b>		
<b>CHANGE IN COURSE DESCRIPTION</b>	<input type="checkbox"/>	<b>600-LEVEL COURSE (Undergraduate course for graduate credit) Please see #4 on page 2 of this form</b>		
<b>CHANGE TO FULL COURSE</b>	<input type="checkbox"/>	<b>CHANGE TO HALF COURSE</b>	<input type="checkbox"/>	<b>CHANGE TO QUARTER COURSE</b>
<b>COURSE CANCELLATION</b>	<input type="checkbox"/>	<b>PROVIDE THE REASON FOR COURSE CANCELLATION:</b>		
<b>OTHER</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> A722 is presently offered as F722. The course is to be cross-listed because of its relevance to students in both Finance and Accounting. It will be included as an elective for students interested in a Minor in AFMS.		
<b>BRIEF DESCRIPTION FOR CALENDAR - Provide a brief description (maximum 6 lines) to be included in the Graduate Calendar.</b> The course attempts to develop practical skills in trading financial securities with a focus on risk management and return enhancement through role playing. The course deals comprehensively with the increased importance played by risk and uncertainty in today's financial markets.				
<b>CONTENT/RATIONALE - Provide a brief description, i.e., outline the topics or major sub-topics, and indicate the principal texts to be used.</b> The course includes lectures that review stocks, bonds, money and currency markets, as well as derivatives markets. The focus is on trading and trading strategies that utilize cash securities in combination with derivatives. Students are introduced to different financial instruments, institutional details, back office, market microstructure, exchange and over-the-counter derivatives, principles of valuation, risk management and hedging techniques. Speculative strategies are also discussed and are examined in great detail. The specific topics cover: exchange and over-the-counter trading, market microstructure, reading the "signs" and "pulse" of the market, understanding the electronic book, risk/reward analysis, arbitrage, government and corporate securities, selection criteria, basis risk vs. price risk, degrees of trading aggressiveness, uses of derivatives, such as naked option selling, covered writing philosophy, ratio call writing, degrees of aggressiveness in options and futures hedging and arbitrage with cash positions, interest rate play, and various exotic spreads.  Textbook: The Trading Manual, Second Canadian Edition Version 2.8, John J. Siam				



<p><b>1. STATEMENT OF PURPOSE (How does the course fit into the department's program?)</b></p> <p>This course fits in with the Accounting &amp; Financial Management Services Area's curriculum given the increased regulatory focus on risk management, both at the micro level of individual organizations (SOX 2002 (SOX 404) and the formation of Public Company Accounting Oversight Board in US and Canadian Public Accountability Board in Canada) and the heightened awareness of systemic issues given the recession of 2008. The cross-listing of the course will complement the training afforded to future professional accountants/financial analysts by sensitizing them to the concepts of spanning scenarios, impact of those scenarios in the market and the idea of accountability beyond the content covered traditionally in financial/managerial accounting and auditing classes. A good example is the recent creation of the RiskFin division at the SEC.</p>
<p><b>2. EXPECTED ENROLMENT:</b></p> <p>Two sections: 20 students each presently.</p>
<p><b>3. DESCRIBE IN DETAIL THE METHOD OF PRESENTATION OF COURSE MATERIAL (i.e., lectures, seminars):</b></p> <p>In addition to lectures the course employs several skill and competency building tools that include:</p> <ul style="list-style-type: none"> <li>-Real-time Trading Sessions (students trade market assigned securities and their derivatives using risk management strategies)</li> <li>-Weekly Market &amp; Securities Analysis (Group assignment, present market outlook and detailed analysis that form the basis of trading)</li> <li>-Trading Cases (provide understanding of important market microstructure concepts)</li> <li>-Traders in Residence Program (adds market reality, street insights and professional experience)</li> <li>-Bay Street Visit (students are invited to sit in on morning meeting and spend a day with professional traders in their environment)</li> <li>-Individual Final Project (in-depth analysis and justification for student's trading activities)</li> </ul>
<p><b>4. DESCRIBE IN DETAIL THE METHOD OF EVALUATION: (For 600-level course, indicate the <u>Extra Work</u> to be required of graduate students, i.e., exams, essays, etc.)</b></p> <p>Learning in this course result from lectures, related readings, assignments, trading simulations, Trader in Residence presentations, trading cases, weekly reports, final project and in class discussions. Students' work is evaluated on an individual basis in the following manner:</p> <ul style="list-style-type: none"> <li>- Weekly Market and Securities Analysis Reports (10%)</li> <li>- Trading Cases (10%)</li> <li>- Midterm Exam (30%)</li> <li>- Individual Final Project (50%).</li> </ul> <p>EXTRACURRICULAR ACTIVITIES  GTF MarketWatch (<a href="http://gtf.mcmaster.ca">http://gtf.mcmaster.ca</a>)  A weekly financial letter prepared mostly by students and designed to inform/educate DeGroote, McMaster and the communities.</p>
<p><b>5. TO PREVENT OVERLAP, IS A COURSE IN THE SAME OR A RELATED AREA OFFERED IN ANOTHER DEPARTMENT? IF YES, PLEASE ATTACH TO THIS FORM ANY RELEVANT CORRESPONDENCE WITH THE OTHER DEPARTMENT(S).</b></p> <p>No.</p>
<p><b>6. IF THE COURSE IS INTENDED PRIMARILY FOR STUDENTS OUTSIDE YOUR DEPARTMENT, DO YOU HAVE THE SUPPORT OF THE DEPARTMENT/PROGRAM CONCERNED?</b></p> <p>No.</p>
<p><b>PLEASE PROVIDE THE CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b></p>   <p>Name: John Siam      Email: <a href="mailto:siam@mcmaster.ca">siam@mcmaster.ca</a>      Extension: 27028      Date: March 2, 2010</p>

If you have any questions regarding this form, please contact the Assistant Secretary and SynApps System Administrator, School of Graduate Studies, extension 24204.

**McMaster University**

**Brief for the Standard Appraisal  
of the**

**Master of Engineering Program in Energy  
Systems**

**VOLUME I: The Program**

**Submitted to the  
Ontario Council on Graduate Studies  
November 2010**

## THE PROGRAM

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## 1. INTRODUCTION

### 1.1. Brief listing of programs

The new master's program leads to the degree of Master of Engineering in Energy Systems. The requirements for degree completion include a pure course based option as well as a combined course and industrial project based option. The course and/or project requirements are consistent with other accredited Master of Engineering programs at McMaster. It is anticipated that the first offering will be fall 2011.

### 1.2. Objectives of the programs

**Master's program:** The objective of the program is to

- Provide an integrated program with a breadth of courses for students interested in energy systems and who wish to obtain a course based Master's degree.
- Provide a M.Eng. program that meets the increased demand for Highly Qualified Personnel, HQP, in this industry.
- Enhance McMaster's capability to deliver high quality Master's level degrees in the targeted field of sustainable energy production and delivery.
- Increase enrolment in both undergraduate and graduate level programs by creating an advanced program directly related to energy field in the 21<sup>st</sup> century.

These objectives are achieved through course work at the graduate level taken across multiple engineering disciplines. Students may elect to undertake an industrial relevant project in lieu of part of this course requirement and such projects will be supervised and approved by Engineering Faculty.

### 1.3. Method used for the self-study as well as the preparation of the brief, including faculty and student input and involvement.

Suggestion: Input from a major workshop held with major companies in the Ontario Power Industry (e.g., OPG, Bruce Power, IESO, Kinectrics and others) gave clear indication that there was a high demand for training in such areas as energy transmission, generation, public policy, and life cycle management. This master's program was developed specifically to address that demand. This brief was prepared based on industry information presented at that workshop, and the program has been designed based on current industry requirements, to include training in the areas aforementioned. Final year bachelor students were consulted in terms of their potential interest in such a course based Master's and feedback from these groups indicated that enrolment figures should reach 10 to 15 students per year. Hence this proposed new program will meet the demands of industry as well as students in the multidisciplinary field of energy.

### 1.4. Fields in the programs

Not required for Master's program.

**1.5. Review concerns expressed in previous appraisal and actions taken**

Not applicable, as this is a new program.

**1.6. Special matters and innovative features**

This program is unique in Ontario in that it provides a single, advanced degree program which provides training in the areas of power production, generation equipment, transmission, distribution, conservation and public policy. While other degree programs within the province offer subsets of these technologies, no single program is available which provides a multidisciplinary approach addressing all the aspects related to energy systems.

**2. THE FACULTY****2.1. List of faculty**

Table 1 lists the faculty members involved in the graduate program, and indicates gender.

In all cases, the courses will be offered by existing faculty. In many cases, courses are already offered. However, the strength of this program will be in bringing new students interested in Energy Systems together and providing them with both a cohesive curriculum that spans multiple engineering disciplines and access to faculty in all areas of energy systems.

Table 1 lists the faculty members involved in the graduate program and indicates gender.

**TABLE 1**

**N.B.:** The intent of this Table is to establish the strength and the degree of involvement of the faculty complement participating in each field of the graduate program and whose CVs are provided in Volume II of the Brief. This is an important element in the assessment of program quality.

Faculty Name & Rank	M/F	Home Unit <sup>1</sup>	Supervisory Privileges <sup>2</sup>
<b>Category 3</b>			
Al-Mutawaly, N.	M	McMaster-Mohawk Bachelor of Technology Program	
Botton, G., Professor	M	Materials Sci. & Eng.	Full
Ching, C., Professor	M	Mechanical	Full
Cotton, J., Associate	M	Mechanical	Full

Hoyt, J., Professor	M	Materials Sci. & Eng.	Full
Judd, R., Professor	M	Mechanical	Full
Kish, J., Associate	M	Materials Sci. & Eng.	Full
Kleiman, R., Professor	M	Engineering Physics	Full
LaPierre, R., Associate	M	Engineering Physics	Full
Lightstone, M., Professor	F	Mechanical	Full
Luxat, J., Professor	M	Engineering Physics	Full
Novog, D., Associate	M	Engineering Physics	Full
Preston, J., Professor	M	Engineering Physics	Full
Tang, C., Assistant	M	McMaster-Mohawk Bachelor of Technology Program	
Tullis, S., Assistant	M	Mechanical	Full
Sorin, M., Professor	M	Walter G. Booth School of Engineering Practice	
<b>Category 4</b>			
Markettos, N., Industry Professor	M	Walter G. Booth School of Engineering Practice	

1. This is the budget unit paying the salary: department, school, research centre or institute, or other.
2. Indicate the level of supervisory privileges held by each faculty member: e.g., full, master's only, co-supervision only, etc., if applicable to your institution's regulations or practices.
3. Either give the field name or a footnote reference to it.
4. List faculty members under the categories suggested, as applicable (it is expected that some categories may not apply to your institution).

**Category 1:** tenured or tenure-track core faculty members whose graduate involvement is exclusively in the graduate program under review. For this purpose the master's and doctoral streams of a program are considered as a single program. Membership in the graduate program, not the home unit, is the defining issue.

**Category 2:** non-tenure-track core faculty members whose graduate involvement is exclusively in the graduate program under review.

**Category 3:** tenured or tenure-track core faculty members who are involved in teaching and/or supervision in other graduate program(s) in addition to being a core member of the graduate program under review.

**Category 4:** non-tenure track core faculty members who are involved in teaching and/or supervision in other graduate program(s) in addition to being a core member of the graduate program under review.

**Category 5:** other core faculty: this category may include emeritus professors with supervisory privileges and persons appointed from government laboratories or industry as adjunct professors. Please explain who would fall into this category at your institution.

**Category 6:** non-core faculty who participate in the teaching of graduate courses.

## 2.2. External operating research funding

The M.Eng. in Energy Systems is a course based degree with a project option, and hence it is not dependent on operating research funding. Information on external operating research funding, therefore, is not required. In terms of students electing projects which are approved by the program administrator and supervised by faculty within engineering, any incidental project costs must be pre-approved by the supervisor and or Dean of the faculty.

## 2.3. Graduate supervision

Completed, and current, supervisorships of master's, doctoral, and post-doctoral students, by faculty member

**TABLE 3**

<b>Completed and Current Numbers of Thesis<sup>1</sup> Supervisions by Faculty Member</b>						
	<b>Completed</b>			<b>Current</b>		
<b>Member</b>	<b>Master's</b>	<b>PhD</b>	<b>PDF</b>	<b>Master's</b>	<b>PhD</b>	<b>PDF</b>
<b>Category 3</b>						
Al-Mutawaly, N.	0	0		0	0	
Botton, G., Professor	(10)	(5)		0	(4)	
Ching, C., Professor	(14)	(7)		(5)	(2)	
Cotton, J., Associate	(5)	(1)		(3)	(2)	
Hoyt, J., Professor	(5)	(3)		(4)	(2) co-supervisor	
Judd, R., Professor	(30)	(5)				
Kish, J., Associate	(1)			(5)	(2)	
Kleiman, R., Professor	(4)		(2)	(4)	(4)	(4)
LaPierre, R., Associate	(3)	(3)		(2)	(4)	
Lightstone, M., Professor	(19)	(4)		(5)	(4)	
Luxat, J., Professor	(6)			(5)	(3)	
Novog, D., Associate	(6)			(4)	(7)	
Preston, J., Professor	(29)	(15)	(3)	(3)	(2)	
Sorin, M., Professor	(9) co-supervisor			(2) co-supervisor		
Tang, C., Assistant	0	0		0	0	

Tullis, S., Assistant	(2)			(6)	(4)	
<b>Category 4</b>						
Markettos, N., Industry Professor	0	0		0	0	

## 2.4. Current teaching assignments

(Graduate and undergraduate), showing the number of courses taught by each faculty member

**TABLE 4:** Teaching Assignments of Program Faculty from the 2007/2008 through the 2009/2010 Academic Years

Teaching Assignments for 2007/2008 <sup>1</sup>			
Faculty Member & Rank <sup>2</sup>	Undergraduate	Graduate <sup>3</sup>	Comments
<b>Category 3</b>			
Al-Mutawaly, N.			
Botton, G., Professor	MAT 4H03/6H03		
Ching, C., Professor	ME 3M03 (2) ME 4V03 ME 4M06 (4/38)	ME 709 (1.5 / 3)	
Cotton, J., Associate	ME 2W04 ME 4M06 (2/38) ME 4P03 (2/5)		
Hamed, M., Associate			
Hoyt, J., Professor	MAT 3E04		
Judd, R., Professor	ME 3R03 ME 706 ME 758		
Kish, J., Associate			Not yet on staff
Kleiman, R., Professor	Eng Phys 4U04 (1/2) Eng Phys 2QM3 Eng Phys 3MD3		
LaPierre, R., Associate	Eng Phys 2S03 (1/3)		
Lightstone, M., Professor	ME 4S03 ME 2C03 (1/7) ME 4M06 (2/38)	ME 756	



Luxat, J., Professor	Eng Phys 3D03 Eng Phys 4NE3		
Novog, D., Associate	Eng Phys 3O04 Eng Phys 4L04 Eng Phys 4U04 (1/2) Eng Phys 2S03 (1/3)		
Preston, J., Professor	Eng Phys 3F03 Eng Phys 4MD4 Eng Phys 2S03 (1/3)		
Sorin, M., Professor		SEP 754	
Tang, C., Assistant			Not yet on staff
Tullis, S., Assistant	ME 3F04 ME 4U03/6U03 ME 4M06 (2/38)	ME 709 (1.5 / 3)	
<b>Category 4</b>			
Markettos, N., Industry Professor			

Teaching Assignments for 2008/2009 <sup>1</sup>			
Faculty Member & Rank <sup>2</sup>	Undergraduate	Graduate <sup>3</sup>	Comments
<b>Category 3</b>			
Al-Mutawaly, N.	ENR TECH 3IN3 ENR TECH 3PD3 ENR TECH 3SG3		
Botton, G., Professor	MAT 1M03		
Ching, C., Professor	ME 3M03 (2) ME 4V03 ME 2C03 (1/7) ME 4M06 (2/36)	ME 709 (1.5 / 3)	
Cotton, J., Associate	ME 2W04 ME 4M06 (2/36) UG course prep		
Hamed, M., Associate			
Hoyt, J., Professor	MAT 1M03 MAT 3E04	MAT 701/702	
Judd, R., Professor	ME 3R03 ME 706 ME 758		

Kish, J., Associate	MAT 4D03/6D03		
Kleiman, R., Professor	Eng Phys 2QM3 Eng Phys 3MD3		
LaPierre, R., Associate	Eng Phys 2S03 (1/3)		
Lightstone, M., Professor	ME 4S03 ME 4M06 (2/36)	ME756	
Luxat, J., Professor	Eng Phys 3D03 Eng Phys 4NE3		
Novog, D., Associate	Eng Phys 2S03 (1/3) Eng Phys 3O04 Eng Phys 4L04 Eng Phys 4U04 (1/4)		
Preston, J., Professor	Eng Phys 3F03 Eng Phys 4MD4 Eng Phys 4U04 (1/4)		
Sorin, M., Professor		SEP 754	
Tang, C., Assistant			Not yet on staff
Tullis, S., Assistant	ME 3F04 ME 4U03/6U03 ME 4M06 (2/36)	ME 709 (1.5 / 3)	
<b>Category 4</b>			
Markettos, N., Industry Professor		SEP 706	

Teaching Assignments for 2009/2010 <sup>1</sup>			
Faculty Member & Rank <sup>2</sup>	Undergraduate	Graduate <sup>3</sup>	Comments
<b>Category 3</b>			
Al-Mutawaly, N.	ENR TECH 3EP3 (x2) ENR TECH 3IE3 (x2) ENR TECH 3IN3 ENR TECH 3PD3 ENR TECH 4PQ3 (1/2) ENR TECH 3MI3		
Botton, G., Professor	MAT 4F03 (2) MAT 4H03 (1)		

Ching, C., Professor	ME 2C03 (1/7) ME 3M03 (2) ME 4M06 (2/18) ME 4V03	ME 708 (1.5 / 3) ME 709 (1.5 / 3)	
Cotton, J., Associate	ME 2C03 (1/7) ME 4M06 (2/18) ME 4O04 ME 4P03 (2)	ME 708 (1.5 / 3)	
Hamed, M., Associate			
Hoyt, J., Professor	MAT 3E04 (2) MAT 4N03 (1)	MAT 701/702 (3)	
Judd, R., Professor	ME3R03	ME706 ME758	
Kish, J., Associate	MAT1M03 (2) MAT 3E04 (2) MAT 3T04 (1)		
Kleiman, R., Professor	EP 3MD3 EP 2QM3 EP 2S03(1/2)	EP 719	
LaPierre, R., Associate	PHYS 3BA3 PHYS 3BB3 EP 4X03	EP 730	
Lightstone, M., Professor	ME 4M06 (2/18) ME 4S03	ME 756	
Luxat, J., Professor	EP 4NE3/6NE3	EP 713	
Novog, D., Associate	EP 3O04 EP 4L04/6L04 EP 4U04 (1/4)	EP 715	
Preston, J., Professor			Research leave
Sorin, M., Professor		SEP 754	
Tang, C., Assistant	ENR TECH 4PM3 ENR TECH 4PD3		
Tullis, S., Assistant	ME 3F04 ME 4M06 (2/18) ME 4U03	ME709 (1.5 / 3)	
<b>Category 4</b>			
Markettos, N., Industry Professor		SEP 706	

**2.5. Commitment of faculty members from other graduate programs and/or from other institutions**

The program will utilize only faculty from McMaster University.

**3. PHYSICAL AND FINANCIAL RESOURCES****3.1. Library resources**

Appendix C provides a report from the University's Chief Librarian. This report includes data for financial support over the past seven years.

**3.2. Laboratory facilities**

Laboratory facilities for research are not required for this course-based degree program. For courses with laboratory components, existing facilities and spaces will be used to accommodate students in the program.

**3.3. Computer facilities**

All faculty, graduate and undergraduate students are provided with an account on the McMaster University computing system that provides them with access to e-mail and the Internet. All departments in this proposal provide their own computer lab for student use. Faculty and University-wide labs are also available for student use. These labs provide e-mail and Internet access and office productivity (MS Word),

**3.4. Space**

Current faculty, laboratory, graduate student and general research office space, commitments/plans (if any) for next seven years.

The participating departments have the majority of their allocated space in the John Hodgins Engineering building.

Each faculty member participating in this program is assigned a private office with the appropriate furnishings (i.e. desk, computer desk and bookshelf), a telephone and internet access.

Students are not assigned carrel space for this course based degree.

**3.5. Financial support of graduate students**

The M.Eng. in Energy Systems is a course-based Master's program. Students will be required to pay tuition, and will not generally receive any financial support other than scholarships available in open competitions (i.e., NSERC or OGS), which the students will have to apply for themselves. A small number of exceptional students may receive Teaching Assistantships, but it is not expected that this will be the general case for students in this program.

## 4. PROGRAM REGULATIONS AND COURSES

### 4.1. The intellectual development and the educational experience of the student

McMaster University has a long and distinguished track record in energy matters. From its inception, the Faculty of Engineering at McMaster has provided extensive training and research in the field of energy, and many of its graduates are employed in this economic sector. The McMaster Institute for Energy Studies (MIES) was founded in 1980 in the Faculty of Engineering as an interdisciplinary institute for the study of energy extraction, transformation, generation, transportation and end-use. In the following decades the Institute also developed a focus on policy and economics.

Internally, MIES provides a forum for cooperation and interdisciplinary interactions between McMaster faculty members in the energy area, acts as a point of contact at McMaster for energy-related opportunities and provides a means to communicate those opportunities to the McMaster community. It encourages and fosters an interdisciplinary systems approach to the solution of energy problems in order to establish a credible capability for the assessment and evaluation of energy systems, thus providing authoritative advice to governments and industry. The MIES provides forums for seminars, student exchanges and interdisciplinary projects which would directly enrich the students' experience in the Master's program.

Currently, there are numerous undergraduate and graduate level courses in energy systems throughout the Engineering Physics, Mechanical Engineering, Material Science and Engineering, and Electrical Engineering departments as well as the School of Engineering Practice. These programs cover topics ranging from advanced thermodynamics of power production systems, nuclear power, safety, reliability, renewable energy production methods, distribution, and sustainability. Over 50 graduate students are enrolled in research related degrees in the field of energy, and hence a complimentary course based Master's degree is ideally situated in this Faculty.

Created out of a demand for engineers to manage increasingly complex issues, the Walter G. Booth School of Engineering Practice (SEP) and its Centres provide a new concept in engineering education. The school recognizes the need for life-long learning opportunities for engineers and scientists by providing a unique vehicle to enhance career horizons. The SEP will be home to the proposed program, due to its attention to professional development and public policy which are unique within the faculty. This proposed program would provide a single umbrella master's level engineering degree which covers all the facets of energy systems, their environmental impact, and delivery which is unique in Canada.

The program's curriculum provides the maximum flexibility to students who are either a) continuing on from an undergraduate degree, b) undergoing skills upgrading or specialization from industry, or c) are foreign trained professions seeking additional skilled training. The selection of courses provided in the program covers all areas of production, life cycle management, public policy, environmental impact, distribution and conservation. This breadth of material is unique to McMaster, and the majority of the courses already exist within the Departments in the Faculty of Engineering. Hence, students will be exposed to top-quality educational programs which have been developed over the past several decades by leading faculty in Energy Systems.

They will have the ability to interact through these courses with students working on research projects in the area which will further enhance their learning.

Beyond the courses, students may elect to undertake a relevant, industrial project to gain exposure to real world problems in the field of energy. These projects would be supervised directly by faculty and be industry driven, which means students eligible for the project component would be involved directly in relevant technologies.

#### **4.2. Program regulations**

Students enrolling in this program must meet the faculty requirements for admission into Graduate studies (currently a B- in an approved Engineering and/or Science program) as well as all other entrance requirements (language, etc...).

For students in approved Engineering programs at McMaster, they may apply for entry into the program while in their third year and would be conditionally accepted based on their performance up to that time. For existing McMaster Faculty of Engineering students:

- i. During the final year of undergraduate studies, McMaster Engineering students meeting the academic requirements (i.e., at least a B-) and approved by their department, may elect to take 2 of their 4th year technical electives at the 600 Level.
- ii. Students would be required to have a B- at the end of third year, or Department Chair approval, in order to apply to the program.
- iii. Students would graduate with a Bachelor's degree upon successful completion of their 4th year courses. Depending on their final year marks, eligible students would be able to apply to the master's degree program through the normal processes.
- iv. Students meeting the requirements for graduate enrolment and accepted into graduate studies would then be given course credit for the 600 level courses already completed.

A number of existing McMaster departments offer similar accelerated master's degree programs of a similar model by utilizing the 600 Level courses taken in the 4th year of an undergraduate degree, including: Mechatronics Engineering, Manufacturing Engineering, Engineering Practice, Medical Physics and Radiation Biology, Electrical and Biomedical Engineering.

Students enrolling into this program from a BTech degree will require a minimum A-, consistent with other masters admission requirements for students from the BTech program.

Courses will typically be evaluated using a mixture of examinations, projects and other course work such as presentations. For students choosing the project option in lieu of two courses, a written document and an oral presentation and discussion of the results will be used as evaluation. Each student will be exposed to a breadth of

training in the field on Energy as well as the different research aspects important in this field.

### **Part-time studies**

Students enrolled part would be expected to complete the course based portion of the program within 2 to 3 years from admission. This is dependent on the individual student's ability to participate in courses, and the schedule for the courses being offered.

### **Admission**

#### **Degree requirements – Master's**

The M.Eng. in Energy Systems will consist of at least 4 courses at the 700 Level with a total of 8 half-courses, and will be administered by the School of Engineering Practice. The research requirements for the program will be met within the context of the courses delivered to the student over the 8 credits required, as well as through attendance at MIES symposia and seminars and through the presentation of projects within their courses.

With approval of the administrator, students may elect to undertake a relevant, industrial project as an alternative to two of their required courses. This approval is dependent on finding a suitable project and academic advisor within their department. Students wishing to complete the project component should consult with the program administrator as soon as possible, and within 4 months, of entering the program.

### **Distance delivery**

The Faculty of Engineering has had significant success in hosting distance learning graduate level courses, both through UNENE and through other mainstream course offerings. This new program utilizes some of these distance based courses in other existing approved programs. These distance learning options conform with the OCGS bylaws and have greatly increased the numbers of professional students enrolled in the program as part time nuclear students. Growth expected is in part time graduate students, professional skills upgrading, and in training of foreign experienced engineers. Access and utilization of the faculties' remote learning expertise increase the benefits of this program to a wider geographical area.

If the program is delivered in part or in whole by distance education, provide information on the guidelines in Section 31 of the OCGS By-Laws and Procedures Governing Appraisals.

#### **4.3. Part-time studies**

There is no difference in the degree completion requirements for part-time students.

#### 4.4. Total graduate courses listed and level

Table 4.3.1 lists the graduate courses offered during each of the past three years with the graduate enrolments. Note that these are just the courses in each of the three participating departments that are directly relevant to energy studies. Many other graduate courses are routinely offered within these departments, and students may also take courses in other departments depending on their interests.

Courses denoted with a 6/4 prefix are eligible for both undergraduate and graduate credit. It is anticipated additional courses will be created as the program develops. In particular, courses in the following areas are being considered:

- **Energy Production, Consumption and Society (600 Level)** – a new course covering the engineering aspects (physics of operation, costs, limits, life cycle, applications) of renewable energy systems including wind (vertical and horizontal axis), geothermal, solar (photovoltaics and thermal), tidal and nuclear closed fuel cycles along with the societal impacts of energy use.
- **Economics of Energy Production and Delivery (600 Level)** – a new course which will analyze the various economics of energy production and delivery. Analysis of distributed power systems, small hydro, co-generation, energy market forces, grid infrastructure, maintenance and stability. Geopolitical and international aspects of energy production import and export.
- **Advanced Nuclear Materials and Characterization (700 Level)** – advanced course on materials used in the existing and next generation of nuclear reactors, their materials properties, radiation and environmental damage, creep, cracking, and tools used in characterization.
- **Engineering Aspects of Power Plant Environmental Assessments (700 Level)** – fundamentals and engineering approach to environmental assessments for power production and delivery. Review of current practices and government regulations. Project related to environmental assessments in the Hamilton/Ontario region.

It is anticipated that the above new courses could be delivered with the existing Faculty compliment.

Table 7 lists the graduate courses offered during each of the past three years with the enrolments.

**TABLE 7 (\*Enrolment UG/G)**

Course <sup>1</sup>	Faculty member(s) responsible	Enrollment <sup>3</sup>		
		2007/8	2008/9	2009/10



<b>Engineering Physics Graduate Courses</b>				
EP 4L04/6L04 Industrial Monitoring and Detection Techniques	D. Novog	14/1	16/1	27/0
EP 4NE3/6NE3 Advanced Nuclear Engineering	J. Luxat	13/9	12/3	24/4
EP 713 Nuclear Safety Analysis and Reactor Accidents	J. Luxat	14	Not offered	14
EP 715 Advanced Nuclear Reactor Thermalhydraulics	D. Novog	12	Not offered	6
EP 719 MEMS Devices: Design, Fabrication, and Applications	R. Kleiman	Not offered	Not offered	Not offered
EP 730 Thin Film Characterization	R. LaPierre	12	Not offered	14
<b>Materials Science and Engineering Graduate Courses</b>				
MAT 4D03/6D03 Materials and the Environment	J. Kish	not offered	41/4	not offered
MAT 4H03/6H03 Thin Film Science and Engineering	G. Botton	17/not offered	not offered	23/not offered
MAT 701/702 Graduate Seminar	J. Hoyt	10/5	12/5	17/8
<b>Mechanical Engineering Graduate Courses</b>				
ME 4U03/6U03 Compressible Flow and Turbomachinery	S. Tullis	0	1	2
ME 706 Advanced Heat Transfer	R. Judd	7	13	8
ME 708 Two Phase Flow and Heat Transfer	C. Ching/J.Cotton	0	0	6
ME 709 Introduction to Turbulent Flows	C. Ching	4	6	4
ME 709 Introduction to Turbulent Flows	S. Tullis			
ME 756 Computational Fluid Dynamics	M. Lightstone	12	15	13
ME 758 Graduate Seminars in Mechanical Engineering	R. Judd	60	52	56
<b>Engineering and Public Policy</b>				
SEP 706 Energy and Public Policy	N. Markettos			
SEP 754 Process Design and Integration for Minimal Environmental Impact	M. Sorin			

1. *Indicate by \* if the course is an undergraduate course occasionally taken by graduate students for graduate credit; by \*\* if the undergraduate course is habitually taken by graduate for graduate credit; and by \*\*\* if the course is a graduate course occasionally taken by undergraduate students.*
2. *List faculty member(s) responsible for the delivery of each course. If assignment changes each year for the same course, modify the table to reflect this fact.*
3. *In each case indicate graduate/undergraduate enrolment (G/U).*

Consistent with the McMaster 400/600 level classification in place within Engineering, some of the courses in this program have mixed undergraduate and graduate student representation. The course present advanced undergraduate material (i.e., the 400 series or course beginning with a 4) and the graduate level material (i.e., course beginning with a 6) with the requirements for graduate students to either complete an additional research project or report to obtain credit.

#### 4.5. Collateral and supporting departments

List only those involvements that are substantial, indicating the nature of the co-involvement (ie. graduate supervision, joint research, graduate teaching, etc.).

### 5. OUTCOMES

#### 5.1. Enrolment and graduations

Not applicable to new program

#### 5.2. Employment

Not applicable to new program

#### 5.3. Publications

Not applicable to new program

#### 5.4. Projected graduate intake and enrolments

Projected intakes and enrolment is shown in the following tables for the next 7 years.

TABLE 12

PROJECTED INTAKE AND ENROLMENTS Masters (M) And Doctoral (D) Programs										
YEAR	FULL-TIME				PART-TIME				TOTAL ENROLMENT	
	Intake		Enrolments		Intake		Enrolments		M	D
	M	D	M	D	M	D	M	D		
2011	2	-	2	-	1	-	1	-	3	-

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<b>2012</b>	6	-	6	-	2	-	3	-	9	-
<b>2013</b>	10	-	10	-	5	-	8	-	18	-
<b>2014</b>	12	-	12	-	6	-	13	-	25	-
<b>2015</b>	12	-	12	-	6	-	17	-	29	-
<b>2016</b>	12	-	12	-	6	-	18	-	30	-
<b>2017</b>	12	-	12	-	6	-	18	-	30	-

The projected enrolment of full-time non-visa students over the next 7 years is 2 ,5, 8, 10, 10, 10, 10 students (based on informal exit polling of undergraduate students from the Department) and they are expected to complete the program within 12 months. The number of part-time students is expected to be 1, 2, 5, 6, 6, 6, 6 students with the expected degree completion within 3 years). The number of visa students in the program is expected to be approximately 2 to 4 over the 7-year period with the expected completion within 12 months of enrolment.




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December 13, 2010

To : Graduate Council Members

From : Allison B. Sekuler   
Associate Vice-President and Dean (Graduate Studies)

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Attached is a draft of the Institutional Quality Assurance Process (IQAP), the final version of which will replace both the Undergraduate Program Reviews (UPRs) and the Ontario Council on Graduate Studies (OCGS) reviews, starting in July 2011. We are also attaching a checklist provided by the Council of Ontario Universities (COU) to show how this IQAP meets the minimum requirements set out by COU's Quality Assurance Framework, available at

<http://www.cou.on.ca/Issues-Resources/Student-Resources/Publications/Reports/PDFs/Quality-Assurance-Framework-and-Guide.aspx>

We are also attaching an early draft of the schedule of the cyclical program reviews that are described in the IQAP. These must be completed on an 8-year cycle. At this point, we have not taken into account external commitments, such as accreditation, that should be accommodated by the schedule.

This version of the IQAP already incorporates comments from initial consultations with a broad group, including the Faculty Deans. Note that we will not be voting on the IQAP at the upcoming meeting of Graduate Council, but we will be discussing it. Once we incorporate additional comments from Chairs/Directors, Undergraduate Council, Graduate Council, and others, we will bring it back to GC for vote.

Attachments

## **POLICY ON ACADEMIC PROGRAM REVIEWS (DRAFT)**

### **1. PREAMBLE**

The first stated goal of McMaster's strategic plan, *Refining Directions*, is "to provide an innovative and stimulating learning environment where students can prepare themselves to excel in life." Although many factors contribute towards the learning environment, the academic program in which each student is enrolled plays a major part.

McMaster University is widely recognized for innovation in teaching and learning and for the quality of its programs. Nevertheless, knowledge of our disciplines and the scholarship of teaching and learning are constantly evolving. It is clear that our reputation can only be maintained and improved if we, as academics and educators, critically review what we do and seek the opinion and advice from colleagues at McMaster and at other institutions.

Although the primary objective for these reviews is the improvement of our academic programs, the processes that we adopt should be designed to also meet our responsibility to the government on quality assurance: Every publicly assisted Ontario university that grants degrees and diplomas is responsible for ensuring the quality of all of its programs of study, including modes of delivering programs and those academic and student services that affect the quality of the respective programs under review, whether or not the program is eligible for government funding.

The process by which institutions meet this accountability to the government is outlined in the Quality Assurance Framework (QAF), developed by the Ontario Council of Academic Vice-Presidents (OCAV) and approved by Executive Heads in April 2010. Institutions' compliance with the QAF is monitored by the Ontario Universities Council on Quality Assurance, also known as the Quality Council, which reports to OCAV and the Council of Ontario Universities (COU).

As part of the recently approved Quality Assurance Framework, McMaster was required to develop an Institutional Quality Assurance Process (IQAP), which is contained within this Policy. The guiding principles used for developing McMaster's IQAP were:

- curriculum development and improvement is an ongoing, iterative process that is normally initiated, developed and controlled at the departmental level;
- McMaster's IQAP incorporates input from all principal stakeholders; and,
- McMaster's IQAP should be designed primarily to help improve programs and shape them to have characteristics that are most valued at our University, while also meeting the responsibility for quality assurance.

Thus, the goal of McMaster's IQAP is to facilitate the development and continued improvement of our undergraduate and graduate academic programs, and to ensure that McMaster continues to lead internationally in its reputation for innovation in teaching and learning and for the quality of its programs

The IQAP is subject to approval by the Quality Council when it is initiated and thereafter, when it is revised. The Quality Council will audit the University on an 8 year

cycle under the terms outlined in the Quality Assurance Framework.

## **2. CONTACT**

The authority responsible for the IQAP is the Associate Vice-President (Academic). The authorities responsible for its application will be the Associate Vice-President (Academic) for undergraduate programs and the Associate Vice-President and Dean of Graduate Studies for graduate programs. When undergraduate and graduate programs are reviewed concurrently, the Associate Vice-President (Academic) and the Associate Vice-President and Dean of Graduate Studies will be jointly responsible for its application.

The person responsible for all contact between the University and the Quality Council is the Associate Vice-President (Academic).

Throughout this Policy, the Chair refers to the head of the academic unit (usually a Department, sometimes a School or an interdisciplinary group) that is proposing a new program or is responsible for an existing program, although we recognize that the official title of such person varies across programs and Faculties. Similarly, the Dean refers to the head of the Faculty or equivalent responsible for the program, again recognizing that the official title may vary.

In the case of joint academic programs (e.g., a combined honours program or a collaborative program with another educational institution), the relevant Chair and Dean shall be those at McMaster University who have the administrative responsibility for the program.

## **3. PURPOSE**

This Policy on Academic Program Reviews is meant to guide the development of new undergraduate and graduate programs (including for-credit graduate diploma programs), and to aid in the ongoing improvement of existing programs. It has been designed also to meet the University's responsibility of ensuring the quality of such programs. It applies to all undergraduate and graduate programs offered at McMaster University, as well as programs offered in collaboration with other institutions that lead to McMaster University degrees or graduate diplomas.

Under this Policy, undergraduate and graduate program reviews may be conducted concurrently or in conjunction with other internal and accreditation reviews, but may also be done independently. The decision on whether to combine the reviews rests with the Chair responsible for the program.

## **4. DEFINITION OF NEW PROGRAMS AND MAJOR MODIFICATIONS**

For the purposes of quality assurance, a program will be considered new when it has not previously been offered at McMaster University. Although not new, a program that has been offered at McMaster University without funding from the Ministry of Training, Colleges and Universities (MTCU) and for which a request for funding is to be made, will follow the procedures for new programs that are outlined in Section 5.

Revisions to an existing program will be classified as either a minor or a major modification to the program. In both cases, the program will continue to be subject to a cyclical program review as outlined in Section 7. Major modifications must be reported annually to the Quality Council, as outlined in Section 7.4.

For undergraduate programs, a major modification will be one in which more than 30% of the program requirements are being changed from one academic year to the next. For graduate programs, a major modification will be one in which more than 50% of the program requirements (including requirements such as courses, major exams, and research) are being changed from one year to the next. If these conditions do not apply, the modifications will not be considered to be major.

## **5. NEW GRADUATE AND UNDERGRADUATE PROGRAMS**

The steps required for the approval of any new program include:

### **5.1. Broad consultation in the development of a draft proposal brief**

The Chair, in consultation with the Dean, is responsible for ensuring that there is broad consultation. Such consultation is especially important when proposing interdisciplinary programs as those initiators of the proposed plan may not know all the disciplines or individual faculty members who might potentially be interested, or have expertise. It will also be essential to have appropriate discussions with other institutions when the proposed programs are to be offered in collaboration with those institutions.

An initial meeting involving the Chair(s), the Dean(s) and the Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate Studies, will take place at which time the Dean(s) will be responsible for providing information showing that:

- the program is consistent with McMaster's principles and priorities and existing strengths of the University;
- the program is of high academic quality;
- there is convincing evidence of student demand and societal need for the program; and,
- sufficient financial support, infrastructure, and human resources can be made available to initiate and support the program either within the Faculty budget or based on the program being a full revenue generating program. Details of the program structure and course content are not needed for this meeting, but a brief written overview should be provided to the attendees of the meeting in advance.

### **5.2. Consultation with affected parties**

Whenever faculty members from several departments are involved in a proposal, these proponents should discuss the proposal with their respective Dean(s) and Chair(s). Similarly, if there is a proposal to cross-list a course, or to recommend or require students in the new program to take existing courses, the teaching Department(s) should be consulted and agreement obtained, in writing, from the appropriate Chair/Dean, especially in the case where the course is provided through

another Faculty. Approvals of the relevant Curriculum Committees should also be sought.

Discussions should be held with central support units such as, but not limited to, the Library, the Registrar, University Technology Services and the Centre for Leadership in Learning, as well as with Faculty-based support units, to assess the impact of the introduction of the new program.

A proposal for a new interdisciplinary program should be presented to any related Faculty/Program to ensure that there is widespread awareness of the program and of its potential impact. If a new interdisciplinary program utilizes or cross-lists one or several new courses from other Departments, the Department(s) offering the course(s), rather than the new interdisciplinary group, must submit those courses for approval. Prior written agreement also must be obtained from Chairs of participating Departments for graduate supervision and other resources required for interdisciplinary programs. Departments must be given adequate time to consider these requests. Faculties must include the proposed administrative and governance structures in interdisciplinary program proposals.

### **5.3. Program Proposal Brief**

The Chair is responsible for the preparation of a Program Proposal Brief that addresses the following criteria:

#### **5.3.1. Program Objectives**

- 5.3.1.a. Consistency of the program with the University's mission and academic plans.
- 5.3.1.b. Clarity and appropriateness of the program's requirements and associated learning outcomes in meeting the University's Undergraduate Degree Level Expectations (UDLEs) or Graduate Degree Level Expectations (GDLEs), as outlined in Appendix A.
- 5.3.1.c. Appropriateness of degree nomenclature.

#### **5.3.2. Admission requirements**

- 5.3.2.a. Appropriateness of the program's admission requirements for the learning outcomes established for completion of the program.
- 5.3.2.b. Alternative requirements, if any, for admission into the program, such as minimum grade point average, additional languages or portfolios, along with how the program recognizes prior work or learning experience.

#### **5.3.3. Structure**

- 5.3.3.a. Appropriateness of the program's structure and regulations to meet specified program learning outcomes and Degree Level Expectations.



- 5.3.3.b. For graduate programs, a clear rationale for program length that ensures that the program requirements can be reasonably completed within the proposed time period.

#### 5.3.4. Program content

- 5.3.4.a. Ways in which the curriculum addresses the current state of the discipline or area of study.
- 5.3.4.b. Identification of any unique curriculum or program innovations or creative components.
- 5.3.4.c. For research-focused graduate programs, clear indication of the nature and suitability of the major research requirements for degree completion.
- 5.3.4.d. For graduate programs, verification that the courses included meet university requirements in terms of the minimum number of courses required, the level of courses required, and the appropriate inclusion of other required elements appropriate for the degree level (e.g., transfer exams, comprehensive exams).

#### 5.3.5. Mode of delivery

Appropriateness of the proposed mode(s) of delivery to meet the intended Program Learning Outcomes and Degree Level Expectations and availability of the necessary physical resources.

#### 5.3.6. Assessment of teaching and learning

- 5.3.6.a. Appropriateness of the proposed methods for the instruction and assessment of student achievement of the intended Program Learning Outcomes. The Program Learning Outcomes must meet the University's Degree Level Expectations.
- 5.3.6.b. Completeness of plans for documenting and demonstrating the level of performance of students, consistent with the University's statement of its Degree Level Expectations.

#### 5.3.7. Resources for all programs

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

information technology support, and laboratory access.

5.3.8. Resources for graduate programs only

- 5.3.8.a. Evidence that full-time tenured/tenure-track/CAWAR faculty have the recent research and/or professional/clinical expertise needed to sustain the program, promote innovation, foster an appropriate intellectual climate, and provide excellent supervision of students in academic and research components of the program.
- 5.3.8.b. Where appropriate to the program, evidence that financial assistance for students will be sufficient to ensure adequate quality and numbers of students.
- 5.3.8.c. For programs with a research component, evidence that faculty research supervisors have current and ongoing research programs and funding, and space and relevant research infrastructure appropriate to support students' research in the program.
- 5.3.8.d. Evidence of how supervisory loads will be distributed, and the qualifications and appointment status of faculty who will provide instruction and supervision.
- 5.3.8.e. Evidence of prior experience in graduate teaching and research supervision for faculty participating in the program.

5.3.9. Resources for undergraduate programs only

- 5.3.9.a. Evidence of plans for adequate numbers of faculty and staff to achieve the goals of the program;
- 5.3.9.b. Evidence of plans to provide the necessary resources in step with the implementation of the program;
- 5.3.9.c. Planned/anticipated class sizes;
- 5.3.9.d. Provision of supervision of experiential learning opportunities (if required); and,
- 5.3.9.e. Role of adjunct and sessional faculty.

5.3.10. Quality and other indicators

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

#### **5.4. External reviewers**

The Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate Studies, in consultation with the Dean will select a team of reviewers to assess the proposal. The review team shall consist of at least one external reviewer for new undergraduate programs and two external reviewers for new graduate programs.

External reviews of new graduate programs must incorporate an on-site visit. External reviews of new undergraduate program proposals will normally be conducted on-site, but may be conducted by desk audit, video-conference or an equivalent method if the external reviewer is satisfied that the off-site option is acceptable. Exceptions will be determined by the Associate Vice-President (Academic), in consultation with the Dean, prior to the commencement of the review.

External members of the review team shall normally be individuals who are in the same discipline as the program under review (or across disciplines for interdisciplinary programs) and who are distinguished senior academics of broad experience, with an established commitment to higher education. They must have an impartial, arms-length relationship to the program. They will be selected from a list of at least four suggested individuals submitted by the Department for undergraduate programs under review, or six for graduate programs. The list shall include, for each proposed external reviewer:

- name;
- rank and position;
- institution or company and current address, telephone and fax numbers, e-mail address, and URL if available;
- professional (including administrative) experience or expertise relevant to the Program under review;
- details of any previous or current affiliation with the University, and any association with individual members of the Program under review (e.g., co-author, previous student/supervisor, friend); and,
- for graduate programs, a description of research expertise, and a partial listing of recent scholarly publications.

The Program Proposal Brief, the McMaster Guide to Program Reviews and other materials specific to the review will be provided to all members of the review team no less than two weeks prior to their visit.

#### **5.5. Reviewers' report**

Excepting when contrary circumstances apply, the reviewers will normally provide, within 4 weeks of the review, a joint report that appraises the standards and quality of the proposed program, and addresses the criteria set out in Section 5.3, including the associated faculty and material resources. Reviewers also will be invited to acknowledge any clearly innovative aspects of the proposed program, together with recommendations on any essential or otherwise desirable modifications to the

program.

### **5.6. Internal response**

Responses to the reviewers' report from both the Chair and the Dean, or their delegates, should be prepared and attached to the reviewers' report.

### **5.7. Institutional approval**

In addition to the completion of the external review, approval of new program proposals by the following University bodies, normally in the order listed below, is required:

- the Department(s) – to ensure that the new program meets the stated objectives within the context of the discipline;
- the Faculty Curriculum Committee(s) – to ensure that the new program adds sufficient value to the programs already offered in the Faculty;
- the Faculty(ies) (or Faculty Council(s) if the Faculty By-Laws allow it to act on behalf of the Faculty) – to ensure that the program is consistent with the Faculty's strategic plans and that the necessary resources are available if these are to be provided from within the Faculty's envelope;
- for Undergraduate programs, the Undergraduate Council Curriculum Committee – to assess the impact of the new program on students enrolled in other Faculties;
- Undergraduate Council or Graduate Council – to provide a venue for a broad discussion on the new program by elected faculty and student members with specific knowledge of and expertise in undergraduate or graduate programming, and ensure that the program is consistent with University-wide goals and criteria specifically related to undergraduate or graduate programming;
- University Planning Committee – to ensure the financial viability of the new program and evaluate the need for additional resources if these are to be provided from outside the Faculty envelope; and,
- Senate – to ensure that the program is consistent with the University's general strategic plans with respect to academic programs.

These bodies should consider the criteria outlined in Section 5.3 when evaluating the proposal.

Normally, approvals by all of the above University bodies will take place before the external review. However, in cases where the external reviewers recommend significant changes to the program proposal, it may have to return to these bodies for re-assessment.

In addition:

- The University Budget Committee must approve any request for additional funding outside the Faculty envelope including new one-time or base budget funding. This would be done during the normal budget cycle. Typically budget submissions are received in March and decisions communicated in June after the budget has the Board of Governors' approval.
- The University Student Fees Committee must approve all fees and the administration of them if the fees are different than the normal tuition charged

in a Faculty and/or if supplementary fees are being proposed. The Fees Committee must approve all fees for revenue generating programs.

Special considerations, such as collaboration agreements or non-standard distribution and full revenue generating programs should refer to the Academic Revenue Generating Activity Policy (<http://www.mcmaster.ca/policy/AdminAcad/AcadAdmin/AcademicRevenueActivityPolicy.pdf>) and other relevant University policies as may apply.

If any one of the bodies requires changes to the proposal, those changes may have to be subsequently provided to the other approving bodies for approval, depending on the nature of the changes.

Chairs of Departments named in the proposal should be informed by the University Secretariat of the schedule for presentations to Undergraduate Council, University Planning Committee and Senate, and of the decisions of these bodies with regard to the new program proposal. The School of Graduate Studies should inform Chairs of the schedule of presentations to Graduate Council, and of the decisions of this body with regards to the new program proposal.

#### **5.8. Quality Council Secretariat**

Once all approvals outlined in Section 5.7 are obtained, the institution will submit the Proposal Brief, together with the Reviewers' Report and the internal response to the Report, to the Quality Council Secretariat. The submission template will require information on whether or not the proposed program will be a cost-recovery program. The same standards and protocols apply regardless of the source of funding.

#### **5.9. Announcement of new programs**

Following its submission to the Quality Council, the University may announce its intention to offer the program, provided that clear indication is given that approval by the Quality Council is pending, and that no offers of admission will be made until the program has been approved by the Quality Council.

#### **5.10. Approved new programs**

After a new program is approved to commence by the Quality Council, the University may seek Provincial funding for the program, which must begin within thirty-six months of the date of approval; otherwise, the approval will lapse.

The first cyclical review for any new program must be conducted no more than eight years after the date of the program's initial enrolment.

Between eighteen and twenty-four months after onset of the program, the Chair will provide the Dean and Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate studies, with a brief update on progress in the program, addressing any concerns from the initial program review, and highlighting any unanticipated changes in curriculum, resources, enrollment, funding mechanisms, or governance structure. If, after

consultation with the Dean, the Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate studies, deems it appropriate, an informal internal assessment of the program may be undertaken, including interviews with current faculty, students, and staff, to determine if a more complete, early cyclical review is warranted.

## **6. EXPEDITED APPROVALS OF NEW PROGRAMS**

The Protocol for Expedited Approvals applies when one or more of the following applies:

- an institution requests endorsement of the Quality Council to declare a new Field or to revise Fields in a graduate program (note: there is no requirement to declare fields in either master's or doctoral programs);
- there is a proposal for a new collaborative program;
- there are proposals for new for-credit graduate diplomas; or,
- there are major modifications to existing programs, and the University requests approval.

The Expedited Approvals process requires all the approvals listed in Section 5.7 and the submission to the Quality Council of a Proposal Brief of the proposed program change/new program and the rationale for it. It does not require that external reviewers be involved in the approval process and provides for a faster turn-around on decisions by the Quality Council.

### **6.1. Proposal Brief**

The Proposal Brief will describe the new program or the significant changes being proposed (including, as appropriate, reference to Program Learning Outcomes, Degree Level Expectations, faculty and resource implications), provide a brief account of the rationale for the changes, and address the evaluation criteria.

### **6.2. Institutional Identification of Major Modifications to Existing Programs**

Existing programs can be expected to routinely undergo revisions with the aim of quality enhancement. This includes, for example, the introduction or deletion of courses, major exam structures, change in emphases, options, minors, or mode of delivery. The revisions must be submitted through the normal curriculum approval process outlined in Section 5.7 (excluding the University Planning Committee, unless there are significant resource implications). These revisions will be assessed during the course of the next cyclical review of the program.

There may be, however, situations where the changes to the program are of such significance that a more immediate review is desirable. This situation may occur, for example, where:

- the program's revisions meet the definition of a major modification, as defined in Section 4;
- the fundamental objectives of the program change; or,
- there are significant changes to the faculty engaged in delivering the program and/or to the essential physical resources,

In such cases, the Department, the Faculty, Undergraduate Council or Graduate Council may, if it deems it advisable after consultation with the relevant Dean(s) and Associate Vice-President (Academic) and/or Associate Vice-President and Dean of Graduate Studies, initiate a program review and request that the Quality Council review the major modification proposal. Normally, such review will occur through an Expedited Approval Process.

## **7. CYCLICAL PROGRAM REVIEWS**

All academic programs are to be reviewed on an eight-year cycle. Combined programs do not require review if their constituting programs are reviewed separately. Emphases, Options and Minors do not require review. The list of programs that require review, and the schedule of such reviews, will be maintained by the Associate Vice-President (Academic).

Departments can choose to review undergraduate and graduate programs jointly or separately. If the reviews are done jointly, there can be additional subsections within the report to address different situations that apply to each program. Program reviews can also be done jointly with accreditation reviews, at the discretion of the Chair, in consultation with the Dean (see Section 7.5).

The review consists of the following five steps:

### **7.1. Self-study: Internal program perspective**

The Chair is responsible for preparing a self-study document that is broad-based, reflective, forward-looking and inclusive of critical analysis. It should identify any pertinent information that it deems appropriate for inclusion. The self-study must address and document the consistency of the program's learning outcomes with the University's mission and Degree Level Expectations, and how its graduates achieve those outcomes;

The self-study should include criteria and quality indicators including:

#### **7.1.1. Objectives**

7.1.1.a. Program is consistent with the University's mission and academic plans.

7.1.1.b. Program requirements and learning outcomes are clear, appropriate and align with the University's statement of the undergraduate and/or graduate Degree Level Expectations.

#### **7.1.2. Admission requirements**

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

#### **7.1.3. Curriculum**

7.1.3.a. How the curriculum reflects the current state of the discipline or area of

study.

7.1.3.b. Evidence of any significant innovation or creativity in the content and/or delivery of the program relative to other such programs.

7.1.3.c. How the mode(s) of delivery are appropriate and effective at meeting the program's identified learning outcomes.

7.1.4. Teaching and assessment

7.1.4.a. Methods for assessing student achievement of the defined learning Outcomes and Degree Level Expectations are appropriate and effective.

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

7.1.5. Resources

Appropriateness and effectiveness of the academic unit's use of existing human, physical and financial resources in delivering its program(s) in relation to the University's priorities for funding, space, and faculty allocation.

7.1.6. Quality indicators

Information on the quality of the program under review. Standard quality indicators, outlined in the McMaster Guide to Program Reviews, will be provided to Chairs by central resources and departments. Chairs will be expected to provide context and commentary on the data provided to them. When possible and appropriate, Chairs will also refer to applicable professional standards.

7.1.7. Quality enhancement

Initiatives that have been undertaken to enhance the teaching, learning and/or research environments thus, the quality of the program, and how these will be sustained.

7.1.8. Additional graduate program criteria

7.1.8.a. Evidence that students' time-to-completion is both monitored and managed in relation to the program's defined length and program requirements.

7.1.8.b. Quality and availability of graduate supervision.

7.1.8.c. Definition and application of indicators that provide evidence of faculty, student and program quality, for example:



- 7.1.8.c.i. Faculty: funding, honours and awards, and commitment to student mentoring;
  - 7.1.8.c.ii. Students: grade-level for admission, scholarly output, success rates in provincial and national scholarships, competitions, awards;
  - 7.1.8.c.iii. Program: evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience, and commitment to development of professional and transferable skills; evidence of sufficient and regular graduate level course offerings to ensure that students will be able to meet university requirements in terms of the minimum number of courses required, the level of courses required, and the timely completion of other required elements appropriate for the degree level (e.g., transfer exams, comprehensive exams).
- 7.1.9. Additional requirements for Interdisciplinary programs:
- 7.1.9.a. Evidence that a consultative and inclusive system of governance has been used on an ongoing basis to assess the program and implement changes as appropriate.
- 7.1.10. Concerns and recommendations raised in previous reviews;
- 7.1.11. Areas identified through the conduct of the self-study as requiring improvement;
- 7.1.12. Areas that hold promise for enhancement;
- 7.1.13. Academic services that directly contribute to the academic quality of each program under review;
- 7.1.14. Participation of program faculty, staff, and students in the self-study and how their views were obtained and taken into account.
- 7.1.15. The input of others deemed to be relevant and useful, such as graduates of the program, representatives of industry, the professions, practical training programs, and employers may also be included.

It is the Chair's responsibility to review and approve the self-study report to ensure that it meets the above criteria.

## **7.2. External evaluation: External perspective**

The Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate Studies, in consultation with the Dean, will select a team of reviewers to evaluate the program. The review team shall consist of at least one external reviewer for undergraduate programs and two external reviewers for either graduate programs or for concurrent reviews of undergraduate and graduate programs. The team will also include one internal

reviewer selected by the Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate Studies, in consultation with the Dean. Additional members may be added to the team if appropriate, such as when evaluating professional programs.

External members of the review team normally shall be individuals in the same discipline as the Program under review (or across disciplines for interdisciplinary programs) who are distinguished senior academics of broad experience, with an established commitment to higher education. They must have an impartial, arms-length relationship to the Program. They will be selected from a list of at least four suggested individuals submitted by the Program/Department under review, or six for graduate programs or combined undergraduate/graduate program reviews. The list shall include, for each proposed external reviewer:

- name;
- rank and position;
- institution or company and current address, telephone and fax numbers, and e-mail address, and URL if available;
- professional (including administrative) experience or expertise relevant to the Program under review;
- details of any previous or current affiliation with the University, and any association with individual members of the Program under review (e.g., co-author, previous student/supervisor, friend); and,
- for graduate program or combined reviews, a description of research expertise, and a partial listing of recent scholarly publications.

The Self-Study, the McMaster Guide to Program Reviews and other materials specific to the current review will be provided to all members of the Review Committee no less than two weeks prior to their visit. When appropriate, the results of the previous accreditation review also will be made available to the Review Committee to provide them with the views of the relevant professional association(s). The Guide describes the review process and the roles and obligations of the Review Committee, which include:

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

It is required that all reviewers visit at the same time, normally for two days. As appropriate, the review team shall meet with the following:

- Chair or Director;
- Full-time faculty members (in groups);
- Part-time faculty members (in groups);
- Program students (units should encourage a broad cross section of students to

- participate in a meeting with the review team);
- Departmental/Program support staff;
- Associate Dean;
- Dean;
- for graduate programs, the Associate Vice-President and Dean of Graduate Studies;
- for undergraduate programs, the Associate Vice-President (Academic); and,
- Provost and Vice-President (Academic), if available.

The review team will submit to the Office of the Associate Vice-President (Academic) a joint report, including an Executive Summary, for the program(s) under review, normally within four weeks of the visit. The Review Committee's report should address the substance of both the self-study report and the evaluation criteria set out in Section 5.3. The intent of these reports is to be formative and constructive. The reports are intended to provide counsel rather than prescriptive courses of action. The Office of the Associate Vice-President (Academic) will circulate the report to the appropriate Chairs and Deans and, in the case of graduate programs, to the Associate Vice-President and Dean of Graduate Studies.

The Chair shall be responsible for preparing the Program's response to the report and submitting it to the Dean.

The Dean's response to the reviewers' report and to the Chair's response should include any changes in organization, policy or governance that would be necessary to meet the recommendations, a discussion of the ways in which proposed changes deal with problems identified in the review, whether additional resources can be allocated to enhance the quality of the program, and a proposed timeline for the implementation of proposed changes. The Dean will be responsible for reviewing the recommendations and for providing resources necessary for those that will be implemented.

### **7.3. Institutional perspective and report**

All program reviews, whether for new programs or for existing programs, will be submitted to McMaster University's Quality Assurance Committee, a joint committee of Undergraduate and Graduate Councils. The Quality Assurance Committee will assess the review and will submit a report to Undergraduate Council or Graduate Council that:

- identifies significant strengths of the program;
- identifies opportunities for program improvement and enhancement;
- identifies and prioritizes the recommendations;
- may include a confidential section (e.g., where personnel issues may be addressed);
- may include additional recommendations or comments. Recommendations could include, for example, requiring an additional cyclical review sooner than specified by the normal 8-year cycle.

Undergraduate Council or Graduate Council will receive the report from the Quality Assurance Committee and will consider whether it will add its own

recommendations or comments. These will be communicated to the Chair, the Dean and the Associate Vice-President (Academic) or, in the case of graduate programs, to the Associate Vice-President and Dean of Graduate Studies.

The report from Undergraduate Council or Graduate Council, along with any recommendations or comments, will be presented to the University Planning Committee, which will consider whether it will make additional recommendations or comments. These will be communicated to the Chair, the Dean and the Associate Vice-President (Academic) or, in the case of graduate programs, to the Associate Vice-President and Dean of Graduate Studies.

Eighteen months after receiving the report from Undergraduate Council or Graduate Council, the Dean will meet with the Chair for an update on the implementation of any recommendations. The Dean will submit a report to Undergraduate Council or Graduate Council summarizing the status of any actions taken or being taken. This report, along with any recommendations or comments from Undergraduate Council or Graduate Council, will be presented to the University Planning Committee, which will consider whether it will make additional recommendations or comments. These will be communicated to the Dean and the Associate Vice-President (Academic) or, in the case of graduate programs, to the Associate Vice-President and Dean of Graduate Studies.

#### **7.4. Reporting requirements**

Once per year, the Associate Vice-President (Academic) will prepare a report of major modifications to existing programs, as defined in Section 4, and will submit the report to the Quality Council.

Once per year, the Quality Assurance Committee will prepare an Annual Report on program reviews for that year. The Chair of the Quality Assurance Committee will present the Annual Report (excluding any confidential information) to an open session of Senate. The Deans will be invited to answer any questions that arise.

The Annual Report will be posted on the Vice-President Academic section of the University's website and copies of this information will be provided to the Quality Council and to the University's Board of Governors.

#### **7.5. Use of accreditation and other external reviews in the Institutional Quality Assurance Process**

Programs that periodically undergo accreditation reviews may use the associated documentation as a partial substitute for the self-study. The Associate Vice-President (Academic) or, in the case of graduate programs, the Associate Vice-President and Dean of Graduate Studies, in consultation with the Dean, will review the accreditation requirements to determine their suitability and identify any components of the cyclical review that are missing. An addendum to the accreditation documentation, containing any revised or missing components, will be prepared and appended to the accreditation documentation. The remaining steps in the cyclical review will then take place. A record of substitutions or additions, and

the grounds on which they were made, will be eligible for audit by the Quality Council.

## APPENDIX A

**McMASTER UNIVERSITY'S STATEMENT  
ON DEGREE LEVEL EXPECTATIONS**

A McMaster education should enable students to develop sets of life and learning skills that promote a continuing ability and desire to learn, and a set of technical and professional skills that permit a range of career choices. Degree level expectations elaborate the intellectual and creative development of students and the acquisition of relevant skills that are usually widely, yet implicitly, understood.

McMaster University has adopted the following Undergraduate Degree Level Expectations (UDLEs) or Graduate Degree Level Expectations (GDLEs) that were developed by the Ontario Council of Academic Vice-Presidents and endorsed by the Council of Ontario Universities in December 2005. These degree level expectations are to be viewed as a minimum threshold for all degree programs at McMaster.

**UNDERGRADUATE**

	<b>Baccalaureate/bachelor's degree</b> This degree is awarded to students who have demonstrated the following:	<b>Baccalaureate/bachelor's degree: honours</b> This degree is awarded to students who have demonstrated the following:
1. Depth and breadth of knowledge	<p>a) General knowledge and understanding of many key concepts, methodologies, theoretical approaches and assumptions in a discipline</p> <p>b) Broad understanding of some of the major fields in a discipline, including, where appropriate, from an interdisciplinary perspective, and how the fields may intersect with fields in related disciplines</p> <p>c) Ability to gather, review, evaluate and interpret information relevant to one or more of the major fields in a discipline</p> <p>d) Some detailed knowledge in an</p>	<p>a) Developed knowledge and critical understanding of the key concepts, methodologies, current advances, theoretical approaches and assumptions in a discipline overall, as well as in a specialized area of a discipline</p> <p>b) Developed understanding of many of the major fields in a discipline, including, where appropriate, from an interdisciplinary perspective, and how the fields may intersect with fields in related disciplines</p> <p>c) Developed ability to:</p> <p>i) gather, review, evaluate and interpret information; and</p> <p>ii) compare the merits of alternate hypotheses or creative options, relevant to one or more of the major fields in a discipline</p> <p>d) Developed, detailed knowledge</p>

	<p>area of the discipline</p> <p>e) Critical thinking and analytical skills inside and outside the discipline</p> <p>f) Ability to apply learning from one or more areas outside the discipline</p>	<p>of and experience in research in an area of the discipline</p> <p>e) Developed critical thinking and analytical skills inside and outside the discipline</p> <p>f) Ability to apply learning from one or more areas outside the discipline</p>
2. Knowledge of methodologies	<p>An understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to:</p> <p>a) evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques; and</p> <p>b) devise and sustain arguments or solve problems using these methods.</p>	<p>An understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to:</p> <p>a) evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques;</p> <p>b) devise and sustain arguments or solve problems using these methods; and</p> <p>c) describe and comment upon particular aspects of current research or equivalent advanced scholarship.</p>
3. Application of knowledge	<p>The ability to review, present, and interpret quantitative and qualitative information to:</p> <p>a) develop lines of argument;</p> <p>b) make sound judgments in accordance with the major theories, concepts and methods of the subject(s) of study; and</p> <p>The ability to use a basic range of established techniques to:</p>	<p>The ability to review, present and critically evaluate qualitative and quantitative information to:</p> <p>a) develop lines of argument;</p> <p>b) make sound judgments in accordance with the major theories, concepts and methods of the subject(s) of study;</p> <p>c) apply underlying concepts, principles, and techniques of analysis, both within and outside the discipline;</p> <p>d) where appropriate use this knowledge in the creative process; and</p> <p>The ability to use a range of established techniques to:</p>

	<p>a) analyze information;</p> <p>b) evaluate the appropriateness of different approaches to solving problems related to their area(s) of study;</p> <p>c) propose solutions; and</p> <p>d) make use of scholarly reviews and primary sources.</p>	<p>a) initiate and undertake critical evaluation of arguments, assumptions, abstract concepts and information;</p> <p>b) propose solutions;</p> <p>c) frame appropriate questions for the purpose of solving a problem;</p> <p>d) solve a problem or create a new work; and</p> <p>e) to make critical use of scholarly reviews and primary sources.</p>
4. Communication skills	The ability to communicate accurately and reliably, orally and in writing to a range of audiences.	The ability to communicate information, arguments, and analyses accurately and reliably, orally and in writing to a range of audiences.
5. Awareness of limits of knowledge	An understanding of the limits to their own knowledge and how this might influence their analyses and interpretations.	An understanding of the limits to their own knowledge and ability, and an appreciation of the uncertainty, ambiguity and limits to knowledge and how this might influence analyses and interpretations.
6. Autonomy and professional capacity	<p>Qualities and transferable skills necessary for further study, employment, community involvement and other activities requiring:</p> <p>a) the exercise of personal responsibility and decision-making;</p> <p>b) working effectively with others;</p> <p>c) the ability to identify and address their own learning needs in changing circumstances and to select an appropriate program of further study; and</p>	<p>Qualities and transferable skills necessary for further study, employment, community involvement and other activities requiring:</p> <p>a) the exercise of initiative, personal responsibility and accountability in both personal and group contexts;</p> <p>b) working effectively with others;</p> <p>c) decision-making in complex contexts;</p>



	<p>d) behaviour consistent with academic integrity and social responsibility.</p> <p>e) and behaviour consistent with academic integrity and social responsibility.</p>	<p>d) the ability to manage their own learning in changing circumstances, both within and outside the discipline and to select an appropriate program of further study;</p>
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**GRADUATE**

	<b>Master's degree</b> This degree is awarded to students who have demonstrated the following:	<b>Doctoral degree</b> This degree extends the skills associated with the Master's degree and is awarded to students who have demonstrated the following:
1. Depth and breadth of knowledge	A systematic understanding of knowledge, including, where appropriate, relevant knowledge outside the field and/or discipline, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study, or area of professional practice;	A thorough understanding of a substantial body of knowledge that is at the forefront of their academic discipline or area of professional practice including, where appropriate, relevant knowledge outside the field and/or discipline.
2. Research and scholarship	<p>A conceptual understanding and methodological competence that:</p> <p>a) Enables a working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline;</p> <p>b) Enables a critical evaluation of current research and advanced research and scholarship in the discipline or area of professional competence; and</p> <p>c) Enables a treatment of complex</p>	<p>a) The ability to conceptualize, design, and implement research for the generation of new knowledge, applications, or understanding at the forefront of the discipline, and to adjust the research design or methodology in the light of unforeseen problems;</p> <p>b) The ability to make informed judgments on complex issues in specialist fields, sometimes requiring new methods; and</p> <p>c) The ability to produce original</p>

	<p>issues and judgments based on established principles and techniques; and,</p> <p>On the basis of that competence, has shown at least one of the following:</p> <p>a) The development and support of a sustained argument in written form; or</p> <p>b) Originality in the application of knowledge.</p>	<p>research, or other advanced scholarship, of a quality to satisfy peer review, and to merit publication.</p>
3. Level of application of knowledge	<p>Competence in the research process by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a new setting.</p>	<p>The capacity to:</p> <p>a) Undertake pure and/or applied research at an advanced level; and</p> <p>b) Contribute to the development of academic or professional skills, techniques, tools, practices, ideas, theories, approaches, and/or materials.</p>
4. Professional capacity/autonomy	<p>a) The qualities and transferable skills necessary for employment requiring:</p> <p>i) The exercise of initiative and of personal responsibility and accountability; and</p> <p>ii) Decision-making in complex situations;</p> <p>b) The intellectual independence required for continuing professional development;</p> <p>c) The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and</p> <p>d) The ability to appreciate the broader implications of applying knowledge to particular contexts.</p>	<p>a) The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex situations;</p> <p>b) The intellectual independence to be academically and professionally engaged and current;</p> <p>c) The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and</p> <p>d) The ability to evaluate the broader implications of applying knowledge to particular contexts.</p>

5. Level of communications skills	The ability to communicate ideas, issues and conclusions clearly, orally and in writing, to a range of audiences.	The ability to communicate complex and/or ambiguous ideas, issues and conclusions clearly and effectively, orally and in writing, to a range of audiences.
6. Awareness of limits of knowledge	Cognizance of the complexity of knowledge and of the potential contributions of other interpretations, methods, and disciplines.	An appreciation of the limitations of one's own work and discipline, of the complexity of knowledge, and of the potential contributions of other interpretations, methods, and disciplines.

### Checklist for review of IQAPs

<b>University: McMaster University</b>	
<b>Document(s) analyzed (title): Policy on Academic Program Reviews</b>	
<b>Institutional Approval by:</b>	<b>Date of Institutional Approval:</b>

<b>IQAP Reviewer:</b>	<b>Date Reviewed:</b>
Reviewer's Recommendation:	
Quality Council Meeting Date:	
Quality Council Decision:	

Analyze IQAP to determine if the following elements are included and provide comment where appropriate.

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
<b>A. Statement of Scope (1.4)</b>			
<ul style="list-style-type: none"> <li>Covers all programs including those offered in full, in part or conjointly by institutions federated and affiliated with the university (cross check with listing of university's programs)</li> </ul>	Y	2	Covers all programs that lead to degree from McMaster University
<ul style="list-style-type: none"> <li>Includes programs offered in partnership with other post secondary institutions</li> </ul>	Y	2	

**Checklist for review of IQAPs**

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
<b>B. Institutional Process for New Program Approvals (2.0):</b> Includes the following evaluation criteria as defined in the QAF (Note: Evaluation criteria can/may include more than what is listed )			
<b>Evaluation Criteria (2.1)</b> – Before submitting a Proposal Brief to the Quality Council, institutions will evaluate any new graduate or undergraduate programs according to the following criteria:			
<b>Objectives (2.1.1)</b> a) Consistency of the program with the institution's mission and academic plans.	Y	5.3.1.a.	
b) Clarity and appropriateness of the program's requirements and associated learning outcomes in addressing the institution's own undergraduate or graduate Degree Level Expectations.	Y	5.3.1.b.	
c) Appropriateness of degree nomenclature.	Y	5.3.1.c.	
<b>Admission requirements (2.1.2)</b> a) Appropriateness of the program's admission requirements for the learning outcomes established for completion of the program.	Y	5.3.2.a.	
b) Sufficient explanation of alternative requirements, if any, for admission into a graduate, second-entry or undergraduate program, such as minimum grade point average, additional languages or portfolios, along with how the program recognizes prior work or learning experience.	Y	5.3.2.b.	
<b>Structure (2.1.3)</b> a) Appropriateness of the program's structure and	Y	5.3.3.a.	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
regulations to meet specified program learning outcomes and degree level expectations.			
b) For graduate programs, a clear rationale for program length that ensures that the program requirements can be reasonably completed within the proposed time period.	Y	5.3.3.b.	
<b>Program content (2.1.4)</b> a) Ways in which the curriculum addresses the current state of the discipline or area of study.	Y	5.3.4.a.	
b) Identification of any unique curriculum or program innovations or creative components.	Y	5.3.4.b.	
c) For research-focused graduate programs, clear indication of the nature and suitability of the major research requirements for degree completion.	Y	5.3.4.c.	
d) Evidence that each graduate student in the program is required to take a minimum of two-thirds of the course requirements from among graduate level courses.	Y	5.3.4.d.	
<b>Mode of delivery (2.1.5)</b> Appropriateness of the proposed mode(s) of delivery to meet the intended program learning outcomes and Degree Level Expectations.	Y	5.3.5	
<b>Assessment of teaching and learning (2.1.6)</b> a) Appropriateness of the proposed methods for the assessment of student achievement of the intended program learning outcomes and Degree Level Expectations.	Y	5.3.6.a.	
b) Completeness of plans for documenting and demonstrating the level of performance of students,	Y	5.3.6.b.	

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
consistent with the institution's statement of its Degree Level Expectations (see Guide).			
<b>Resources for all programs (2.1.7)</b> a) Adequacy of the administrative unit's planned utilization of existing human, physical and financial resources, and any institutional commitment to supplement those resources, to support the program.	Y	5.3.7.a.	
b) Participation of a sufficient number and quality of faculty who are competent to teach and/or supervise in the program.	Y	5.3.7.b.	
c) Evidence that there are adequate resources to sustain the quality of scholarship produced by undergraduate students as well as graduate students' scholarship and research activities, including library support, information technology support, and laboratory access.	Y	5.3.7.c.	
<b>Resources for graduate programs only (2.1.8)</b> a) Evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation and foster an appropriate intellectual climate.	Y	5.3.8.a.	
b) Where appropriate to the program, evidence that financial assistance for students will be sufficient to ensure adequate quality and numbers of students.	Y	5.3.8.b.	
c) Evidence of how supervisory loads will be distributed, and the qualifications and appointment status of faculty who will provide instruction and supervision.	Y	5.3.8.c.	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
<b>Resources for undergraduate programs only (2.1.9)</b> Evidence of and planning for adequate numbers and quality of:	Y	5.3.9.a.	
a) faculty and staff to achieve the goals of the program; or			
b) of plans and the commitment to provide the necessary resources in step with the implementation of the program;	Y	5.3.9.b.	
c) planned/anticipated class sizes;	Y	5.3.9.c.	
d) provision of supervision of experiential learning opportunities (if required); and	Y	5.3.9.d.	
e) the role of adjunct and part-time faculty.	Y	5.3.9.e.	
<b>Quality and other indicators (2.1.10)</b> a) Definition and use of indicators that provide evidence of quality of the faculty (e.g., qualifications, research, innovation and scholarly record; appropriateness of collective faculty expertise to contribute substantively to the proposed program).	Y	5.3.10.a.	
b) Evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience.	Y	5.3.10.b.	
<b>Initial Institutional Process (2.2):</b> The process the institution follows to approve new undergraduate and graduate programs will, as a minimum:			
<b>Identify authorities (2.2.1)</b> Identify the authority or authorities responsible for the IQAP and its application.	Y	3	
<b>Identify contact (2.2.2)</b> Identify the authoritative contact between the institution and the Quality Council. This will be the sole contact for communication	Y	3	



### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
between the institution and the Quality Council about the approval process.			
<b>Identify steps (2.2.3)</b> Identify the institutional steps required to develop and approve new programs. The IQAP will also set out the intra-institutional steps that will apply to the quality assurance of other new programs (for example, a new Emphasis, Option, Minor Program or similar) which do not require Quality Council appraisal and approval.	Y	5.1, 5.2, 5.7	
<b>Evaluation criteria (2.2.4)</b> Require, at a minimum, the evaluation criteria specified in Framework Section 2.1 above.	Y	5.7	
<b>Program Proposal Brief (2.2.5)</b> Require the preparation of a Program Proposal Brief that addresses the above criteria and meets the requirements of this Quality Assurance Framework together with any further institutional requirements which it chooses to apply (see template and Guide). For proposals for new for-credit graduate diplomas, apply only the applicable components of the Evaluation Criteria (see 2.1). Since no external reviewers are required, steps 2.2.6 through 2.2.9, inclusive, in the Initial Institutional Process will not apply.	Y	5.3	
<b>External reviewers (2.2.6)</b> Establish and describe a process for the selection and appointment of external reviewers and any others who will review the new program proposal. There will be at least one reviewer for new undergraduate programs and two for new graduate programs. External review of new graduate program proposals must incorporate an on-site visit. External review of new undergraduate program proposals will normally be conducted on-site, but may be conducted by desk audit, video-conference or an equivalent method if the external reviewer is satisfied that the off-site option is acceptable. The reviewers will normally be associate or full	Y	5.4	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
professors, or the equivalent, with program management experience, and will be at arm's length from the program under review. (See Guide for a definition of arm's length and for suggestions on the selection of reviewers.)			
<b>Reviewers' report (2.2.7)</b> Excepting occasions when two languages are used or when contrary circumstances apply, the reviewers will normally provide a joint report (see template) that appraises the standards and quality of the proposed program and addresses the criteria set out in Section 2.1, including the associated faculty and material resources. They will also be invited to acknowledge any clearly innovative aspects of the proposed program together with recommendations on any essential or otherwise desirable modifications to it.	Y	5.5	
<b>Internal response (2.2.8)</b> Require, in response to the Reviewers' Report(s) and recommendations, responses from both the proposing academic unit and the relevant deans or their delegates.	Y	5.6	
<b>Institutional approval (2.2.9)</b> Based on the Proposal Brief, the Reviewers' Report(s) and the internal responses to both, and in accordance with the IQAP, the institution will determine whether or not the proposal meets its quality assurance standards and is thus acceptable or needs further modification. The institution may stop the whole process at this or any subsequent point.	Y	5.7	
<b>Quality Council Secretariat (2.2.10)</b> After completion of any other requirements of its IQAP, the institution will submit the Proposal Brief, to the Quality Council Secretariat. The submission template will require information on	Y	5.8	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
whether or not the proposed program will be a cost-recovery program. The same standards and protocols apply regardless of the source of funding.			
<b>Announcement of new programs (2.2.11)</b> Following its submission to the Quality Council, the institution may announce its intention to offer the program, provided that clear indication is given that approval by the Quality Council is pending and that no offers of admission will be made until and unless the program is approved by the Council.	Y	5.9	
<b>Subsequent Institutional Process (2.4)</b>			
<b>First cyclical review (2.4.1)</b> The first cyclical review for any new program must be conducted no more than eight years after the date of the program's initial enrolment and normally in accordance with the university's program review schedule.	Y	5.10	
<b>Implementation window (2.4.2)</b> After a new program is approved to commence, the program will begin within thirty-six months of that date of approval; otherwise the approval will lapse.	Y	5.10	
<b>Monitoring (2.4.3)</b> Include process for monitoring new programs.	N		Is first cyclical review not sufficient?
<b>C. Institutional Process for Expedited Approvals (3.0)</b>			

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
IQAP will include reference to the following instances in which the Protocol for <b>Expedited Approvals</b> applies (3.0): a) an institution requests endorsement of the Quality Council to <b>declare a new Field in a graduate program</b> . (Note that institutions are not required to declare fields in either master's or doctoral programs.); or b) there is a proposal for a <b>new Collaborative Program</b> ; or c) there are proposals for <b>new for-credit graduate diplomas</b> ; or d) an institution requests it, there are <b>Major Modifications to Existing Programs</b> , as already defined through the IQAP, proposed for degree program or program of specialization			
<b>Major modifications (3.3)-</b> Includes definition of what constitutes "significant change" in: <ul style="list-style-type: none"> <li>Requirements that differ significantly from those existing at the time of the previous cyclical review</li> </ul>	Y	4, 6	
<ul style="list-style-type: none"> <li>Learning outcomes</li> </ul>	Y	6.2	
<ul style="list-style-type: none"> <li>Human resources including faculty delivering program</li> </ul>	Y	6.2	
<ul style="list-style-type: none"> <li>Essential physical resources such as change to existing mode of delivery (e.g. different campus, online delivery , inter-institutional collaboration)</li> </ul>	Y	6.2	
<b>The IQAP will also set out (3.3):</b> <ul style="list-style-type: none"> <li>the intra-institutional steps that will apply to the quality assurance of other program changes (for example, changes to an existing Emphasis, Option, Minor Program, or similar which do not require Quality Council appraisal and approval.)</li> </ul>	Y	6	
<ul style="list-style-type: none"> <li>information required and steps to be taken internally for its own approval process for such major modifications.</li> </ul>	Y	6.2	
IQAP will set out instructions for the preparation of the Proposal Brief to be submitted to the Quality Council for those cases when the institution may request a Quality Council Review. For a Quality Council review, this Brief requires:	Y	6	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
<ul style="list-style-type: none"> <li>A description of, and rationale for, the proposed changes; and</li> </ul>			
<ul style="list-style-type: none"> <li>Application of the relevant criteria outlined in framework section 2.1, to the proposed changes.</li> </ul>	Y	6.1	
<ul style="list-style-type: none"> <li>Application of 2.2.1 to 2.2.5</li> </ul>	Y	6.2	
<b>D. Protocol for Cyclical Program Reviews (4.0)</b> Schedule of reviews – not to exceed 8 years			
<b>Institutional Quality Assurance Process Requirements (4.2)</b> Institutions may enlarge or enhance the quality assurance process requirements set out below to meet their own needs. While accommodating the institution's own culture and practice, the IQAP for cyclical program reviews will:			
<b>Authority (4.2.1)</b> a) Identify the authority or authorities responsible for the IQAP and its application.	Y	3	
b) Identify the authoritative contact between the institution and the Quality Council.	Y	3	
<b>The Program or programs (4.2.2)</b> a) Identify how undergraduate and graduate programs will be reviewed. For example, will the program(s) be reviewed separately or will they coincide.	Y	7	
b) Identify the specific program or programs that will be reviewed and identify, where there is more than one mode or site involved in delivering a specific program, the distinct versions of each program that are to be reviewed.	Y	7	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
c) Include schedule of cyclical program reviews (Note: Review schedules should not exceed 8 years)	Y	7	
d) Indicate how the cyclical review schedule may coincide with any other interval of reviews and/or professional accreditation reviews	Y	7	
e) Identify how joint and other collaborative programs will be reviewed	Y	7	
<b>Self-study: Internal program perspective (4.2.3)</b>	Y	7.1	
a) Include the submission of a self-study document that is broad-based, reflective, forward-looking and includes critical analysis.	Y	7.1	
b) Identify any pertinent information which the institution deems appropriate for inclusion.	Y	7.1	
c) Ensure that the self-study will address and document the:	Y	7.1.1.a., 7.1.1.b.	
1. Consistency of the program's learning outcomes with the institution's mission and Degree Level Expectations, and how its graduates achieve those outcomes;	Y	7.1.6.	
2. Program-related data and measures of performance, including applicable provincial, national and professional standards (where available);	Y	7.1.6	Data will be supplied from central resources or departments
3. Integrity of the data;	Y	7.1.6	
4. Review criteria and quality indicators identified in Framework section 4.3;	Y	7.1.6	
5. Concerns and recommendations raised in previous reviews;	Y	7.1.10	

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
6. Areas identified through the conduct of the self-study as requiring improvement;	Y	7.1.11.	
7. Areas that hold promise for enhancement;	Y	7.1.12.	
8. Academic services that directly contribute to the academic quality of each program under review (see Guide);	Y	7.1.13.	
9. Participation of program faculty, staff, and students in the self-study and how their views will be obtained and taken into account.	Y	7.1.14.	
The input of others deemed to be relevant and useful, such as graduates of the program, representatives of industry, the professions, practical training programs, and employers may also be included.  d) Identify the authority or authorities who will review and approve the self-study report (see Framework section 4.2.1) to ensure that it meets the above.	Y	Last paragraph of 7.1.	
<b>External evaluation: External perspective (4.2.4)</b> a) Provide for an external evaluation. Normally the evaluation will be conducted by a Review Committee composed of at least:  1. One external reviewer for an undergraduate program;	Y	7.2	
2. Two such reviewers for a graduate program qualified by discipline and experience to review the program(s);	Y	7.2	
3. Two such reviewers for the concurrent review of an undergraduate and graduate program;	Y	7.2	
4. One further reviewer, either from within the university but	Y	7.2	

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
<p>from outside the discipline (or interdisciplinary group) engaged in the program, or external to the university.</p> <p>All members of the Review Committee will be at arm's length from the program under review. The external and institutional reviewers will be active and respected in their field, and normally associate or full professors with program management experience.</p> <p>Additional discretionary members may be assigned to the Review Committee where the IQAP so provides. Such additional members might be appropriately qualified and experienced people selected from industry or the professions, and/or, where consistent with the institution's own policies and practices, student members.</p>			
<p>b) Describe how the members of the Review Committee are selected as well as any additional reviewers who might be included in the site visits.</p>	Y	7.2	
<p>c) Describe the steps to be taken to ensure that all members of the Review Committee will:</p> <p>1. Understand their role and obligations;</p>	Y	7.2	
<p>2. Identify and commend the program's notably strong and creative attributes;</p>	Y	7.2	
<p>3. Describe the program's respective strengths, areas for improvement, and opportunities for enhancement;</p>	Y	7.2	



**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
4. Recommend specific steps to be taken to improve the program, distinguishing between those the program can itself take and those that require external action;	Y	7.2	
5. Recognize the institution's autonomy to determine priorities for funding, space, and faculty allocation.	Y	7.2	
6. Respect the confidentiality required for all aspects of the review process. The Review Committee's evaluation and report(s) (preferably one joint report, where circumstances permit) should address the substance of both the self-study report and the evaluation criteria set out in Framework section 4.3 (below).	Y	7.2	
d) Identify what reports and information the Review Committee will receive in addition to the self-study. Describe how site visits will be conducted, including how reviewers will meet with faculty, students, staff, and senior program administrators. In the case of professional programs, describe how the views of employers and professional associations will be solicited and made available to the Review Committee.	Y	7.2	
e) Identify to whom the Review Committee submits its report(s) and specify a time frame for its submission (see Report template).	Y	7.2	
f) Require those who produced the self-study to provide a brief written response to the report(s) of the Review Committee.	Y	7.2	
g) Identify the relevant dean(s) or academic administrator(s)	Y	7.2	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
responsible for the program, who will provide their responses to each of the following:			
1. The plans and recommendations proposed in the self-study report;			
2. The recommendations advanced by the Review Committee;	Y	7.2	
3. The program's response to the Review Committee's report(s);	Y	7.2	
and will describe:	Y	7.2	
4. Any changes in organization, policy or governance that would be necessary to meet the recommendations;			
5. The resources, financial and otherwise, that would be provided in supporting the implementation of selected recommendations; and	Y	7.2	
6. A proposed timeline for the implementation of any of those recommendations.	Y	7.2	
<b>Institutional perspective and report (4.2.5)</b> a) Describe how the self-study and the plans and recommendations issuing from it, and the reviewers' report and responses to it, will be assessed by institutional peers. Most universities have an existing (standing) committee that undertakes this function. The description should identify the participants and how they are selected.	Y	7.3	

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
b) Describe how a Final Assessment Report, providing the institutional synthesis of the external evaluation and internal responses and assessments, will be drafted which:  1. Identifies any significant strengths of the program;	Y	7.3	
2. Identifies opportunities for program improvement and enhancement;	Y	7.3	
3. Sets out and prioritizes the recommendations that are selected for implementation;	Y	7.3	
4. May include a confidential section (where personnel issues require to be addressed); and	Y	7.3	
5. Includes an institutional Executive Summary, exclusive of any such confidential information, and suitable for publication on the web.	Y	7.3	
c) Unless already specified elsewhere in the IQAP, the Final Assessment Report will include an Implementation Plan that identifies:  1. Who will be responsible for approving the recommendations set out in the Final Assessment Report (4.2.5 [b]3);	Y	7.3	
2. Who will be responsible for providing any resources made necessary by those recommendations;	Y	7.2	
3. Who will be responsible for acting on those recommendations; and	Y	7.3	

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
4. Timelines for acting on and monitoring the implementation of those recommendations.	Y	7.3	The 18-Month Report provides a tool for monitoring the implementation of recommendations.
<b>Reporting requirements (4.2.6)</b> a) Provide for the distribution of the Final Assessment Report (excluding all confidential information) and the associated Implementation Plan, to the program, Senate (or equivalent authority, as identified in Framework section 4.2.1) and the Quality Council.	Y	7.4	
b) Require that the institutional Executive Summary (provided for in Framework section 4.2.5) of the outcomes of the review, and the associated Implementation Plan (Framework section 4.2.5 c) be posted on the institution's website and copies provided to both the Quality Council and the institution's governing body.	Y	7.4	
c) Provide for the timely monitoring of the implementation of the recommendations, and the appropriate distribution, including web postings, of the scheduled monitoring reports.	Y	7.3	The 18-Month Report provides a tool for the timely implementation of recommendations.
d) Establish the extent of public access to the:  1. Information made available for the self-study;	Y	7.3	Report from QAC will be presented at the open sessions of AC and Senate, and will be available from the Senate Office.

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
2. Self-study report;	Y	7.3	Report from QAC will be presented at the open sessions of AC and Senate, and will be available from the Senate Office.
3. Report of the Review Committee; and	Y	7.3	Report from QAC will be presented at the open sessions of AC and Senate, and will be available from the Senate Office.
4. Specified responses to the report of the Review Committee.  It is expected that the report from the Review Committee will be afforded an appropriate level of confidentiality.	Y	7.3	Report from QAC will be presented at the open sessions of AC and Senate, and will be available from the Senate Office.
<b>Use of accreditation and other external reviews in the Institutional Quality Assurance Process (4.2.7)</b> The IQAP may allow for and specify the substitution or addition of documentation or processes associated with the accreditation of a program, for components of the institutional program review process, when it is fully consistent with the requirements established in this Framework. A record of substitution or addition, and the grounds on which it was made, will be eligible for audit by the Quality Council.	Y	7.5	
<b>Institutional Manual (4.2.8)</b> Provide for the preparation and systematic maintenance of an institutional manual that describes the cyclical program review and supports such reviews. Among other items, this manual should do the following:  a) Provide guidance on the conduct of rigorous, objective and searching self-studies, and describe the potential	Y	7.2	

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
benefits that can accrue from them;			
b) Establish the criteria for the nomination and selection of arm's length external peer reviewers;			
c) Identify responsibilities for the collection, aggregation and distribution of institutional data and outcome measures required for self-studies;			
d) Specify the format required for the self-study and external reviewers' reports; and			
e) Set out the institution's cycle for the conduct of undergraduate and graduate program reviews.			
<b>Evaluation Criteria (4.3)</b>			
The IQAP for review of existing undergraduate and graduate programs shall require, and may where it chooses extend the evaluation criteria set out below:			
<b>Objectives (4.3.1)</b>	Y	7.1.1.a.	
a) Program is consistent with the institution's mission and academic plans.			
b) Program requirements and learning outcomes are clear, appropriate and align with the institution's statement of the undergraduate and/or graduate Degree Level Expectations.	Y	7.1.1.b.	
<b>Admission requirements (4.3.2)</b>	Y	7.1.2	
Admission requirements are appropriately aligned with the learning outcomes established for completion of the program.			
<b>Curriculum (4.3.3)</b>	Y	7.1.3.a.	
a) The curriculum reflects the current state of the discipline or area of study.			

**Checklist for review of IQAPs**

<b>Does the policy include:</b>	<b>Yes/No/ Not Clear</b>	<b>Location in documentation or wording of section</b>	<b>Notes</b>
b) Evidence of any significant innovation or creativity in the content and/or delivery of the program relative to other such programs.	Y	7.1.3.b.	
c) Mode(s) of delivery to meet the program's identified learning outcomes are appropriate and effective.	Y	7.1.3.c	
<b>Teaching and assessment (4.3.4)</b> a) Methods for assessing student achievement of the defined learning outcomes and degree learning expectations are appropriate and effective.	Y	7.1.4.a.	
b) Appropriateness and effectiveness of the means of assessment, especially in the students' final year of the program, in clearly demonstrating achievement of the program learning objectives and the institution's (or the Program's own) statement of Degree Level Expectations.	Y	7.1.4.b.	
<b>Resources (4.3.5)</b> Appropriateness and effectiveness of the academic unit's use of existing human, physical and financial resources in delivering its program(s). In making this assessment, reviewers must recognize the institution's autonomy to determine priorities for funding, space, and faculty allocation.	Y	7.1.5.	
<b>Quality indicators (4.3.6)</b> While there are several widely used quality indicators or proxies for reflecting program quality, institutions are encouraged to include available measures of their own which they see as best achieving that goal. Outcome measures of student performance and achievement are of particular interest, but there are also		7.1.6	

### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
important input and process measures which are known to have a strong association with quality outcomes. It is expected that many of the following listed examples will be widely used. The Guide makes reference to further sources and measures that might be considered. a) Faculty: qualifications, research and scholarly record; class sizes; percentage of classes taught by permanent or non-permanent (contractual) faculty; numbers, assignments and qualifications of part-time or temporary faculty;			
b) Students: applications and registrations; attrition rates; time-to-completion; final-year academic achievement; graduation rates; academic awards; student in-course reports on teaching; and	Y	7.1.6.	
c) Graduates: rates of graduation, employment six months and two years after graduation, post-graduate study, "skills match" and alumni reports on program quality when available and when permitted by the Freedom of Information and Protection of Privacy Act (FIPPA). Auditors will be instructed that these items may not be available and applicable to all programs.	Y	7.1.6.	
<b>Quality enhancement (4.3.7)</b> Initiatives taken to enhance the quality of the program and the associated learning and teaching environment.	Y	7.1.7.	
<b>Additional graduate program criteria (4.3.8)</b> a) Evidence that students' time-to-completion is both monitored and managed in relation to the program's defined length and program requirements.	Y	7.1.8.a	
b) Quality and availability of graduate supervision.	Y	7.1.8.b.	
c) Definition and application of indicators that provide	Y	7.1.8.c.i.	



### Checklist for review of IQAPs

Does the policy include:	Yes/No/ Not Clear	Location in documentation or wording of section	Notes
evidence of faculty, student and program quality, for example: 1. Faculty: funding, honours and awards, and commitment to student mentoring;			
2. Students: grade-level for admission, scholarly output, success rates in provincial and national scholarships, competitions, awards and commitment to professional and transferable skills;	Y	7.1.8.c.ii.	
3. Program: evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience;	Y	7.1.8.c.iii.	
4. Sufficient graduate level courses that students will be able to meet the requirement that two-thirds of their course requirements be met through courses at this level.	Y	7.1.8.c.iii.	
<b>E. <u>The IQAP should also contain the following additional information:</u></b>			
<ul style="list-style-type: none"> <li>• IQAP is subject to approval of the Quality Council when it is initiated and thereafter, when it is revised</li> </ul>	Y	1.	
<ul style="list-style-type: none"> <li>• The university will be audited by the Quality Council on an 8 year cycle under the terms outlined in the Framework</li> </ul>	Y	1.	
<b>Reviewer Comments:</b> <ul style="list-style-type: none"> <li>• Please add any additional or overall comments about the institutional IQAP in the space below</li> </ul>			



Year	AVP Academic		Business		Engineering	
	Undgraduate	Graduate	Undgraduate	Graduate	Undgraduate	Graduate
<b>2015/16</b>						Engineering and Public Policy - M.E.E.P
u/g = 3						Engineering Entrepreneurship and Innovation - M.E.E.I
grad= 5						
<b>2016/17</b>						Civil Engineering - M.A.Sc.
u/g = 6						Civil Engineering - M.Eng.
						Civil Engineering - Ph.D.
grad= 10						
<b>2017/18</b>		Globalization - M.A.			Chemical Engineering	
						Chemical Engineering - M.A.Sc.
u/g = 14						Chemical Engineering - M.Eng.
						Chemical Engineering - Ph.D.
grad= 25					Civil Engineering	
					Business Informatics	
					Mechatronics Engineering	
					Software Engineering	
					Engineering and Management	
					Engineering and Society	
					Engineering and International Studies	
					Engineering Physics	
					Materials Engineering	
						Materials Engineering - M.A.Sc.
						Materials Engineering - Ph.D.
					Mechanical Engineering	
<b>2018/19</b>						Design and Manufacturing - ADMI M.Eng.
u/g = ?						Mechanical Engineering - M.A.Sc.
						Mechanical Engineering - Ph.D.
grad= 7						

Year	Health Sciences		Humanities	
	Undgraduate	Graduate	Undgraduate	Graduate
2011/12		Medicine and Biochemistry - M.D./Ph.D	Communication Studies	
			Multimedia	
u/g = 14				Cultural Studies and Critical Theory - M.A.
			English	
grad= 16			Linguistic Cognitive Science	
			Linguistics	
			Philosophy	
			Philosophy and Biology	
			Philosophy and Mathematics	
			Music	
			Music (Music Cognition)	
2012/13		Health Policy - Ph.D.		
	Physican Assistant			
u/g = 7		e-Health - M.Sc.		
grad= 9				
2013/14	Nursing		Classics	
		Rehabilitation Science - Ph.D.	Cultural Studies & Critical Theory	
u/g = 7			French	
grad= 9				
2014/15		Health Research Methodology - M.Sc.	History	
		Health Research Methodology - Ph.D.		
u/g = 12	Bachelor of Health Sciences			
		Health and Radiation Physics - M.Sc.		
grad= 32		Medical Sciences - M.Sc.		
		Medical Sciences - MD/Ph.D.		
		Medical Sciences - Ph.D.		
		Advanced Neo Natal Nursing - Diploma		
		Nursing - M.Sc.		
		Nursing - Ph.D.		
		Rehabilitation Science - M.Sc.		

Year	Health Sciences		Humanities	
	Undgraduate	Graduate	Undgraduate	Graduate
<b>2015/16</b>				Communication and New Media - M.A.
u/g = 3				History - M.A.
				History - Ph.D.
grad= 5			Theatre and Film Studies	
<b>2016/17</b>		Occupational Therapy - M.Sc. (OT)		French - M.A.
u/g = 6		Occupational Therapy - M.Sc. (PT)		Philosophy - Ph.D.
			Art	
grad= 10			Art History	
<b>2017/18</b>				English - M.A.
				English - Ph.D.
u/g = 14				Philosophy - M.A.
				Global Health - M.Sc.
grad= 25				
				Health Management - MHM
<b>2018/19</b>				Gender Studies and Feminist Research - M.A.
u/g = ?				Gender Studies and Feminist Research - PhD
grad= 7				

Year	Science		Social Sciences	
	Undgraduate	Graduate	Undgraduate	Graduate
2011/12		Biochemistry - M.Sc.		Political Science - M.A.
		Biochemistry - Ph.D.		Political Science - Ph.D.
u/g = 14		Chemical Biology - M.Sc.	Religious Studies	
		Chemical Biology - Ph.D.		
grad= 16		Cognitive Science of Language - M.Sc.		
		Cognitive Science of Language - Ph.D.		
		Neuroscience - M.Sc.		
		Neuroscience - Ph.D.		
	Kinesiology			
	Life Sciences			
	Physical Sciences			
2012/13		Chemistry - M.Sc.		
		Chemistry - Ph.D.		
u/g = 7		Earth and Environmental Sciences - M.Sc.		
		Earth and Environmental Sciences - Ph.D.		
grad= 9	Integrated Science			
	Gerontology			
	Health Studies			
2013/14	Environmental and Earth Sciences		Geography	
		Kinesiology - M.Sc.		Health and Aging - M.A.
u/g = 7		Kinesiology - Ph.D.	Social Work	
grad= 9				
2014/15	Chemical Biology		Psychology, Neuroscience and Behaviour	
	Chemistry		Psychology	
u/g = 12	Medical and Health Physics			Religious Studies - M.A.
	Medical Radiation Sciences			Religious Studies - Ph.D.
grad= 32		Radiation Sciences (Medical Physics/Radiation Biology) - M.Sc.	Sociology	
		Radiation Sciences (Medical Physics/Radiation Biology) - Ph.D.		
		Physics and Astronomy - M.Sc.		
		Physics and Astronomy - Ph.D.		
	Psychology, Neuroscience and Behaviour			

Year	Science		Social Sciences	
	Undgraduate	Graduate	Undgraduate	Graduate
2015/16	Physics		Labour Studies	
u/g = 3				
grad= 5				
2016/17	Biochemistry		Anthropology	
u/g = 6	Biology			Anthropology - M.A.
				Anthropology - Ph.D.
grad= 10				Economic Policy - M.A.
			Economics	
2017/18		Biology - M.Sc.		Geography - M.A.
		Biology - Ph.D.		Work and Society - M.A.
u/g = 14		Geography - M.Sc.	Political Science	
		Geography - Ph.D.		Social Work - M.S.W.
grad= 25				
		Materials Science - M.Sc.		
		Materials Science - Ph.D.		
		Mathematics - M.Sc.		
		Mathematics - Ph.D.		
	Mathematical Science			
	Mathematics and Statistics			
		Statistics - M.Sc.		
		Psychology - M.Sc.		
		Psychology - Ph.D.		
2018/19				Economics - M.A.
u/g = ?				Economics - Ph.D.
grad= 7				