



**School of Graduate Studies**

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To : Members of Graduate Council  
From : Christina Bryce  
Assistant Graduate Secretary

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The next meeting of Graduate Council will be held on **Tuesday April 21<sup>st</sup> at 9:30 am via Zoom.**

Listed below are the agenda items for discussion.

Please email [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca) if you are unable to attend the meeting.

## **A G E N D A**

- I. Minutes of the meeting of January 21<sup>st</sup> and February 18<sup>th</sup>, 2020**
- II. Business arising**
- III. Report from the Vice-Provost and Dean of Graduate Studies**
- IV. Report from the Graduate Associate Deans**
- V. Report from the Associate Registrar and Graduate Secretary**
- VI. Faculty of Business Graduate Curriculum and Policy Committee Report**
- VII. Faculty of Engineering Graduate Curriculum and Policy Committee report**
- VIII. Faculty of Health Sciences Graduate Policy and Curriculum Committee Report**
- IX. Faculty of Humanities Graduate Curriculum and Policy Committee Report**
- X. Faculty of Science Graduate Curriculum and Policy Committee Report**
- XI. Graduate Calendar Administrative Section Updates**
- XII. Faculty of Health Sciences Spring 2020 Graduands (to be distributed)**
- XIII. New Scholarship**
- XIV. Microcredential Academy**

Tuesday January 21<sup>st</sup> at 9:30 am in Council Chambers (GH-111)

Present: Dr. D. Welch (Chair), Dr. K. Hassanein, Dr. S. Hanna, Dr. M. Horn, Dr. J. Gillett, Dr. M. Thompson, Dr. B. Gupta, Dr. C. Kwan, Dr. L. Chan, Dr. D. Mountain, Dr. J. Kish, Dr. I. Bruce, Dr. S. Dickson, Dr. L. Thabane, Dr. S. Pope, Dr. S. Bannerman, Dr. M. Stroinska, Dr. J. Shedden, Dr. N. Tan, Dr. N. McLaughlin, Dr. M.A. Letendre, Mr. M. Lightsone, Ms. J. de Lange, Ms. L. Greville, Ms. S. Zakaria, Ms. C. Lopez, Ms. C. Bryce (Assistant Graduate Secretary),

Regrets: Ms. V. Lewis, Dr. S. Raha, Dr. J. West-Mays, Dr. J. Xu

Attendees: Ms. N. Taylor, Dr. C. van der Linden

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#### **I. Minutes of the meeting of November 19<sup>th</sup>, 2019**

It was duly moved and seconded, **'that Graduate Council approve the minutes of the meeting of November 19<sup>th</sup>, 2019.'**

The motion was **carried**.

#### **II. Business arising**

There was no business arising.

#### **III. Report from the Vice-Provost and Dean of Graduate Studies**

Dr. Welch reported on the following items:

- McMaster has submitted the proposed third Strategic Mandate Agreement to the MTCU who will review and request adjustments, the expectation is that the agreement will be finalized sometime in March;
- The inaugural international graduate student coordinator has been hired away to a different position in the student success centre;
- The graduate admissions project underway and they are very close to picking a vendor to dramatically improve the current system and process;
- The Iranian students lost in a plane crash, noting that they were working on impactful research in Automotive Research Centre. He mentioned the powerful memorial service that had already been held and noted that McMaster will be celebrating the students' lives and contributions in various ways going forward.

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

Dr. Hanna (Faculty of Health Sciences) reported on the following items:

- The research plenary, noting that they were planning to increase the prestige of the awards;
- The plan to strike a working group to discuss rubrics and grading for group work.

Dr. Gupta (Faculty of Science) reported on the following items:

- An open house for undergraduate students interested in pursuing graduate studies in science;
- An alumni social event, noting that senior students tend to benefit the most and can ask questions of alumni.

Dr. Thompson (Faculty of Engineering) reported on the following items:

- Engineering also has an undergraduate coffee house, intending to get students to think about graduate studies which they've found is a good opportunity for undergraduate students to meet faculty members that are beginning to think and look for research partners;
- Further work on the discussion of microcredentials, noting that the Secretariat is working to pull committee together and that McMaster needs a definition before they can utilize them.

Drs. Gillet, Horn and Hassanein had no report.

#### **V. Report from the Associate Registrar and Graduate Secretary**

There was no report.

#### **VI. New Program Proposal**

Dr. Gillet presented the proposal, introducing Dr. van der Linden, and noting that the proposed program is a one-year professional masters to be offered out of the Faculty of Social Sciences, in collaboration with Business and Humanities. He explained that while most programs are run out of a department or an institute this program will be run out of the Faculty office, in collaboration with departments within the Faculty of Social Sciences as well as Business and Humanities.

Council members discussed the potential for perceived overlap between this and the Master of Engineering and Public Policy within the Faculty of Engineering. Dr. Thompson noted that he saw a distinct difference between the two, despite a recent proposal to change the admission requirements for the program from Engineering and noted that there should be additional discussion to ensure differentiation could be clearly articulated.

Council members discussed the timing for admission and whether competence would be required as part of their admission requirements. Dr. van der Linden said that they're expecting students to be building technical skills within the program, developing graduates with the ability to be public policy leaders who can speak to teams that have expertise in certain areas and that all students to be would have completed their undergraduate requirements before starting the program in May.

In response to a question Dr. Gillet confirmed the program would not be funded by the ministry.

In response to a question about the sustainability of a skills development lab, which would require industry experts, Dr. van der Linden noted that the relationships would require consistent maintenance but that they had had many discussion with different levels of government and private companies and there was a lot of interest and recognized need for students with the skills the program would provide. Council members discussed the approval process for a new program.

In response to a question Dr. van der Linden explained that the zero-unit course was required and not a microcredential.

It was duly moved and seconded, **‘that Graduate Council approve the proposed new program as described in the document.’**

The motion was **carried**.

#### **VII. Faculty of Engineering Graduate Curriculum and Policy Committee Report**

Dr. Thompson noted that there are bringing forward for information and number of new courses and cancellations. The first item for approval was a reduction in course requirements for the Ph.D. in Electrical Engineering. The second item for approval was a change from Materials Science and Engineering – after an IQAP review noting that their M.Sc. and M.A.Sc. were essentially identical, the program proposed discontinuing (being fully closed once students enrolled have completed) the M.Sc. and renaming the M.A.Sc. to Materials Science and Engineering.

It was duly moved and seconded, **‘that Graduate Council approve the changes proposed by the Faculty of Engineering as described in the documents.’**

The motion was **carried**.

#### **VIII. Faculty of Business Graduate Curriculum and Policy Committee Report**

Dr. Hassanein presented items from three areas for approval. The first was a change to calendar copy from Health Management, providing clarity between the full-time and part-time options in terms of courses required. The second item was related to the Blended Learning Part-Time MBA and included a change in course requirements and calendar copy. The program proposed moving three units from term 8 to term 9, cleaning up some of the discrepancies in the title of the integration project, and the addition of blended learning electives. The final item was changes from professional accountancy. They proposed a change to admission requirements and their grading scale both changes were intended to bring the program in line with SGS requirements.

Council member discussed how the blended learning courses were offered.

It was duly moved and seconded, **‘that Graduate Council approve the changes proposed by the Faculty of Business as described in the documents.’**

The motion was **carried**.

#### **IX. Faculty of Social Sciences Graduate Curriculum and Policy Committee Report**

Dr. Gillet introduced the changes. The first were from Anthropology and involved the addition of a mandatory professional development course. The department of Economics proposed changes to their available comprehensive fields, to align with faculty expertise and the introduction of a research paper in collaboration with a faculty member. He noted that this fit with the discipline and is a standard practice in comparator programs. The third change from Economics was the addition of an active researcher milestone which would require students to demonstrate on an ongoing basis active engagement in the department. In response to questions, the program has provided a clear plan for students, advisors and the graduate chair to ensure flexibility and consistency. Labour Studies proposed calendar copy changes to clarify the MRP versus the thesis and to provide a clear description in light of their relatively new Ph.D.

program. The final change was a calendar copy change from Social Work, including an adjustment around practicum planning and adding information about their second graduate diploma also being available for advanced credit.

Council members discussed the evaluation of the professional development workshop.

It was duly moved and seconded, **‘that Graduate Council approve the changes proposed by the Faculty of Social Science as described in the documents.’**

The motion was **carried**.

#### **X. Research Plagiarism Checking Policy**

Dr. Thompson presented the item, noting that it had been presented to graduate council twice before for consultation and changes had been made accordingly. The policy would also be sent to Undergraduate Council as it does interact with undergraduate students engaged in research.

In response to a question from a council member about submissions to conferences, Dr. Thompson noted that the policy is a recommendation not a requirement and is meant to guide users in best practices. Dr. Welch noted that theses were required to be submitted before submission to an external.

Council members discussed the potential for training and communication about appropriate use of the tool, including a website and the need to clearly indicate to supervisors how this interacts with the academic integrity office.

A council noted a typo – a word was singular when it should have been plural.

Council members discussed the language around the requirement that theses be submitted and whether the language was clear enough. Dr. Welch noted that there will need to be language in the Graduate Calendar about it and Dr. Thompson noted that the language is as recommended by the Secretariat’s office.

In response to a question about past theses, Dr. Thompson said that this would only apply going forward. Council members discussed the role of the supervisor in determining the threshold of similarity

In response to a question Dr. Thompson confirmed that his understanding is that the tool can handle material in French.

**It was duly moved and seconded, ‘that Graduate Council approve the policy as set out in the document.’**

The motion was **carried**.

#### **XI. Scholarship Committee Membership**

It was duly moved and seconded, **‘that Graduate Council approve the Scholarship Committee membership as set out in the document.’**

The motion was **carried**.

## **XII. New Scholarship**

It was duly moved and seconded, **‘that Graduate Council approve the new scholarship as set out in the document.’**

The motion was **carried**.

## **XIII. 3 Minute Thesis Update**

Ms. Taylor provided an update, noting that the competition is taking place on March 18<sup>th</sup> and 19<sup>th</sup>. Registration is open until March 2<sup>nd</sup> at noon. In the competition graduate students in a thesis or MRP program explain the breadth and significance of their research to a non-specialist audience in three minutes. The winner goes on to the provincial competition and an information session was held in advance of the competition.

## **XIV. Additional Business – Discussion of Thesis Submission Grace Period**

Mr. Lightstone opened the discussion, noting that currently if a student doesn’t submit their final thesis they are still considered to be enrolled in the university and every month past expected completion date they pay tuition. There is a grace period in the month of September, but this is not granted at the end of January or May. The Engineering Graduate Society is interested in having a grace period at the end of those semesters. There is a lot happening against those students in the month of December, which makes it difficult to submit their thesis on time, including a black-out period during which you can’t book a thesis defence and TA duties in this time. He noted there are a lot of reasons to give students extra time, including mental health and financial issues.

Dr. Welch provided noted that the issues involved are fairly complex and provided some context about the impetus for the grace period in September, noting that it used to be a single person coordinating all thesis defences and that there was difficult scheduling a defence in the summer time. The downstream effect of being unable to scheduled defences in August was the additional consideration in September. He noted that the landscape is different now and there are different possibilities about how it might be managed going forward and this was a good time for discussion.

Council members discussed the issue, including stress and financial challenges as well as the volume of defences in September, noting that it is by far the busiest month for defences.

Dr. Welch discussed changes to process and timelines around supervisory deadlines, which used to happen around the same time as defence deadlines and noted the importance of considering why this had been done in the past, what form it should take going forward and continued discussion.

## **XV. Other Business**

Dr. Hanna asked if there is periodically an initiative to review small scholarships with an eye to amalgamating where appropriate and possible to leverage larger scholarships. Dr. Welch responded that there is now a threshold among for what needs approval to be a scholarship, otherwise it is considered a donation. He was happy to put together a discussion with advancement and the associate deans to discuss.

There being no other business, the meeting was concluded.

Tuesday February 18<sup>th</sup> at 9:30 am in Council Chambers (GH-111)

Present: Dr. D. Welch (Chair), Dr. K. Hassanein, Dr. J. Gillett, Dr. M. Thompson, Dr. B. Gupta, Dr. D. Mountain, Dr. M. Stroinska, Dr. J. Shedden, Dr. I. Bruce, Dr. S. Raha, Ms. S. Baschiera (Associate Registrar and Graduate Secretary), Ms. C. Bryce (Assistant Graduate Secretary),

Regrets: Dr. S. Hanna, Dr. M. Horn, Ms. V. Lewis, Dr. C. Kwan, Dr. L. Chan, Dr. S. Dickson, Dr. S. Bannerman, Dr. N. Tan, Dr. N. McLaughlin, Mr. M. Javdan

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**I. Minutes of the meeting of January 21<sup>st</sup>, 2020**

Without quorum this item was deferred.

**II. Business arising**

There was no business arising.

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

**Dr. Welch reported on the following items:**

- Changes from the Ministry related to SMA metrics, related to conversations with other universities, noting that McMaster is on track to have a signed agreement in the near future;
- A vendor had been selected for the admissions project and now a contract is being worked on;-
- OGS allocation had not been released yet;
- Issues with students reporting all sources of income meant a change in OSAP eligibility which, in turn, meant a decrease in the number of students eligible for a bursary but larger bursaries given out;-
- The Research Plagiarism Checking Policy went to Senate and approved, wording will be added to the Graduate Calendar related to thesis submission.

In response to a question, Dr. Welch said that the University would not be taking on the liability for OGS allocation if they were not released by the Ministry, he noted that they are still expecting OGS to happen.

**IV. Report from the Graduate Associate Deans**

**Dr. Gupta (Faculty of Science) reported on the following item:**

- They are reviewing graduate handbooks and the graduate instructors guide to make sure everything is up-to-date.

**Drs. Gillett, Hassanein and Thompson had no report.**

**V. Report from the Associate Registrar and Graduate Secretary**

**Ms. Baschiera reported on the following items:**

- The concurrent implement of the new admission system and a new system for students applying to awards;

- The review of a new online form system, with the goal being greater efficiency and a better experience for students and administrators and
- Three tiers of bursaries had been given out this year.

**VI. Faculty of Engineering Graduate Curriculum and Policy Committee Report**

Without quorum this item was deferred.

**VII. Faculty of Health Sciences Graduate Policy and Curriculum Committee Report**

Without quorum this item was deferred.

**VIII. Faculty of Social Sciences Graduate Curriculum and Policy Committee Report**

For information items only.

**IX. New Scholarship**

Without quorum this item was deferred.

**X. Discussion of Thesis Submission Grace Period**

Dr. Welch asked Mr. Lightstone to remind members of the issue at hand and noted, in terms of implementation, the earliest any changes could be considered is September 2021 and that this left time to receive feedback about how to improve the process.

Mr. Lightstone highlighted the challenges for students finishing at the end of the fall and winter terms, noting competing priorities and stress for students related to other duties at the time and the other work to be submitted, particularly at the Masters level.

Ms. Baschiera discussed the origin of the grace period, noting that August presents the normal end of study for a student who began in September but because of the volume of defences and the process around arranging them, an accommodation for Ph.D. students was made to allow them to defend and submit their thesis by the end of September. She noted that there had been a number of changes to thesis defence, including the accelerated approach which made planning much more flexible.

Council members discussed financial options, including the reduction in supplemental fees for students returning to complete, removing the September grace period and adding a small fee to each term, and the fact that students are refunded tuition for any months after which they're completed and the resulting incentive to finish earlier. They also discussed the consequences of rolling deadlines.

Dr. Welch noted that the associate deans had discussed the item and he expected they would continue to do so. In response to a question from Dr. Welch, Ms. Baschiera noted the challenge of managing 6 terms with different timelines and the competing administrative priorities in the existing grace period (and in additional ones) In the fall these included start of term activities, stabilization of enrollment and the largest convocation for graduate students. In January the competing priorities included government count deadlines, working with partner offices to ensure correct tax receipts and the failure to register. There is also a concern around equity for students in non-thesis programs who would not under the current conception of the grace period, qualify



for one. She highlighted a lot of opportunity to discuss but that this was not a consideration for the School of Graduate Studies alone.

Council members discussed the percentage of students who go into the grace period, the number of defences using the accelerated model and the overall number of Ph.D. defences. Ms. Baschiera said she could bring that information to a future meeting.

Council members discussed the different kinds of extensions available to students and the different options related to fees and convocation if a student were to pass the extension period.

Council members discussed the accelerated thesis defence process, including the lack of black-out periods, the benefits of the system overall, sharing the external report with the student and feedback around the accelerated system.

Dr. Welch said they would bring back the item for discussion at a future meeting and would circulate the data discussed ahead of time.



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To : Graduate Council

From : Christina Bryce  
Assistant Graduate Secretary

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At its meeting on March 13<sup>th</sup> the Faculty of Business Graduate Curriculum and Policy Committee approved the following recommendations.

Please note that these recommendations were approved by the Faculty of Business.

**For Approval of Graduate Council:**

- a. **eHealth\***
  - i. **Changes to Course Requirements and Calendar Copy**
- b. **Finance**
  - ii. **Change to Calendar Copy**
- c. **Blended Learning Part-time MBA**
  - i. **Change to Course Requirements and Calendar Copy**
  - ii. **Change to Admission Requirements**
- d. **MBA**
  - i. **Change to Admission Requirements, Course Requirements and Calendar Copy**
- e. **Business Ph.D.**
  - iii. **Change to Course Requirements**

**For Information of Graduate Council:**

- f. **eHealth\***
  - iv. **New Course**
    - **703 Virtual Care & Telemedicine for eHealth**
  - v. **Change in Course Description**
    - **705 Statistics for eHealth**
  - vi. **Change in Prerequisite**
    - **724 EHealth: Fundamentals of eHealth and the Canadian Health Care System**
- g. **Blended Learning Part-time MBA**
  - vii. **New Course**

- 723 Strategic Integration Project
  - 753 Program Synthesis and Future Planning
- viii. **Change to Prerequisites**
- 601 Managing Financial Resources
  - 602 Economics & Business Statistics
  - 603 Competing Through Digital Transformation & Analytics
  - 604 Creating Customer Value
  - 605 Managing Organizations
  - 700 Business, Government & Global Environment
  - 720 Strategic Management
  - 751 Innovation and Design Thinking
  - 752 Co-Creating Strategic Foresight
- h. **MBA**
- ix. **New Courses**
- F702 Sustainable and Social Finance
  - P721 The Clinic – Innovation Lab
- x. **Change to Course Description**
- K731 Project Management
- xi. **Change to Course Title**
- P719 Independent Research Project in Business Environment and Policy
- xii. **Change to Requisites**
- P700 Business, Government and the Global Environment
  - P720 Strategic Management

\*also approved by the Faculties of Health Sciences and Engineering



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		eHealth Graduate Program	
<b>NAME OF PROGRAM and PLAN</b>		eHealth Graduate Program	
<b>DEGREE</b>	MSc eHealth		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> This change encompasses modifications to the Program Description, Program Details, and Course Offerings for the eHealth Program in the SGS calendar.	
<b>OTHER CHANGES</b>	<input type="checkbox"/>	<b>EXPLAIN:</b>	

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Below is a description of the recommended changes to each section. The existing SGS Calendar text with track changes to show the updates is attached.

**Program Description:**

- Minor editorial changes to tidy up the language
- Faculty List updates to add new, remove old, and reflect appropriate rank

**Program Details:**

- The change from “Area of Specialization” to “Disciplines” reflects current administrative practices in the program. In the early days of the program, students were required to declare an area of specialization. In practice, students often changed their desires upon entering the program and being exposed to the breadth of the field in their first academic term. As such, the practice of declaring a specialization has not been upheld for many years in favour of allowing students to explore the disciplines according to their evolving interests.

**Course Offerings:**

- Edits to the list of elective courses to add new, remove old, correct errors
- Separate curriculum forms have been submitted with respect to 3 course changes separately; these changes are reflected in the text with track changes:
  - o eHealth 724- remove prerequisite
  - o eHealth 705- remove name of statistical software in course description
  - o eHealth 703- add new course that has been successfully offered on Dean’s Permission

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department’s program and/or tie to existing Program Learning Outcomes from the program’s IQAP cyclical review?):**

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

The Program asks that these changes be made for the 20/21 SGS calendar.

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

<b>PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):</b>
<b>CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b>  Name: Nicole Wagner    Email: wagnernm@mcmaster.ca    Extension: 24919    Date submitted: January 30, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013

## Link: program description

[https://academiccalendars.mcmaster.ca/preview\\_entity.php?catoid=39&ent\\_oid=5504&returnto=8192](https://academiccalendars.mcmaster.ca/preview_entity.php?catoid=39&ent_oid=5504&returnto=8192)

- [Program and Course Offerings](#)

eHealth ~~is-can be~~ defined as “The knowledge, skills and tools which enable information to be collected, managed, used and shared to support the delivery of healthcare and to promote health” (taken from the UK National Health Service). The objective of the program is to produce Masters level graduates with high quality training in the broad interdisciplinary area that eHealth encompasses, emphasizing industry-relevant academic research, development\_ and evaluation.

The program is based on a collaborative partnership among the Faculties of Health Sciences, Engineering, and ~~the DeGroote School of Business~~. [The administrative home of the program resides in](#)~~It is administered by~~ the DeGroote School of Business. Three ~~Academic-academic~~ ~~Units-units~~ are major collaborators in the program: the Department of Health Research Methods, Evidence\_ and Impact (Faculty of Health Sciences), the Department of Computing and Software (Faculty of Engineering), and the Information Systems Area in the DeGroote School of Business. Many additional faculty members with eHealth interests from other departments also participate in the program.

Enquiries: 905-525-9140 Ext. 23950

Fax: 905-521-8995

E-mail: [ehhealth@mcmaster.ca](mailto:ehhealth@mcmaster.ca)

Website: <http://mscehealth.mcmaster.ca/>

Faculty/Fall 2019

### *Professors*

**David Armstrong**, B.A. (Cambridge), M.B., B. Chir (Cambridge), M.A. (Cambridge), L.M.C.C., M.R.C.P., F.R.C.P.(C), F.A.C.G., A.G.A.F./Medicine/Gastroenterology

**David H. Chan**, ~~B.Sc.E.Eng. (Louisiana) M.D. (Toronto), C.C.F.P., M.Sc. (McMaster) F.C.F.P./Family Medicine~~

**Donna Ciliska**, ~~B.Sc.N., M.Sc.N (Western), Ph.D. (Toronto)/Nursing~~

**Luis Braga**, ~~M.D (Brazil), Ph.D. (France), M.Sc. (McMaster)/Urology~~

**Catherine Connelly**, ~~B.Comm. (Hons) (McMaster), M.Sc. (Queen's), Ph.D. (Queen's)/Human Resources & Management~~

**Kenneth R. Deal**, ~~B.S., M.B.A., Ph.D. (SUNY at Buffalo)/Strategic Market Leadership & Health Services Management~~

**Elkafi Hassini**, ~~B.Sc., (Bilkent), M.A.Sc., Ph.D. (Waterloo)/Operations Management~~

**Maureen Dobbins**, ~~B.Sc.N. (McMaster), Ph.D. (Toronto)/Nursing~~

**Douglas G. Down**, ~~B.A.Sc., M.A.Sc. (Toronto), Ph.D. (Illinois, Urbana-Champaign), P. Eng./Computing and Software~~

**Commented [NW1]:** Track changes to show change in list (new, removed, change of rank).

Can these please be sorted alphabetically when added to the calendar?

**Franya Franek**, M.Sc., RNDr. (Charles, Prague), Ph.D. (Toronto)/Computing and Software  
**Khaled S. Hassanein**, B.Sc. (Kuwait), M.A. Sc. (Toronto), M.B.A. (Wilfred Laurier), Ph.D. (Waterloo),  
P.Eng./Chair Information Systems/Director, McMaster eBusiness Research Centre  
**R. Brian Haynes**, B.Sc., M.D. (Alberta), M.Sc., Ph.D. (McMaster), F.R.C.P.(C), Health Research Methods,  
Evidence and Impact/Medicine  
**Milena Head**, B.Math (Waterloo), M.B.A., Ph.D. (McMaster)/Information Systems  
**Anne Holbrook**, B.Sc. Pharm. (Toronto), Pharm. D. (Philadelphia), M.D., M.Sc. (McMaster),  
F.R.C.P.(C)/Medical Sciences/Physiology/Pharmacology/Clinical Epidemiology and Biostatistics  
**Alfonso Iorio**, M.D. (Italy), Ph.D. (Italy), F.R.C.P.(C)/Health Research Methods, Evidence and Impact  
**Robert Isseman**, M.D./Pediatrics  
**Ryszard Janicki**, M.Sc. (Warsaw), Ph.D., D.Hab. (Polish Academy of Sciences)/Computing and Software  
[David Koff, M.D. \(Rene-Descartes\)/Chair, Radiology](#)  
[Lori Letts, B.Sc.\(O.T.\) \(Western\), M.A. \(Waterloo\), Ph.D. \(York\), OT Reg. \(Ont.\), F.C.A.O.T. /Rehabilitation Sciences](#)  
**Thomas Maibaum**, B.Sc. (Toronto), Ph.D. (London) / Canada Research Chair, P. Eng./Computing and Software  
**Ali Montazemi**, H.N.D. (Teeside Polytechnic, U.K.), M.Sc. (Southampton), PhD. (Waterloo)/Information Systems  
**Joseph Tan**, B.A. (Wartberg), M.S. (Iowa), Ph.D. (British Columbia) / Information Systems/Wayne C. Fox Chair in Business Innovation  
[Jean-Eric Tarride, B.A \(Toulouse\), M.A. \(Toulouse\), Ph.D. \(Concordia\)/Health Research Methods, Evidence and Impact](#)  
**Lehana Thabane**, B.Sc. (Lesotho), M.Sc. (Sheffield), Ph.D. (Western)/Health Research Methods, Evidence and Impact  
**Andrew Worster**, B.Sc. (New Brunswick), M.Sc. (New Brunswick), M.D. (Dalhousie), M.Sc. (McMaster), C.C.F.P. (EM), F.C.F.P./Emergency Medicine  
**Yufei Yuan**, B.S. (Fudan), Ph.D. (Michigan)/Information Systems  
[Rong Zheng, B.S. \(Tsinghua\), M.S. \(Tsinghua\), Ph.D. \(Illinois at Urbana-Champaign\)/Computing and Software](#)

*Associate Professors*

**Christopher Anand**, B. Math (Waterloo), M.Sc., Ph.D. (McGill)/Computing and Software  
[Jan Brozek, M.D., Ph.D. \(Kraków\)/Health Research Methods, Evidence and Impact](#)  
[Dr. Jason Busse, PhD, MSc, DC/Anesthesia](#)  
[Luis Braga, M.D \(Brazil\), Ph.D. \(France\), M.Sc. \(McMaster\)/Urology](#)  
**Catherine Connelly**, B.Comm. (Hons) (McMaster), M.Sc. (Queen's), Ph.D. (Queen's)/Human Resources & Management  
[Kenneth R. Deal, B.S., M.B.A., Ph.D. \(SUNY at Buffalo\)/Strategic Market Leadership & Health Services Management](#)  
**Catherine Demers**, M.D., M.Sc., F.R.C.P.C./Cardiology  
**Lisa Dolovich**, B.Sc. Pharm (Toronto), M.Sc. (McMaster), Pharm. D. (Toronto)/[Physiology/Pharmacology/Health Research Methods, Evidence and Impact Professor \(Part-Time\), Family Medicine](#)  
**Thomas E. Doyle**, B.E.Sc., B.Sc., M.E.Sc., Ph.D. (Western), P.Eng./Electrical & Computer Engineering  
[Elkafi Hassini, B.Sc., \(Bilkent\), M.A.Sc., Ph.D. \(Waterloo\)/Operations Management](#)



**Maureen Hupfer**, B. Comm. (Alberta), M.A. (Alberta), Ph.D. (Alberta)/Health and Policy Management

[David Koff, M.D. \(Rene Descartes\),/Chair, Radiology](#)

**Ruth Lee**, B.Sc.N., M.Sc.N., Ph.D. (Toronto)/Nursing

[Lori Letts, B.Sc.\(O.T.\) \(Western\), M.A. \(Waterloo\), Ph.D. \(York\), OT Reg. \(Ont.\), F.C.A.O.T./Rehabilitation Sciences](#)

**Anthony Levinson**, M.D., M.A. (Sussex), M.Sc. (McMaster), F.R.C.P.(C)/John R. Evans Chair Health Sciences / Educational Research and Instructional Development/Psychiatry and Behavioural Neurosciences

**Christopher Longo**, B.A. (York), M. Sc. (Western), Ph.D. (Toronto)/Health Policy & Management

**Robert Lloyd**, M.D. (Toronto), F.R.C.P.(P)/Pediatrics

[Lawrence Mbuagbaw MD, MPH, PhD/ Health Research Methods, Evidence and Impact](#)

**Teal McAteer**, B.Comm (Queen's), M.I.R.(Toronto), Ph.D. (Queen's)/Human Resources and Management

[Michael McGillion, BScN \(McMaster\), PhD \(Toronto\)/Nursing](#)

[Gillian Mulvale, B.A. \(Waterloo\), M.A. \(Western\), Ph.D. \(McMaster\)/Health Policy & Management](#)

[Dr. James Paul, MD, MSc, FRCPC/anesthesia](#)

**Glen E. Randall**, B.A. (Hons) (McMaster), M.A. (McMaster), M.B.A. (McMaster), Ph.D. (Toronto)/Chair, Health Policy & Management

**Emil Sekerinski**, Dipl.Inf.,Dr.rer.nat. (Karlsruhe)/Computing and Software

**Hsien Seow**, B.S. (Yale), Ph.D (John Hopkins)/Oncology

**Ranil Sonnadara**, M.Sc. (Leeds), Ph.D. (McMaster)/Surgery

[Jean-Eric Tarride, B.A \(Toulouse\), M.A. \(Toulouse\), Ph.D. \(Concordia\)/Health Research Methods, Evidence and Impact](#)

**Ruta Valaitis**, B.A., B.Sc.N. (Windsor), M.H.Sc. (McMaster), Ph.D. (Toronto)/Nursing

**Patricia Wakefield**, B.S.e. (Alberta), M.S.e. (Cornell), M.P.A. (New YorkU), Ph.D.D.B.A. (Boston)/Health Policy & Management

**Alan Wassying**, B.Sc. (Hons), M.Sc., Ph.D. (Witwatersrand)/Computing and Software

[Donald Willison, B.Sc. \(Toronto\), M.Sc. \(McMaster\), Sc.D. \(Harvard\)/Senior Scientist, Surveillance and Epidemiology Division, Ontario Agency for Health Protection and Promotion](#)

[Rong Zheng, B.S. \(Tsinghua\), M.S. \(Tsinghua\), Ph.D. \(Illinois at Urbana-Champaign\)/Computing and Software](#)

#### *Assistant Professors*

**Elizabeth Alvarez**, M.D. (Ohio), M.P.H. (Ohio), Ph.D. (McMaster)/ Health Research Methods, Evidence, and Impact

[Neil Barr, B.A. \(Western\), M.Sc. \(McMaster\), PhD. \(McMaster\)/ Health Policy & Management](#)

[Laura Anderson, MSc \(Western\), PhD \(University of Toronto\)/ Health Research Methods, Evidence, and Impact](#)

[Vinai Bhagirath, MD \(Western\), MSc \(McMaster\)/Medicine](#)

**Ilana Bayer**, Ph.D. (Toronto)/Pathology and Molecular Medicine

[Jan Brozek, M.D., Ph.D. \(Kraków\)/Health Research Methods, Evidence and Impact](#)

**Fei Chiang**, B.Sc. (Toronto), M. Math (Waterloo), Ph.D. (Toronto)/Computing and Software

**Andrew Costa**, B.Sc. (Waterloo), Ph.D. (Waterloo)/Health Research Methods, Evidence and Impact  
**Maryam Ghasemaghaei**, B.Sc. (Iran), M.Sc. (Iran), Ph.D. (McMaster)  
[Christopher Hillis, BSc \(University of Western Ontario\), MD \(McMaster University\), MSc \(University of Toronto\)/Oncology](#)  
**Matthew Kwan**, B.A. (Lethbridge), M.Sc. (McMaster), Ph.D. (Toronto)/Family Medicine  
**Cynthia Lokker**, H B.Sc. (Western), Ph.D. (Windsor), M.Sc. eHealth (McMaster)/Health Research Methods, Evidence and Impact  
**Mark Morreale**, B.Sc. (Toronto), M.Sc. (Queens) / Academic Program Manager, SAS  
~~[Gillian Mulvale, B.A. \(Waterloo\), M.A. \(Western\), Ph.D. \(McMaster\)/Health Policy and Management](#)~~  
**Reza Samavi**, B.Sc. (Tehran), M.Sc. (Toronto), Ph.D. (Toronto)/Computing and Software  
~~[Eli Tumba Tshibwabwa, B.Sc., M.D., M.Med \(Kinshasha\), Ph.D. \(Leuven\)/Radiology](#)~~  
  
~~[Nicole Wagner, B.Math \(Waterloo\), M.B.A \(McMaster\), Ph.D. \(McMaster\)/Information Systems](#)~~  
**Li Wang**, B.Sc. (China), M.Sc. (China), Ph.D. (China)/Anesthesia  
**Ted Xenodemetropoulos**, B.Sc. (Brock), M.D. (Edmonton), M.Sc. (McMaster)/Gastroenterology  
**Manaf Zargoush**, B.Sc. (Iran), M.Sc. (Iran), M.Phil. (France), Ph.D. (France), Ph.D. (McGill)

#### *Associate Members*

**Alex Drossos**, M.D. (West Indies), M.Ed. (Toronto)/Child and Adolescent Psychiatry  
**Karim Keshavjee**, B.Sc. (McGill), M.Sc. (Toronto), M.D. (Toronto), M.B.A. (Toronto), C.C.F.P./InfoClin  
**Marion Lyver**, B.Sc. (Hons.), M.D. (Memorial), F.R.C.P.(C), F.C.F.P.C., Dip. ABEM, CPHIMS/Family Medicine  
**Kamran Sartipi**, B.Sc. ECE (Tehran), M.Sc. ECE (Tehran), M. Math CS, Ph.D CS (Waterloo)/Information Systems  
**Rolf J. Sebaldt**, B.Sc., M.D., C.M. (McGill), F.R.C.P.(C), F.A.C.P./Health Research Methods, Evidence and Impact/Medicine  
**Marita Tonkin**, R.Ph., B.Sc.Pharm., Pharm. D., A.C.P.R./Hamilton Health Sciences  
~~[Nicole Wagner, B.Math \(Waterloo\), MBA \(McMaster\), Ph.D. \(McMaster\)/Information Systems](#)~~

#### *Professors Emeriti*

**Norman P. Archer**, B.Sc. (Alberta), Ph.D. (McMaster), M.S. (New York)/Information Systems  
**Ann McKibbin**, B.Sc. (Guelph), M.L.S. (Western), Ph.D. (Pittsburg)/Health Research Methods, Evidence and Impact  
~~[Nancy Wilczynski, B.A., M.Sc., Ph.D. \(McMaster\)/Health Research Methods, Evidence and Impact](#)~~  
~~[David H. Chan, B.Sc.E.Eng. \(Louisiana\) M.D. \(Toronto\), C.C.F.P., M.Sc. \(McMaster\) F.C.F.P./Family Medicine](#)~~

#### Programs

##### **Master**

- [eHealth, M.Sc.](#)

##### **Course Offerings**

- [eHealth Courses](#)

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[link: program details](#)

[https://academiccalendars.romcmaster.ca/preview\\_program.php?catoid=39&poid=21133&return-to=8192](https://academiccalendars.romcmaster.ca/preview_program.php?catoid=39&poid=21133&return-to=8192)

Field Code Changed

## **Areas of Specialization Disciplines**

~~Students may specialize in one of three fields in the program: The eHealth program is offered in collaboration of the Faculties of Health Sciences, and Engineering/Technology, and the School of Business. All eHealth students are required to complete the four core courses across the disciplines, and a variety of elective courses in each field-discipline are available to cater to individual interests. Student specialization interest must be declared when applying for admission. Each student is assigned an academic advisor upon entry to the program to assist them with course selection and navigation through the program. supervisor from the student's field of interest upon registration, and a second member of the supervisory committee from one of the other two fields is appointed to ensure that the student maintains a broadly focused view of the eHealth field.~~ All students must participate in and contribute to a weekly seminar series during their on-campus semesters. These seminars are designed to acquaint students with recent advances in the eHealth field, build skills sets, supplement course content, and to introduce them to experts in industry, government, and research.

## **Admission**

Students entering the eHealth program may be admitted from a variety of suitable undergraduate degrees. They will belong to a community with a variety of backgrounds in related fields, with common interests in information technology to support health services delivery and research. The main requirements are a passion for the study of eHealth, a ~~good~~ background in computing, and a strong interest in the use of computing support in health care applications. Students ~~will not be admitted to the program unless they can~~ must present evidence that they have taken a minimum of two computer science-related courses at the undergraduate or community college level. One of these courses must be in any programming language, ~~and~~ † The second course must be in either data-base design or data structures and algorithms. A background in health sciences, life sciences, business, or computer science is an asset, but not a requirement. The Admissions Committee will in each case judge ~~the each~~ candidate's suitability for the program. A minimum B+ average in the final year of a four-year undergraduate degree program is required for admission. Applicants for the full-time options must also ~~pass-attend~~ a face-to-face interview that evaluates their suitability for an eight-month internship, a required component of the program. English language competency testing is also required for those ~~not-trained~~ without post-secondary study conducted in English.

## Degree Options and Internship

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A candidate for the M.Sc. eHealth degree may choose to take the program either full-time or part-time. The full-time program has two options: thesis or course-~~projectbased~~. In the thesis option, students must complete the required courses plus one elective course ~~from the field of specialization~~ (a total of five courses). In addition, students must complete and defend a ~~Master's~~ thesis successfully. The thesis option is not open to part-time students. Completion of the M.Sc. thesis option is the preferred route to a Ph.D. program in a similar field (e.g., Health Research Methodology, Computer Science, ~~or~~ Business). In the course-~~project-based~~ option (which may be taken full or part-time), students take the required courses ~~and; two-four~~ electives ~~from the field of specialization, and two other electives selected from one or both of the other two fields~~ (for a total of eight courses). All courses must be completed with at least a B- standing.

Students taking the thesis option are expected to complete their programs and submit their ~~research~~ theses within 24 months of registration. Full-time students taking the course-~~project based~~ option are expected to complete their programs within 20 months, including a project or academic review which will result in a scholarly paper arising from a relevant study in eHealth. Full-time students are limited to a maximum of three years from initial registration. Part-time students are expected to complete their programs within four years of registration; and are limited to a maximum of five years. ~~They~~ ~~Part-time students~~ are also required to complete a ~~project that is a~~ scholarly paper relevant to eHealth, ~~often for their current employer if the employer is in a health care industry.~~

In addition to coursework, all full-time students must satisfactorily complete an eight-month internship with a company, healthcare institution, or government agency. In most; but not all cases, the internship will be a paid position. ~~The program provides support and training for their internship.~~

## [Link: course offerings](#)

[https://academiccalendars.romcmaster.ca/preview\\_program.php?catoid=39&poid=21223&hl=%22ehealth%22&returnto=search](https://academiccalendars.romcmaster.ca/preview_program.php?catoid=39&poid=21223&hl=%22ehealth%22&returnto=search)

All required and elective courses are half courses. Required courses must be taken in the first and second semester of study by full-time students, and early in the program for part-time students.

## Required Courses

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- [EHEALTH 705 / Statistics for eHealth](#)
- [EHEALTH 724 / Fundamentals of eHealth and the Canadian Health Care System](#)
- [EHEALTH 736 / Management Issues in eHealth](#)
- [EHEALTH 757 / Modern Software Technology for eHealth](#)

## Elective Courses

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For course details, see MBA Calendar (School of Business courses); and the School of Graduate Studies Calendar: Computing and Software and Health Research Methodology. Other graduate level courses not listed below may be approved through special permission, if the student can justify why an elective is important to his/her understanding of eHealth.

- [COMP SCI 6F03 / Distributed Computer Systems](#)
- [SFWR ENG 6HC3 / The Human Computer Interface](#)
- [COMP SCI 6WW3 / Web Systems and Web Computing](#)
- [EHEALTH 701 / Research and Evaluation Methods in eHealth](#)
- [EHEALTH 745 / eHealth Innovations and Trends](#)
- [EHEALTH 767 / Information Privacy and Security](#)
- [CAS 703 / Software Design](#)
- [CAS 704 / Embedded, Real-Time Software Systems](#)
- [BUSINESS C711 / Health Economics and Evaluation](#)
- [BUSINESS P720 / Strategic Management](#)
- [BUSINESS C721 / Health Policy Analysis](#)
- [BUSINESS C722 / Management of Population Health](#)
- [BUSINESS K723 / Data Mining and Business Intelligence](#)
- [BUSINESS K725 / Business Process Reengineering](#)
- [BUSINESS 726-K724 / eBusiness Strategies](#)
- [BUSINESS 727 / Strategic Knowledge Management](#)
- [CAS 730 / Machine Learning and Data Mining](#)
- [BUSINESS K731 / Project Management](#)

**Commented [NW2]:** Track changes to show change in list (new, removed).

Can these please be sorted alphabetically when added to the calendar?

- [BUSINESS 732 / eBusiness Strategies](#)
- [BUSINESS O734 / Supply Chain Management](#)
- [BUSINESS K737 / Cases in eBusiness, Innovation, and Entrepreneurship](#)
- [CAS 750 / Model-Based Image Reconstruction](#)
- [BUSINESS K792 / Security, Privacy, and Trust in eBusiness](#)
- [EHEALTH 746 / Healthcare Analytics](#)
- [EHEALTH 703 / Virtual Care and Telemedicine for eHealth](#)
- [HTH RS M 736 / Design Innovation for Health System Challenges](#)

### EHEALTH 705 / Statistics for eHealth

3 unit(s)

**Commented [NW3]:** This description change has been submitted in a separate curriculum form.

~~Staff~~

**Prerequisite(s):** Enrolment in the MSc eHealth program or permission of the instructor

**Antirequisite(s):** HRM 701

This course covers basic statistical concepts and techniques as they apply to the analysis and presentation of data in eHealth practice. ~~The s~~Statistical software ~~package~~ SPSS will be used extensively. The course includes graphical presentation of data, elementary probability, descriptive statistics, and probability distributions. Statistical inferencing techniques, including statistical decision theory, confidence intervals, hypothesis tests (z-tests, t-tests, and nonparametric methods), ANOVA, contingency tables, chi-square tests, correlation, and simple and multiple regression. Students will analyze data gathered from eHealth studies and will review examples drawn from published eHealth research.

### EHEALTH 724 / Fundamentals of eHealth and the Canadian Health Care System

3 unit(s)

**Commented [NW4]:** This prerequisite change has been submitted in a separate curriculum form.

~~A. McKibbon~~ (same as [HTH RS M 724](#))

~~**Prerequisite(s):** One day orientation to the Canadian health care system for students (non health background) completed before the course starts.~~

This tutorial-based course will cover a broad range of eHealth topics from the perspective of health care delivery. Topics include a definition of eHealth; health care data; hospital and primary care information systems (i.e. electronic health records [EHR] systems); specialty components of an EHR system; how health professionals use data; human/cognitive factors in development and implementation of eHealth applications; patient safety; standards, vocabulary and nomenclatures and how used; aggregation of health information, especially for research purposes; patient information systems and consumer eHealth; and research and evaluation of eHealth applications and research using eHealth applications.

### EHEALTH 736 / Management Issues in eHealth

3 unit(s)

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[J. Tan, N. Archer](#) (same as [BUSINESS K736](#))

This course covers a number of topics relevant to the management of electronic health systems. These topics will be presented in an integrated manner that will promote an understanding of health system governance, accountability, risk analysis, management, legal and regulatory standards, and policies. It will demonstrate real issues by focusing on a team-based case study through much of the course that covers the life cycle process of managing a project to implement an eHealth system, beginning with needs analysis and ending with implementation and maintenance.

### EHEALTH 757 / Modern Software Technology for eHealth

3 unit(s)

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[Staff](#) (same as [CAS 757](#))

This course exposes graduate students to technical challenges in the field of electronic health (eHealth). The course introduces a collection of modern architectures and technologies that are recommended by standardization organizations to build the infrastructure that meets the emerging demands in the growing network of health care systems. The topics include: standard health care and data and service representations; clinical terminology systems; web services and service oriented architecture; decision support systems; data mining techniques on clinical data; data and knowledge interoperability; security and privacy techniques, and health care application development environments.

## EHEALTH 701 / Research and Evaluation Methods in eHealth

3 unit(s)

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~~A. McKibben~~

This course will provide background and basic principles of research and evaluation methods for eHealth students. Students will study research/evaluation methods on eHealth applications as well as research/evaluation using eHealth applications. The course is given online using synchronous and asynchronous methods. Evaluation is based on participation in discussion forums, 2 written assignments, and a final project in the form of a research proposal or contract proposal to address a Request for Proposal from industry and a multimedia presentation of the final project.

## EHEALTH 745 / eHealth Innovations and Trends

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**Prerequisite(s):** Registration in the M.Sc. eHealth program or permission of the instructor.

This course reviews and discusses critical issues related to innovations in eHealth, including: the drivers for these innovations, the trends that are developing in the eHealth field, notable successes and failures of eHealth to meet promised expectations, and what might be done to improve the potential of eHealth as a positive force for improvement in healthcare systems. Cases will be used extensively to illustrate eHealth innovations being discussed, and students will be required to participate fully in discussions. Students may participate synchronously either virtually online or physically in class. Participation online requires a headset to avoid audio interference with other participants.

## EHEALTH 767 / Information Privacy and Security

3 unit(s)

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(~~cross-listed~~ same as [CAS 767](#) )

This course covers issues and technologies in Information Privacy, Security, and Accountability. The course surveys cryptography, digital signature, key management, authentication, certificates, PKI, Application layer Access control policies and mechanisms, data forensics, Internet security protocols, trust management, information and web privacy, privacy and data aggregation, audit log mechanisms,



privacy policy expression and enforcement, Differential Privacy, Security and privacy in healthcare, Social networking security and privacy, Usable security and privacy, and privacy-enhancing technologies. Students will undertake a project that employs and integrates these technologies.

### EHEALTH 746 / Healthcare Analytics

3 unit(s)

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**Prerequisite(s):** [EHEALTH 705](#) or permission of the instructor

Healthcare analytics is the systematic use of data and related business insights developed through applied analytical disciplines (statistical, contextual, quantitative, predictive, cognitive, and other models) to drive fact-based decision making for planning, management, measurement and learning in healthcare. This course describes health analytics principles and techniques from the practitioner point of view. It reviews critical issues related to this rapidly expanding field, including case discussions and student projects in applying healthcare analytics tools to support the use of real healthcare data in effective decision making.

### [eHealth 703- Virtual Care and Telemedicine](#)

**Prerequisite(s):** [eHealth 724](#), [eHealth 736](#), [eHealth 757](#) or by special permission of the program.

[An interdisciplinary course on the engineering, health science, and business components of virtual care & telemedicine. Structured around the three themes of infrastructure, wearable sensors, and technology in the community. This course will enable learners to understand the current virtual care & telemedicine landscape, in addition to understanding the scope and possibilities of distributed healthcare. Themes are presented in cross-discipline modules through case studies, lectures by industry expert, and applications from current literature. Students are supported through a series of exercises to provide hands-on experience with acquiring and processing health data and for a final project, small teams will present prototype solutions to address current issues in telemedicine.](#)

**Commented [NW5]:** This new course has been submitted in a separate curriculum form.

# **Business Administration Part-Time, M.B.A.**

## **Part-Time MBA Programs**

For students wishing to complete their MBA but unable to commit to a full-time study schedule, a part-time program is an ideal alternative.

The Blended Learning Part-time MBA launched in September 2018. Admission into the Part-time MBA Program was discontinued in 2017. Part-time students generally may take up to 6 units of course work per term, with the exception of Terms 8 and 9 in the Blended Learning Part-time Program.

Students with a Bachelor of Commerce degree may complete an Accelerated MBA Program on a full-time or part-time basis. Please refer to the Accelerated MBA Program section for additional detail.

## **Blended Learning Part-time MBA**

### **For students enrolled after September 2018**

Length: 9 terms. Please note this program follows a prescribed sequence.

Number of courses/units: 21 courses/55.5 units

#### Admission Criteria

Applicants to the BLPT MBA are expected to meet the following requirements:

- 4-year bachelor's degree in any discipline, with a recommended B average (73-76% or 3.0 on a 4-point scale) in the two most recent years of university study.
- Résumé to assess work experience, with a minimum of 4 years expected.
- Two letters of recommendation; at least one from a non-academic referee (e.g., past or present employer)
- Admissions interview, if necessary, to better understand a prospective student's capabilities, learning objectives and potential for success in the Program.
- TOEFL, IELTS, or PTE scores for those who have not resided in an English-speaking country for at least four years, or if English was not the primary language of instruction for at least three years of full-time post-secondary education, excluding ESL courses.

Program specific notes:

This program offers non-elective courses in a Blended Learning format. Students are required to engage in on-line learning activities, in addition to attending 3 mandatory weekend residencies per term.

## **Required Courses**

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### *Term 1 (6 units)*

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- [BUSINESS BL600 / Leadership Fundamentals](#)
- [BUSINESS BL610 / Management Fundamentals](#)

### *Term 2 (6 units)*

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- [BUSINESS BL602 / Economics & Business Statistics](#)
- [BUSINESS BL604 / Creating Customer Value](#)

### *Term 3 (6 units)*

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- [BUSINESS BL601 / Managing Financial Resources](#)
- [BUSINESS BL603 / Competing Through Digital Transformation & Analytics](#)

### *Term 4 (6 units)*

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- [BUSINESS BL605 / Managing Organizations](#)
- **BL651 Intermediate Accounting**  
**BL652 Intermediate Finance**

### *Term 5 (6 units)*

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- [BUSINESS BL720 / Strategic Management](#)
- **BL653 Intermediate Marketing**  
**BL654 Intermediate Operations**

### *Term 6 (6 units)*

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- [BUSINESS BL700 / Business, Government and the Global Environment](#)

- BL751 Innovation & Design Thinking  
BL752 Co-Creating Strategic Foresight

.Term 7 (6 units)

Elective credits\* (6 units)

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.Term 8 (6 units)

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Elective credit\* (3 units)

Strategic Integration Project A (3 units)

.Term 9 (7.5 units)

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Elective credit\* (3 units)

Strategic Integration Project B (3 units)

Program Synthesis & Future Planning (1.5 units)

### BLPT Electives

**\*12 units of elective credit are to be taken from ~~one of~~ the 3 categories below:**

**1. Independent Study (BL 719) – Students can complete an independent study under the supervision of a faculty member.**

**2. Blended Learning format electives (weekend residencies combined with online components):**

BL 710 Accounting for Decision Makers

BL 711 Predictive Analytics

BL 712 Managerial Negotiations

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**BL 713 Entrepreneurial & Small Business Finance**

**BL714 Innovation and New Products**

**BL 715 Project Management**

**23. Other Electives - Electives in this category will be offered in person (\*with the exception of courses marked with an asterisk, which are offered online) and not through the weekend residency/online blended format model.**

Course Code	Course Name
A721	Management Accounting Information for Strategic Development
A732	Canadian Income Tax Fundamentals
A750/F717	Financial Statement Analysis
B712	Managerial Negotiations
B715	Leadership
B716	Strategic Organizational Change
B717	Management Development
B730	Strategic Management of Technology
F700	Valuation for Finance Professionals
F701	Alternative Investments and Portfolio Management
F711	Financial Institutions
F712	Applied Corporate Finance
F713	Security Analysis
F716	International Financial Management
F720	Small Business/Entrepreneurial Finance
F721	Mergers, Acquisitions and Corporate Control
F722	Market Trading and Risk Management With Options
F723	Fixed Income Analysis
F724	Venture Capital and Private Equity
F725	Personal Financial Management
F726	Behavioural Finance
F727	Working Capital Management
F730	Pension, Retirement and Estate Planning
F731	Insurance and Risk Management

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F732	Personal Financial Planning and Advising
F733	Financial Risk Management
F734	Real Estate Finance and Investment
F735	Financial Modelling
F741	Introduction to FinTech
F743	Big Data in Finance
K723	Data Mining and Business Intelligence
K724	eBusiness Strategies
K725	Business Process Management
K728	eHealth: Innovations, Trends, Successes and Failures
K731	Project Management
K735	Managing the Implementation of Enterprise Systems
K736	Management Issues In eHealth
K737	Cases in eBusiness, Innovation and Entrepreneurship
M721	Business Marketing
M722/C741	Health Care Marketing
M724	Innovation and New Products
M727	Marketing Communication
M731	Marketing Research
M732	Consumer Behaviour
M736	Services Marketing
M740	Corporate Reputation and Brand Management
M750	Consultative Selling
M751	Sustainability and Corporate Social Responsibility
O701	Modelling and Analytics Using Spreadsheets
O721	Inventory Management and Production Planning
O725	Business Logistics
O726	Methods for Quality Management
O727	Service Operations Management
O734	Supply Chain Management
O735	Strategic Procurement
P715	Entrepreneurship
P719	The Clinic - Innovation Lab

P722	Legal Aspects Of Business
P731	Crisis Management and Communications
V700	Strategic Business Analysis and Valuation
C711	Health Economics and Evaluation
C715	Health Care Funding and Resource Allocation
C721	Health Policy Analysis
C722	Management of Population Health
C725	Managing Communications in Health Care*
C727	Pharma/Biotech Business Issues
C735	Proposal Development for Health Care Leaders*
C736	Quality Management In Health Services
C741	Health Care Marketing
C750	Ethical and Legal Issues in Health Care

**3. Special Research Project\* – Students can complete an independent study under the supervision of a faculty member.**

There is no thesis requirement for graduation in the MBA program. However, a student in third year of the BLPT program may undertake, with the prior approval of the appropriate instructor, Area Chair, and Associate Dean of Business, to develop an original paper, research study, or project in an area directly associated with their program of study. Special Research Projects must be supervised by a faculty member. Credit for one second-year course will be granted upon satisfactory completion of the project. In order to make best use of this opportunity the student must plan the research and contact a faculty member in the session preceding the one in which they intend to register for the special research project.

**\*BLPT students are permitted to take only one Special Research Project as an elective. The remaining three electives must be taken from either the Blended Format Elective list or Other Elective list (see items #1 and #2 above).**

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BUSINESS A719 / Independent Research Project in Accounting

BUSINESS B719 / Independent Research Project in Organizational Behaviour

BUSINESS C719 / Independent Research Project in Health Sciences Management

BUSINESS E719 / Independent Research Project in Business Economics

BUSINESS F719 / Independent Research Project in Finance

BUSINESS H719 / Independent Research Project in Human Resources Management

BUSINESS I719 / Independent Research Project in International Business

BUSINESS K719 / Independent Research Project in Management Information Systems

BUSINESS M719 / Independent Research Project in Marketing

[BUSINESS O719 / Independent Research Project in Operations Management](#)  
[BUSINESS P719 / Independent Research Project in Business Environment and Policy](#)  
[BUSINESS V719 / Independent Research Project in Strategic Business Valuation](#)

## **Part-Time MBA**

### **For students enrolled on or before September 2016**

Length: Variable. It takes most students 4 to 5 years, but students have a maximum of 8 years to complete the program.

Number of courses: 20

Program specific requirements: Work experience helps, but is not required.

Program specific notes:

- You can take a maximum of 2 classes per term.
- You may have the option of taking complete terms off. Please consult an Academic Advisor.
- Evening courses are held once a week and usually run from 7 p.m. to 10 p.m.
- Students admitted prior to September 2016 are not permitted to transfer into the Blended Learning Part-time Program.







**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		DeGroote School of Business	
<b>NAME OF PROGRAM and PLAN</b>		Blended Learning Part-Time MBA Program	
<b>DEGREE</b>	Master of Business Administration		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Proposal to add M733 and M734 to the list of elective offerings that are available to Blended Learning Part-Time MBA students.	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Currently M733 and M734 are only available to students completing courses within the full-time MBA programs and the part-time Accelerated MBA.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

The proposal is to add M733 and M734 to the list of on-campus MBA electives which are made available to BLPT MBA students.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

M733 and M734 have been approved by the appropriate bodies and have been successfully offered as electives in the regular MBA program for a number of years. The courses in the BLPT MBA program which students are required to take before doing electives include a background equivalent to the prerequisite courses required for the on-campus offering of M733 and M734.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: John Medcof      Email: medcofj@mcmaster.ca      Extension: 20599      Date submitted:  
January 20<sup>th</sup>, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,  
cbryce@mcmaster.ca

# **Business Administration Part-Time, M.B.A.**

## **Part-Time MBA Programs**

For students wishing to complete their MBA but unable to commit to a full-time study schedule, a part-time program is an ideal alternative.

The Blended Learning Part-time MBA launched in September 2018. Admission into the Part-time MBA Program was discontinued in 2017. Part-time students generally may take up to 6 units of course work per term, with the exception of Terms 8 and 9 in the Blended Learning Part-time Program.

Students with a Bachelor of Commerce degree may complete an Accelerated MBA Program on a full-time or part-time basis. Please refer to the Accelerated MBA Program section for additional detail.

## **Blended Learning Part-time MBA**

### **For students enrolled after September 2018**

Length: 9 terms. Please note this program follows a prescribed sequence.

Number of courses/units: 21 courses/55.5 units

#### Admission Criteria

Applicants to the BLPT MBA are expected to meet the following requirements:

- 4-year bachelor's degree in any discipline, with a recommended B average (73-76% or 3.0 on a 4-point scale) in the two most recent years of university study.
- Résumé to assess work experience, with a minimum of 4 years expected.
- Two letters of recommendation; at least one from a non-academic referee (e.g., past or present employer)
- Admissions interview, if necessary, to better understand a prospective student's capabilities, learning objectives and potential for success in the Program.
- TOEFL, IELTS, or PTE scores for those who have not resided in an English-speaking country for at least four years, or if English was not the primary language of instruction for at least three years of full-time post-secondary education, excluding ESL courses.

Program specific notes:

This program offers non-elective courses in a Blended Learning format. Students are required to engage in on-line learning activities, in addition to attending 3 mandatory weekend residencies per term.

## **Required Courses**

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### *Term 1 (6 units)*

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- [BUSINESS BL600 / Leadership Fundamentals](#)
- [BUSINESS BL610 / Management Fundamentals](#)

### *Term 2 (6 units)*

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- [BUSINESS BL602 / Economics & Business Statistics](#)
- [BUSINESS BL604 / Creating Customer Value](#)

### *Term 3 (6 units)*

---

- [BUSINESS BL601 / Managing Financial Resources](#)
- [BUSINESS BL603 / Competing Through Digital Transformation & Analytics](#)

### *Term 4 (6 units)*

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- [BUSINESS BL605 / Managing Organizations](#)
- **BL651 Intermediate Accounting**  
**BL652 Intermediate Finance**

### *Term 5 (6 units)*

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- [BUSINESS BL720 / Strategic Management](#)
- **BL653 Intermediate Marketing**  
**BL654 Intermediate Operations**

### *Term 6 (6 units)*

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- [BUSINESS BL700 / Business, Government and the Global Environment](#)

- **BL751 Innovation & Design Thinking**  
**BL752 Co-Creating Strategic Foresight**

*.Term 7 (6 units)*

**Elective credits\* (6 units)**

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*.Term 8 (6 units)*

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**Elective credit\* (3 units)**

**Strategic Integration Project A (3 units)**

*.Term 9 (7.5 units)*

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**Elective credit\* (3 units)**

**Strategic Integration Project B (3 units)**

**Program Synthesis & Future Planning (1.5 units)**

### BLPT Electives

**\*12 units of elective credit are to be taken from the 3 categories below:**

**1. Blended Learning format electives (weekend residencies combined with online components):**

**BL 710 Accounting for Decision Makers**

**BL 711 Predictive Analytics**

**BL 712 Managerial Negotiations**

**BL 713 Entrepreneurial & Small Business Finance**

## BL714 Innovation and New Products

### BL 715 Project Management

**2. Other Electives - Electives in this category will be offered in person (\*with the exception of courses marked with an asterisk, which are offered online) and not through the weekend residency/online blended format model.**

Course Code	Course Name
A721	Management Accounting Information for Strategic Development
A732	Canadian Income Tax Fundamentals
A750/F717	Financial Statement Analysis
B712	Managerial Negotiations
B715	Leadership
B716	Strategic Organizational Change
B717	Management Development
B730	Strategic Management of Technology
F700	Valuation for Finance Professionals
F701	Alternative Investments and Portfolio Management
F711	Financial Institutions
F712	Applied Corporate Finance
F713	Security Analysis
F716	International Financial Management
F720	Small Business/Entrepreneurial Finance
F721	Mergers, Acquisitions and Corporate Control
F722	Market Trading and Risk Management With Options
F723	Fixed Income Analysis
F724	Venture Capital and Private Equity
F725	Personal Financial Management
F726	Behavioural Finance
F727	Working Capital Management
F730	Pension, Retirement and Estate Planning
F731	Insurance and Risk Management
F732	Personal Financial Planning and Advising
F733	Financial Risk Management



F734	Real Estate Finance and Investment
F735	Financial Modelling
F741	Introduction to FinTech
F743	Big Data in Finance
K723	Data Mining and Business Intelligence
K724	eBusiness Strategies
K725	Business Process Management
K728	eHealth: Innovations, Trends, Successes and Failures
K731	Project Management
K735	Managing the Implementation of Enterprise Systems
K736	Management Issues In eHealth
K737	Cases in eBusiness, Innovation and Entrepreneurship
M721	Business Marketing
M722/C741	Health Care Marketing
M724	Innovation and New Products
M727	Marketing Communication
M731	Marketing Research
M732	Consumer Behaviour
<a href="#">M733</a>	<a href="#">Marketing Analytics</a>
<a href="#">M734</a>	<a href="#">Strategic Marketing Analysis</a>
M736	Services Marketing
M740	Corporate Reputation and Brand Management
M750	Consultative Selling
M751	Sustainability and Corporate Social Responsibility
O701	Modelling and Analytics Using Spreadsheets
O721	Inventory Management and Production Planning
O725	Business Logistics
O726	Methods for Quality Management
O727	Service Operations Management
O734	Supply Chain Management
O735	Strategic Procurement
P715	Entrepreneurship
P722	Legal Aspects Of Business

P731	Crisis Management and Communications
V700	Strategic Business Analysis and Valuation
C711	Health Economics and Evaluation
C715	Health Care Funding and Resource Allocation
C721	Health Policy Analysis
C722	Management of Population Health
C725	Managing Communications in Health Care*
C727	Pharma/Biotech Business Issues
C735	Proposal Development for Health Care Leaders*
C736	Quality Management In Health Services
C741	Health Care Marketing
C750	Ethical and Legal Issues in Health Care

**3. Special Research Project\* – Students can complete an independent study under the supervision of a faculty member.**

There is no thesis requirement for graduation in the MBA program. However, a student in third year of the BLPT program may undertake, with the prior approval of the appropriate instructor, Area Chair, and Associate Dean of Business, to develop an original paper, research study, or project in an area directly associated with their program of study. Special Research Projects must be supervised by a faculty member. Credit for one second-year course will be granted upon satisfactory completion of the project. In order to make best use of this opportunity the student must plan the research and contact a faculty member in the session preceding the one in which they intend to register for the special research project.

*\*BLPT students are permitted to take only one Special Research Project as an elective. The remaining three electives must be taken from either the Blended Format Elective list or Other Elective list (see items #1 and #2 above).*

[BUSINESS A719 / Independent Research Project in Accounting](#)

[BUSINESS B719 / Independent Research Project in Organizational Behaviour](#)

[BUSINESS C719 / Independent Research Project in Health Sciences Management](#)

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[BUSINESS K719 / Independent Research Project in Management Information Systems](#)

[BUSINESS M719 / Independent Research Project in Marketing](#)

[BUSINESS O719 / Independent Research Project in Operations Management](#)

[BUSINESS P719 / Independent Research Project in Business Environment and Policy](#)

## **Part-Time MBA**

### **For students enrolled on or before September 2016**

Length: Variable. It takes most students 4 to 5 years, but students have a maximum of 8 years to complete the program.

Number of courses: 20

Program specific requirements: Work experience helps, but is not required.

Program specific notes:

- You can take a maximum of 2 classes per term.
- You may have the option of taking complete terms off. Please consult an Academic Advisor.
- Evening courses are held once a week and usually run from 7 p.m. to 10 p.m.
- Students admitted prior to September 2016 are not permitted to transfer into the Blended Learning Part-time Program.





**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		DeGroote School of Business	
<b>NAME OF PROGRAM and PLAN</b>		Blended Learning Part-Time MBA Program	
<b>DEGREE</b>	<b>Master of Business Administration</b>		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Proposal to change verbiage for admissions requirements for the BLPT MBA program.	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Current admissions criteria for BLPT MBA Program:

Applicants to the BLPT MBA are expected to meet the following requirements:

- 4-year bachelor's degree in any discipline, with a recommended B average (73-76% or 3.0 on a 4-point scale) in the two most recent years of university study.
- Résumé to assess work experience, with a minimum of 4 years expected.
- Two letters of recommendation; at least one from a non-academic referee (e.g., past or present employer)
- Admissions interview, if necessary, to better understand a prospective student's capabilities, learning objectives and potential for success in the Program.
- TOEFL, IELTS, or PTE scores for those who have not resided in an English-speaking country for at least four years, or if English was not the primary language of instruction for at least three years of full-time post-secondary education, excluding ESL courses.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

**Applicants to the BLPT MBA are expected to meet the following requirements/provide the following required documentation:**

- Undergraduate degree in any discipline from a recognized post-secondary institution. A 4-year degree is recommended.
- Recommended B average (equivalent to a McMaster 8.0 GPA out of 12) in the two most recent years of undergraduate study, or the equivalent of 60 academic credits. Applicants with a GPA below a B may be encouraged to provide supplemental academic materials (e.g., competitive GMAT results). Courses used in GPA calculations for applicants holding master's or doctoral degrees are determined on a case-by-case basis.
- Résumé to assess work experience, with a minimum of 4 years of professional work experience expected.
- Two letters of recommendation, including at least one from a current or former supervisor.
- Admissions interview, if necessary, to better understand a prospective student's capabilities, learning objectives and potential for success in the Program.
- Proof of English proficiency, demonstrated through: competitive TOEFL, IELTS, or PTE scores *OR* residence in an English-speaking country for at least four years *OR* completion of at least three years of full-time post-secondary education with English as the primary language of instruction, excluding ESL courses.
- Prospective applicants who do not meet the normal admission requirements, should consult the Program Director to discuss how their work experience might be assessed to make up for insufficient standing in their undergraduate degree. Please refer to [Section 2.1.1](#) of the Graduate Calendar on this matter.

Please note: meeting minimum admission requirements does not guarantee acceptance into the program.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

The revised wording provides further clarification on the B average requirement and strengthens the language concerning proof of English proficiency. It also provides clarity regarding when a candidate might be required to complete the GMAT (i.e. if they do not have the recommended B average).

The final bullet point, provides the Program the opportunity to consider candidates without a 4 year undergraduate degree, but have a significant amount of full-time work experience and not require them to write the GMAT (which is the current admission requirement). Candidates without an undergraduate degree will still be required to write the GMAT as part of their application.

This proposal is aligned with feedback provided by the Reviewers' Report for the Proposal for the BLPT MBA program, dated November 21<sup>st</sup>, 2017, where the reviewers indicated that the GMAT could be considered a potential barrier to attracting strong applicants to the BLPT program (that have sufficient work experience).

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: John Medcof      Email: medcofj@mcmaster.ca      Extension: 20599      Date submitted:  
February 6<sup>th</sup>, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,  
[cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)





**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		DeGroote School of Business	
<b>NAME OF PROGRAM and PLAN</b>		Master's of Business Administration (MBA with Coop, MBA and Accelerated MBA)	
<b>DEGREE</b>	<b>Master of Business Administration</b>		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	X	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	X	<b>EXPLAIN:</b> See attached minor housekeeping changes General Requirements of the MBA – removed old language around transfer credits and waivers for students joining the Accelerated Program	
<b>OTHER CHANGES</b>	X	<b>EXPLAIN:</b>	

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

1. Letters of recommendation – did not specify by whom references should be provided.
2. Admission to Accelerated MBA - GMAT currently required
3. Admission to MBA and MBA with Co-op – MCAT in lieu of GMAT not currently accepted
4. MBA – no reference to online interview (even though it is currently done)

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

1. Letters of recommendation – we are now recommending one academic and one professional reference
2. Admission to Accelerated MBA – GMAT no longer required for those applicants who meet the minimum GPA
3. Admission to MBA and MBA with Co-op – GMAT, GRE or MCAT to be accepted
4. MBA – require online interview (current practice)

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Letters of recommendation: at time of admission we assess both academic potential and whether the candidate demonstrates professional acumen. Therefore, by requesting a letter from both an academic and professional / managerial reference, the committee will get a more holistic overview of the candidate
2. Admission to Accelerated MBA – All students entering this program already have an undergraduate business degree and at least one year of professional work experience. As they will have developed the requisite business knowledge and acumen during their undergrad, the GMAT provides the Admission Committee with very little additional information when assessing their application. Rather, the committee places more emphasis on past academic achievement, resume (work experience) and letters of reference.
3. Admission to MBA and MBA with Co-op – DeGroote is known internationally for its specialization in Health Services Management. As such we launched a pilot to accepted MCAT instead of GMAT scores, as many of our MBA students with a strong profile and interest in health have considered medical school. The GMAT is rigorous and has strong quantitative and qualitative sections, similar to the GMAT. As such the Admission Committee found it is equally valid as a predictor of academic success for science and health sciences students.
4. MBA – We have been using the KIRA online interview tool for all applicants to our MBA Programs. As such we are simply formalizing past practice in the Calendar.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 2020 for all changes

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

n/a

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

See attached

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Dr. Willi Wiesner    Email: wiesner@mcmaster.ca    Extension: 20692    Date submitted: March 4, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013

M.B.A.

Admission Requirements and Program Information

Program and Course Offerings

The DeGroot School of Business offers programs leading to the M.B.A. and Ph.D. in Business Administration. In collaboration with other faculties, the School offers an M.Sc. in eHealth, and a Master of Health Management. For more information on these collaborative programs, see the degree programs under those names. The DeGroot School also offers a Graduate Diploma in Professional ~~Accounting~~Accountancy. The DeGroot School of Business also offers a Master of Finance Program (MFin). See the Master of Finance section of the calendar for more information.

Enquiries: 905 525-9140: M.B.A., Ext. 27024;

Ph.D., Ext. 23373

E-mail: M.B.A., mbainfo@mcmaster.ca Ph.D., phdinfo@mcmaster.ca

~~Fax: M.B.A.: 905-634-4985~~

Website: <http://www.degroot.mcmaster.ca>

MBA Program

The MBA program at McMaster University was created in 1962, and boasts more than ~~16,000~~ 8300 alumni around the world. The DeGroot School of Business is also AACSB accredited - less than 5% of business schools worldwide earn this distinction in management education.

Canada's largest co-op MBA program was established at McMaster in 1973, and today is a premier choice for students who want to gain work experience while studying, and for employers who want to hire future business leaders.

The DeGroot School of Business offers two full-time programs - The DeGroot MBA and the DeGroot MBA with Co-op. In addition we offer a Blended Learning Part-Time program and an Accelerated program (which can be taken as a full-time or a part-time offering) to give students the flexibility they need to continue their education and become leaders in the business world and the community. Classes are held at the Ron Joyce Centre in Burlington, Ontario in a state-of-the-art building designed to enrich the student learning experience.

Admission Prior to September 2016

The MBA program consisted of 20 courses; ten in year one and ten in year two. Twelve of the 20 courses are core courses, which all students are required to take. †

Admission Post September 2016

The DeGroot School of Business offers two full-time programs - the DeGroot MBA and the DeGroot MBA with Co-op. Students admitted in or after September 2016 will complete a redesigned Year 1 curriculum. This redesigned curriculum will begin with mandatory three-week intensive Foundations 1, modules which will teach which provides students, regardless of undergraduate degree, fundamental business knowledge and professional skills, for success regardless of undergraduate major or experience. There are 5 required core courses in Term 1 which will be team taught with content-integrated knowledge across disciplines. Term 2 will begin with an additional one-week Foundations 2, module focusing on professional competencies and skill-based workshops. Each student will also need to complete two courses (Accounting and Finance) followed by a choice of 3 out of 5 core electives. The final 3 weeks of Term 2 will be dedicated to the Integrated Project Course, to ensure the application and synthesis of knowledge from the first year. Students are required to complete A650 (Accounting) and F650 (Accounting and Finance) followed by a choice of 3 out of 5 core electives. The final 3 weeks of Term 2 will be dedicated to the Integrated Project Course, to ensure the application and synthesis of knowledge from the first year. Students will be required to complete an integrating project to implement all of the knowledge and skills they've learned throughout the first year. In year two, all students (both newly admitted and current) must select a specialization and complete courses required for that specialization. Students may pursue a General MBA or select from one of the available specializations.

Topics covered in the Selected Topics courses will vary depending on recent developments in the subject area and the research interests of the instructor(s).

There is no thesis requirement for graduation in the MBA program. However, a student in the second year may, with the prior approval of the appropriate instructor, Area Chair, and the Director of the MBA Program, undertake an original paper, research study or project in an area directly associated with his/her program of study. Credit for one second-year course will be granted upon satisfactory completion of the project.

### **General MBA Admission requirements/Required Documentation**

1. Completed on-line application ([mbarecruit.degrootemcmaster.ca](http://mbarecruit.degrootemcmaster.ca)) accompanied by the application fee (\$150 Cdn). Further details can be found at [mbarecruit.degrootemcmaster.ca](http://mbarecruit.degrootemcmaster.ca).
2. Official transcripts are to be sent by the school's registrar (or equivalent officer) from each postsecondary institutions attended. In the final 2 years of study, a B average is recommended.

3. ~~For MBA Programs requiring C~~ completion of the GMAT, ~~a is required.~~ A score of 600 is normally competitive. Each application is processed on its own merits with higher scores on some criteria compensating for lower scores in other areas.
4. Two letters of recommendation are to be completed by individuals who can supply information relating to the applicant's abilities. ~~While it is preferred that at least one reference be from an instructor who has taught the candidate, work-related references are also acceptable.~~ Applicants are encouraged to seek one academic and one professional (direct supervisor) reference.
5. A full résumé must be supplied. Candidates applying to the Accelerated and ~~Fulltime-MBA (non-Coop) Programs options~~ must have at least one year of full-time, continuous work experience at the professional, technical, or managerial level. ~~Whether applying for full-time or co-op, all~~ All international candidates must have one year of full-time work experience that has been completed after graduation.
6. ~~Applicants who did not complete their undergraduate degree in English must write the TOEFL or IELTS tests.~~ TOEFL results (if applicable) are to be sent directly by the Educational Testing Service ([www.toefl.org](http://www.toefl.org)). Minimum required scores are 250 on the computer-based test or 100 on the internet-based test. IELTS ([www.ielts.org](http://www.ielts.org)) is also accepted with a minimum score of 7.0.

As of September 2016, a new transfer credit and waiver policy is in place for the DeGroot MBA and the DeGroot MBA with Co-op programs. The intention of this new policy shifts the focus from student flexibility to one of delivering an experience both inside and outside of the classroom - requiring all MBA students to follow the same programming throughout their degree. Thus, no ~~Accelerated Part Time~~ transfer credits or waivers will be granted for MBA and MBA with Co-op and students.

Accelerated ~~students~~ ~~students who may continue to receive transfer credits and waivers at the time of admission for 600-level MBA courses up to a maximum of 6 term courses.~~ Only candidates who have earned their degree within the last 10 years from a recognized Canadian or American University and have obtained a minimum B grade (B- for McMaster graduates) in the equivalent course will have their courses reviewed automatically for credit. Students entering the Accelerated Program after September 2019 will be admitted directly into 700 level courses. ~~Transfer credits and waivers (with replacements) will be determined at the time of admission and will be outlined in the admission offer. For more information please visit <http://mbastudent.degrootemcmaster.ca/newly-admitted-students/>~~

Specializations:

As of September 2018, areas of specialization that are available are as follows:

Accounting and Financial Management Services

Business Analytics

Finance

Health Services Management (certain restrictions may apply)

Strategic Business Valuation

Strategic Marketing

General

Students registered ~~prior~~ prior to September 2018 in any full-time, part-time and co-op programs will be grandfathered based on the specialization they registered for.

Please note that starting September 2016 program minors will no longer be available in the MBA program.

Non-Degree Applicants

Each year, the DeGroot School of Business is prepared to admit to the MBA program a small number of highly qualified students who do not hold a bachelor's degree. The Admissions Advisory Committee will consider applicants with a minimum of seven years of successful business experience along with the typical GMAT score that ranges upward from 600.

Programs

Master

Business Administration Accelerated, M.B.A.

Business Administration Co-op, M.B.A.

Business Administration Part-Time, M.B.A.

Business Administration, Full-time - M.B.A.

Business Administration, M.B.A.

Course Offerings

MBA Courses

## Business Administration Accelerated, M.B.A.

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### Accelerated MBA

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If you have already completed a recognized undergraduate business degree within the last 10 years, or are a graduate of McMaster University's Engineering and Management program, you may be eligible for [advanced standing in year one and be admitted admission](#) directly into year two. You can earn your MBA degree in as little as 8 months of full-time study. The Accelerated program may also be taken on a part-time basis (6 units or less per term). The Accelerated Program is intended for those with at least one year of managerial, professional, or technical work experience.

Length: 8 months full-time or generally not longer than 8-10 terms part-time

### Admission Requirements

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- Completion of an undergraduate degree in business, or McMaster's Engineering and Management program, with a B average in the final two years of study. Applicants who completed their BCom at McMaster may be considered with a B- average
- Graduated within the last 10 years from a recognized Canadian or American university.
- Minimum of one year of full-time continuous managerial, professional, or technical work experience.
- Undergraduate co-op or internship placements (adding up to 12 months of work or more) from a [North American post-secondary](#) institution will also be considered if they are noted on your official transcripts or are confirmed in a letter from your school.
- [GMAT: Not required. Candidates who fail to meet the above criteria or who wish to strengthen their application may wish to write the GMAT.](#)
- [2 Letters of Reference. Applicants are encouraged to seek one academic and one professional \(direct supervisor\) reference.](#)

### Program Requirements

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- BUSINESS P700 / Business, Government and the Global Environment
- BUSINESS P720 / Strategic Management
- Plus eight 700-level courses



## Business Administration Co-op, M.B.A.

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DeGroot MBA with Co-op (4 academic terms alternating with 3 paid work terms)

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The DeGroot MBA with Co-op combines theoretical business education with the opportunity to complete three paid work terms. An emphasis on both the learning of business fundamentals, and the development of practical skills helps students advance their careers.

### Admission Requirements

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- **Work Experience:** Although work experience is an asset, it is not a requirement for domestic applicants. International applicants must have one year of full-time continuous professional, managerial or technical work experience.
- **GPA:** Completion of an undergraduate degree, a B average or higher is recommended
- **GMAT: Required. Applicants may submit a GRE or MCAT in lieu of GMAT. Please contact the MBA Program office for further details.**
- **Proof of English Language Proficiency:** required if previous degree was not completed in English
- **2 Letters of Reference.. Applicants are encouraged to seek one academic and one professional (direct supervisor) reference.**
- Applicants who meet the admission requirements will be required to take part **in an online and** a behaviour based interview.

## DeGroot MBA (Full-Time, 4 academic terms)

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The DeGroot Full-time MBA is a carefully blended combination of practical and theoretical business education. During 4 academic terms there is an emphasis on both the learning of business fundamentals, and the development of practical skills required for you to advance your career. It is intended for those with at least one year of managerial, professional, or technical work experience.

### Admission Requirements

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- Work Experience: One year of full-time continuous professional, managerial or technical work experience.
- GPA: Completion of an undergraduate degree, a B average or higher is recommended
- ~~GPA: Completion of an undergraduate degree with a B average or higher~~
- GMAT: Required. Applicants may submit a GRE or MCAT in lieu of GMAT. Please contact the MBA Program office for further details.
- Proof of English Language Proficiency: required if previous degree was not completed in English
- 2 Letters of Reference. Applicants are encouraged to seek one academic and one professional (direct supervisor) reference.
- Applicants who meet the admission requirements will be required to take part in an online interview

# MBA Courses

← Return to: [DeGroote School of Business](#)

Note 1: Not all courses are necessarily offered every year.

Note 2: Under normal circumstances, a student is expected to complete all first year courses before beginning 700-level courses. Requests to circumvent this expectation are not permitted.

## Selected Topics Courses

Selected topics courses are special courses offered in the MBA program which are not part of the regular curriculum.

Topics vary depending on recent developments in the subject area and on the research interests of the instructor(s).

These courses are not listed in the MBA Academic Calendar and may change from term to term. Course descriptions are available at <http://mbastudent.degroote.mcmaster.ca/courses/courseschedule/>

Prerequisites for these courses depend upon the topic offered.

Selected topics courses with a given course number may be repeated for credit if a different topic is offered.

## Year 1 Courses

**Year 1 Courses - DeGroote MBA (Full-time) and DeGroote MBA with Co-op (For students admitted on or after September 2016)**

[BUSINESS L611 / Foundations 1](#)

[BUSINESS I601 / Managing Financial Resources](#)

[BUSINESS I602 / Economics & Business Statistics](#)

[BUSINESS I603 / Competing Through Digital Transformation & Analytics](#)

[BUSINESS I604 / Creating Customer Value](#)

[BUSINESS I605 / Managing Organizations](#)

[BUSINESS L625 / Foundations 2: Review & Relaunch](#)

[BUSINESS A650 / Accounting for Decision Makers](#)

[BUSINESS F650 / Firms and Markets](#)

[BUSINESS L624 / Foundations 2: Advanced Professional Skills](#)

[BUSINESS L625 / Foundations 2: Review & Relaunch](#)

[BUSINESS L626 / Integrating Project](#)

Students choose from 3 out of 5 from the following:

[BUSINESS B650 / Managing People in Organizations](#)

[BUSINESS C650 / Introduction to Health Management](#)

[BUSINESS K650 / Information Systems in Business](#)

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[BUSINESS M650 / Strategic Marketing Management](#)

[BUSINESS O650 / Operations Management](#)

## Year 1 Courses

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**Year 1 Courses - All Programs except Part-Time. (For students admitted prior to September 2016)**

[BUSINESS A600 / Financial Accounting and Reporting](#)

[BUSINESS A610 / Managerial Accounting](#)

[BUSINESS B600 / Organizational Behaviour](#)

[BUSINESS E600 / Economics](#)

[BUSINESS F600 / Managerial Finance](#)

[BUSINESS K603 / Information Systems in Business](#)

[BUSINESS M600 / Marketing Concepts and Applications](#)

[BUSINESS O600 / Operations Management](#)

[BUSINESS Q600 / Applied Business Statistics](#)

## Year 2 Courses

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**Required Courses:**

[BUSINESS P700 / Business, Government and the Global Environment](#)

[BUSINESS P720 / Strategic Management](#)

Plus eight 700-level courses from the following:

## Accounting Courses

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[BUSINESS A600 / Financial Accounting and Reporting](#)

[BUSINESS A610 / Managerial Accounting](#)

[BUSINESS A701 / Intermediate Financial Accounting I](#)

[BUSINESS A702 / Intermediate Financial Accounting II](#)

[BUSINESS A703 / Advanced Financial Accounting](#)

[BUSINESS A717 / Seminar in Accounting Theory](#)

A718/28/38/48 Selected Topics in Accounting

[BUSINESS A721 / Management Accounting Information for Strategic Development](#)

[BUSINESS A722 / Market Trading and Risk Management](#)

[BUSINESS A723 / Accounting Information Systems](#)

[BUSINESS A730 / Canadian Taxation I](#)

[BUSINESS A732 / Canadian Income Tax Fundamentals](#)

[BUSINESS A733 / Canadian Taxation II](#)

[BUSINESS A740 / Strategic Management Accounting](#)

[BUSINESS A745 / Assurance](#)

[BUSINESS A750 / Financial Statement Analysis](#)

## Organizational Behaviour

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[BUSINESS B600 / Organizational Behaviour](#)  
[BUSINESS B712 / Managerial Negotiations](#)  
[BUSINESS B715 / Principles of Leadership](#)  
[BUSINESS B716 / Strategic Organizational Change](#)  
[BUSINESS B717 / Management Development](#)

B718/28/38/48 Selected Topics in Organizational Behaviour

[BUSINESS B730 / Strategic Management of Technology](#)  
[BUSINESS B733 / Multidisciplinary Entrepreneurship](#)  
[BUSINESS B734 / International Entrepreneurship](#)

## Health Services Management

[BUSINESS C700 / Introduction to Health Management](#)  
[BUSINESS C710 / Interdisciplinary Perspectives on Health Economics and Evaluation](#)  
[BUSINESS C711 / Health Economics and Evaluation for Managers](#)  
[BUSINESS C720 / Interdisciplinary Perspectives on Health Policy Analysis](#)  
[BUSINESS C721 / Health Policy Analysis for Managers](#)  
[BUSINESS C722 / Management of Population Health](#)  
[BUSINESS C725 / Managing Communications in Health Care](#)  
[BUSINESS C727 / Pharma/Biotech Business Issues](#)  
[BUSINESS C735 / Proposal Development for Health Care Leaders](#)  
[BUSINESS C736 / Quality Management in Health Services](#)  
[BUSINESS C740 / Interdisciplinary Perspectives on Health Care Marketing](#)  
[BUSINESS C741 / Health Care Marketing for Managers](#)  
[BUSINESS C750 / Ethical and Legal Issues in Health Care](#)  
[BUSINESS C755 / Analytics and Decision Making in Healthcare](#)  
[BUSINESS D700 / Case Analyses and Presentations](#)

## Business Economics

[BUSINESS E600 / Economics](#)  
[BUSINESS E714 / Business and Economic Forecasting](#)

## Finance

[BUSINESS F600 / Managerial Finance](#)  
[BUSINESS F700 / Valuation for Finance Professionals](#)  
[BUSINESS F701 / Alternative Investments and Portfolio Management](#)  
[BUSINESS F702 / Sustainable and Social Finance](#)  
[BUSINESS F710 / Financial Economics and Quantitative Methods](#)  
[BUSINESS F711 / Financial Institutions](#)  
[BUSINESS F712 / Applied Corporate Finance](#)  
[BUSINESS F713 / Security Analysis](#)

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[BUSINESS F714 / Options and Futures: Theory and Applications](#)

[BUSINESS F715 / Portfolio Theory and Management](#)

[BUSINESS F716 / International Financial Management](#)

[BUSINESS F717 / Financial Statement Analysis](#)

F718/28/38/48 Selected Topics in Finance

[BUSINESS F720 / Small Business/Entrepreneurial Finance](#)

[BUSINESS F721 / Mergers, Acquisitions and Corporate Control](#)

[BUSINESS F722 / Market Trading and Risk Management](#)

[BUSINESS F723 / Fixed Income Analysis](#)

[BUSINESS F724 / Venture Capital and Private Equity](#)

[BUSINESS F725 / Personal Financial Management](#)

[BUSINESS F726 / Behavioural Finance](#)

[BUSINESS F727 / Working Capital Management](#)

[BUSINESS F730 / Pension, Retirement and Estate Planning](#)

[BUSINESS F731 / Insurance and Risk Management](#)

[BUSINESS F732 / Personal Financial Planning and Advising](#)

[BUSINESS F733 / Financial Risk Management](#)

[BUSINESS F734 / Real Estate Finance and Investment](#)

[BUSINESS F735 / Financial Modelling](#)

[BUSINESS F736 / Ethics and Professional Practice in Finance](#)

[BUSINESS F741 / Introduction to FinTech](#)

[BUSINESS F743 / Big Data in Finance](#)

## Human Resources and Management

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[BUSINESS H600 / Human Resources Management](#)

H718/28/38/48 Selected Topics in Human Resources

## International Business

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## Management Information Systems

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[BUSINESS K603 / Information Systems in Business](#)

K718/28/38/48 Selected Topics in Management Information Systems

[BUSINESS K723 / Data Mining and Business Intelligence](#)

[BUSINESS K724 / eBusiness Strategies](#)

[BUSINESS K725 / Business Process Management](#)

[BUSINESS K731 / Project Management](#)

[BUSINESS K735 / Managing the Implementation of Enterprise Systems](#)

[BUSINESS K736 / Management Issues in eHealth](#)

[BUSINESS K737 / Cases in eBusiness, Innovation and Entrepreneurship](#)

[BUSINESS M600 / Marketing Concepts and Applications](#)

# Strategic Marketing

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[BUSINESS M721 / Business Marketing](#)

M718/28/38/48 Selected Topics in Marketing

[BUSINESS M722 / Health Care Marketing for Managers](#)

[BUSINESS M724 / Innovation and New Products](#)

[BUSINESS M727 / Marketing Communication](#)

[BUSINESS M731 / Marketing Research](#)

[BUSINESS M732 / Consumer Behaviour](#)

[BUSINESS M734 / Strategic Marketing Analysis](#)

[BUSINESS M733 / Marketing Analytics](#)

[BUSINESS M734 / Strategic Marketing Analysis](#)

[BUSINESS M736 / Services Marketing](#)

[BUSINESS M740 / Corporate Reputation and Brand Management](#)

[BUSINESS M750 / Consultative Selling](#)

[BUSINESS M751 / Sustainability and Corporate Social Responsibility](#)

[BUSINESS M752 / Digital Marketing](#)

# Operations Management

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[BUSINESS O600 / Operations Management](#)

[BUSINESS O701 / Modeling and Analytics using Spreadsheets](#)

[BUSINESS O711 / Predictive Modelling and Analytics](#)

[BUSINESS O715 / Simulation for Business Analytics](#)

O718/28/38/48 Selected Topics in Operations Management

[BUSINESS O721 / Inventory Management and Production Planning](#)

[BUSINESS O725 / Business Logistics](#)

[BUSINESS O726 / Methods for Quality Management](#)

[BUSINESS O734 / Supply Chain Management](#)

[BUSINESS O735 / Strategic Procurement](#)

# Business Environment and Policy

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[BUSINESS P700 / Business, Government and the Global Environment](#)

[BUSINESS P715 / Entrepreneurship](#)

[BUSINESS P720 / Strategic Management](#)

[BUSINESS P721 / The Clinic - Innovation Lab](#)

[BUSINESS P722 / Legal Aspects of Business](#)

[BUSINESS P724 / Innovation](#)

[BUSINESS P727 / Strategic Knowledge Management](#)

[BUSINESS P731 / Crisis Management and Communications](#)

[BUSINESS P737 / Profiting from Intellectual Property](#)

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[BUSINESS P745 / Corporate Governance](#)  
[BUSINESS Q600 / Applied Business Statistics](#)

## Strategic Business Valuation

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[BUSINESS V700 / Strategic Business Analysis and Valuation](#)  
[BUSINESS V701 / Financial Statement Analysis](#)  
[BUSINESS V702 / Behavioural Finance](#)  
[BUSINESS V703 / Financial Modeling and Valuation](#)  
[BUSINESS V704 / Advanced Strategic Business Valuation](#)  
[BUSINESS V705 / Venture Capital and Private Equity](#)

## Special Research Projects

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There is no thesis requirement for graduation in the MBA program. However, a student in the second year may undertake, with the prior approval of the appropriate instructor, Area Chair, and Associate Dean of Business, to develop an original paper, research study, or project in an area directly associated with their program of study. Special Research Projects must be supervised by a faculty member. Credit for one second-year course will be granted upon satisfactory completion of the project. In order to make best use of this opportunity the student must plan the research and contact a faculty member in the session preceding the one in which they intend to register for the special research project.

[BUSINESS A719 / Independent Research Project in Accounting](#)  
[BUSINESS B719 / Independent Research Project in Organizational Behaviour](#)  
[BUSINESS C719 / Independent Research Project in Health Sciences Management](#)  
[BUSINESS E719 / Independent Research Project in Business Economics](#)  
[BUSINESS F719 / Independent Research Project in Finance](#)  
[BUSINESS H719 / Independent Research Project in Human Resources Management](#)  
[BUSINESS I719 / Independent Research Project in International Business](#)  
[BUSINESS K719 / Independent Research Project in Management Information Systems](#)  
[BUSINESS M719 / Independent Research Project in Marketing](#)  
[BUSINESS O719 / Independent Research Project in Operations Management](#)  
[BUSINESS P719 / ~~Independent Research Project in Business Environment and Policy~~ Independent Research Project in Strategic Management](#)  
[BUSINESS V719 / Independent Research Project in Strategic Business Valuation](#)

← Return to: [DeGroote School of Business](#)



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	Information Systems (DeGroot School of Business)		
<b>NAME OF PROGRAM and PLAN</b>	PhD Program in "Business Administration" – the Information Systems (IS) field		
<b>DEGREE</b>	PhD		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
		<b>CHANGE IN COURSE REQUIREMENTS</b>	<input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input type="checkbox"/>	<b>EXPLAIN:</b>	
<b>OTHER CHANGES</b>	<input type="checkbox"/>	<b>EXPLAIN:</b>	

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Students in the Information Systems field are currently required to take the following 8 courses:

- B790, B793, B794, K797
- Two PhD Information Systems courses (chosen from K778, K779, K791, K792 K793, K794 and K795)
- Two MBA Information Systems courses (chosen from K723, K724, K725, K731, K735, K736 and K737)

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

The IS Area unanimously desires removal of the two MBA Information Systems courses above as apart of the course requirements for the IS field. The course requirements would thus be as follows:

- B790, B793, B794, K797
- Two PhD Information Systems courses (chosen from K778, K779, K791, K792 K793, K794 and K795)

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Rationale:

- The last IQAP program review for the PhD program questioned the merit of having PhD students complete MBA coursework as part of their PhD program requirements.
- Removal of the two MBA courses as required courses still keeps the IS field within the PhD program's requirement of a minimum of six courses.
- Most students end up getting their two required MBA courses waived as result of prior equivalent course work and/or direct work experience. Eliminating MBA courses would reduce the paperwork involved in getting these courses waived for PhD students.
- Content from MBA courses are never included as part of the IS field's comprehensive exam for PhD students.
- If a PhD supervisor and/or the IS Area Chair feel certain MBA courses would benefit a PhD student's training, then those MBA courses can still be included as part of that student's course requirements.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

<b>CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b>
Name: Brian Detlor      Email: <a href="mailto:detlorb@mcmaster.ca">detlorb@mcmaster.ca</a> Extension: 23949      Date submitted: Feb 25, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)



**School of Graduate Studies** 1280 Main Street West Phone 905.525.9140  
Hamilton, Ontario, Canada Ext. 23679  
L8S 4L8 <http://graduate.mcmaster.ca>

To : Graduate Council  
From : Christina Bryce  
Assistant Graduate Secretary

---

At its meeting on December 5<sup>th</sup>, January 16<sup>th</sup> and March 3<sup>rd</sup> the Faculty of Engineering Graduate Curriculum and Policy Committee approved the following graduate curriculum recommendations.

Please note that these recommendations were approved by the Faculty of Engineering.

**FOR APPROVAL OF GRADUATE COUNCIL:**

- **Biomedical Engineering**
  - **Accelerated Option\***
- **Engineering Physics**
  - **Change to Calendar Copy (M.Sc. and Ph.D.)**
- **School of Engineering Practice and Technology**
  - **Change to Program Length and Course Requirements**
  - **New Program Calendar Copy (M.Eng.)**
  - **Change to Program Requirements (M.E.M.E.)**
  - **Change to Program Requirements (M.Eng.D)**
  - **Change to Admission Requirements (M.E.P.P.)**

**FOR INFORMATION OF GRADUATE COUNCIL:**

- **Biomedical Engineering**
  - **Change to Course Description and Evaluation**
    - 707 Advanced Topics in Biophotonics
  - **New Course**
    - 6F04 Biomedical Instrumentation and Measurement
- **Engineering Physics**
  - **New Cross-listed Course**
    - 709 Advanced Topics in Biophotonics
- **School of Engineering Practice and Technology**
  - **Changes to Course Offering, Units, Grading Basis and Course Description**
    - 704 Public Policy Research Project

- **Change to Course Offering and Grading Basis**
  - 701 Project
- **Change to Requisite**
  - 791 Augmented Reality, Virtual Reality and Mixed Reality
- **Change to Course Description and Units**
  - 772 Innovation Studio
- **Change in Course Description**
  - 750 Model Predictive Control Design and Implementation
  - 751 Process Design and Control for Operability
  - 754 Process Design and Integration for Minimal Environmental Impact
- **Change in Course Title and Description**
  - 757 Hardware Prototyping Tools and Methods
  - 769 Systems Engineering & Cyber Physical Systems
  - 783 Electromagnetics Sensors and Actuators
- **New Courses 600-level**
  - 6AE3 Internal Combustion Engines
  - 6FM3 Computer Integrated Manufacturing (CIM) and Flexible Manufacturing
  - 6TC3 Technical Communications
  - 6MA3 Numerical Linear Algebra and Numerical Optimization
- **New Courses 700-level**
  - 737 Scenario Analysis, a Public Policy Analytical Method
  - 711 Electric Powertrain Components Design
  - 716 Automotive Safety Design
  - 717 Biomanufacturing
  - 718 Industrial Automation
  - 724 Intelligent Transport Systems
  - 726 Discrete Manufacturing Processes 1
  - 727 Discrete Manufacturing Processes 2
  - 728 Internet of Things (IoT) and industrial Internet of Things (IoT) Systems
  - 734 Issues in Vehicle Productions
  - 799 M.Eng. Project in Systems and Technology Parts 1 and 2
- **New Cross-listed Courses**
  - 6T03 Properties and Processing of Composites
  - 732 Lean Six Sigma for Engineers
  - 729 Manufacturing Systems
- **Changes to Requisites**

- 700 M.Eng. Project in Engineering Design Part I and II
  - 701 Theory and Practice of Policy Analysis: Frameworks and Models
  - 704 Public Policy Research Project
  - 760 Design Thinking
  - 773 Leadership for Innovation
- **Computing and Software**
    - **New Cross-listed Course**
      - 6AX3 Intelligent and Predictive Control
    - **Course Cancellation**
- **Electrical and Computer Engineering**
    - **New Course**
      - 6PN4 Electric Motor Drives
    - **Change to Course Description and Evaluation**
      - 716 Switched Reluctance Machines
    - **Change to Course Title and Description**
      - 754 Modeling and Simulation of Photonic Devices and Circuits I (Passive Devices and Circuits)
    - **Course Cancellations**
      - 755 Modeling and Simulation of Photonic Devices and Circuits II (Active and Functional Devices)
      - 795 Quantitative Electrophysiology
- **Mechanical Engineering**
    - **New Cross-Listed Courses**
      - 6A03 Energy Systems Engineering
      - 720 Power Converter Systems
      - 721 Modeling, Control, and Design of Electrified Vehicles
      - 732 Process Modeling and Optimization
      - 744 Process Design and Integration for Minimal Environmental Impact
      - 771 Algorithms for Parameter and State Estimation
      - 798 Biomedical Signal Modeling and Processing

\*also approved by the Faculty of Health Sciences



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).			
3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
<b>DEPARTMENT</b>		Biomedical Engineering	
<b>NAME OF PROGRAM and PLAN</b>		Accelerated Option for IBEHS (Integrated Biomedical Engineering and Health Science) students in Biomedical Engineering	
<b>DEGREE</b>	MAsc. or Ph.D		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<b>EXPLAIN:</b>	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b> New offering for IBEHS students of an Accelerated Option		
<b>DESCRIBE THE <u>EXISTING</u> REQUIREMENT/PROCEDURE:</b>			
None			

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

An accelerated MASc option is available to IBEHS students currently enrolled at McMaster University whereby the degree may be completed in 12 months of full-time study. For IBEHS students with a sessional average of 9.0 they would be able to complete their education, with a MASc in 6 years, an accelerated 1 year MASc degree option is proposed. These students would complete a research project May through August at the end of their 4<sup>th</sup> year and complete either IBEHS 4F04 or 6QZ3 in their final year. After completion of their undergraduate degree, student would take either core course Biomed 701 (required by HESE students) in the Fall or Biomed 706 (required for Engineering students) in the Winter. They would be required to take a third course, at the 700 level, which would be decided upon between them and their supervisor.

Students can also consider an accelerated "Direct to PhD" option. Applicants must have a sessional average of 11.0 at the time they are applying for this option. They would follow the same schedule as the MASc however, they would extend the degree by at least 2 extra years (for a total of 3 years, post-undergraduate studies). These students would need an additional three 700 level courses beyond the one 600 level and one core course (total of 5 courses). This option would be available only McMaster undergraduate students.

Refer to the attached document for further details.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

The Integrated Biomedical Engineering and Health Science (IBEHS) program (aka iBiomed) is a 5 year program resulting in either a dual accredited engineering degree (e.g. electrical & biomed, mechanical & biomed, etc.) or a non-accredited health and engineering science degree. All other engineering programs have 4 years of engineering and science content. Typically, if an engineering student pursues a direct entry to PhD an additional 4 years is added to their education, making 8 years total. However, for current IBEHS students to complete an undergraduate and PhD degrees they would require 9 years. Thus an accelerated 3 year direct entry PhD degree option is proposed. This would result in a PhD after 8 years.

There are two reasons for considering an accelerated MASc program for iBioMed graduates. First, the Integrated Biomedical Engineering and Health Sciences program is a 5-year program but unlike the other 5-year programs in Engineering, i.e. Engineering and Management and Engineering and Society, the additional courses taken are all in the engineering or sciences areas. This gives the students a much broader technical and scientific background. As well, a number of existing iBioMed courses as well as future Year V courses are comparable in learning expectation as introductory graduate level courses at other universities.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

MASc option is available to IBEHS students currently enrolled at McMaster University.

The Ph.D. option would be available only McMaster undergraduate students.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

An accelerated MASc option is available to students currently enrolled at McMaster University whereby the degree may be completed in 12 months of full-time study. Application for entry into the accelerated option occurs in the penultimate year of undergraduate studies.



- Applicants must have a sessional average of 9.0 at the time they are applying for the option.
- At the end of their 4<sup>th</sup> year, students will need to complete the first term of their research project with their proposed supervisor (i.e. during May through August), prior to completion of their undergraduate degree.
- The accelerated option requires students to complete one of either IBEHS-4FO4 (bioinstrumentation) or IBEHS-4QZ3 (Mathematical Modeling) in their 5<sup>th</sup> and final year.
- Students will officially start their accelerated MASc in May (after completion of their 5<sup>th</sup> year, and once they have been cleared to graduate) and pursue research through the summer.
- Students would take either core course Biomed 701 (required by HESE students) in the Fall or Biomed 706 (required for Engineering students) in the Winter.
- They would be required to take a third course, at the 700 level, which would be decided upon between them and their supervisor.

Students must apply to Graduate Studies by the end of their final year of their undergraduate program and are expected to begin in May of the year they graduate. They will need to follow the normal application procedures of Graduate Studies and must meet the requirements of both the School of Biomedical Engineering and the School of Graduate Studies. Entry into the MASc program under the accelerated option must occur less than one year upon completing one's undergraduate degree and must meet the same requirements for admissions as other candidates.

Students considering continuing in a Ph.D. in Biomedical Engineering, within the School of Biomedical Engineering, would need to complete 2 more courses in addition to the requirements of the Ph.D. program.

Students can also consider an accelerated "Direct to PhD" option. Applicants must have a sessional average of 11.0 at the time they are applying for this option. They would follow the same schedule as above. However, they would extend the degree by at least 2 extra years (for a total of 3 years, post-undergraduate studies). Such students would need an additional three 700 level courses beyond the one 600 level and one core course (total of 5 courses). This option would be available only McMaster undergraduate students. Other students already possessing an accelerated Master's degree, or any other type of Master's degree, would not be accepted into this program.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Mike Noseworthy Email: nosewor@ Extension: 23486 Date submitted: February 4, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

SGS/2013

## Accelerated MASc Degree Option for Biomedical Engineering

### Justification

The Integrated Biomedical Engineering and Health Science (IBEHS) program (aka iBiomed) is a 5 year program resulting in either a dual accredited engineering degree (e.g. electrical & biomed, mechanical & biomed, etc.) or a non-accredited health and engineering science degree. All other engineering programs have 4 years of engineering and science content. Typically, if an engineering student pursues a MASc an additional 2 years is added to their education, making 6 total. For IBEHS students to complete their education, with a MASc in 6 years, an accelerated 1 year MASc degree option is proposed. An accelerated MASc option is available to students currently enrolled at McMaster University whereby the degree may be completed in 12 months of full-time study. Application for entry into the accelerated option occurs in the penultimate year of undergraduate studies.

There are two reasons for considering an accelerated MASc program for iBioMed graduates. First, the Integrated Biomedical Engineering and Health Sciences program is a 5-year program but unlike the other 5-year programs in Engineering, i.e. Engineering and Management and Engineering and Society, the additional courses taken are all in the engineering or sciences areas. This gives the students a much broader technical and scientific background. As well, a number of existing iBioMed courses as well as future Year V courses are comparable in learning expectation as introductory graduate level courses at other universities. For instance, two of their present core courses, IBEHS 4FO4 Biomedical Instrumentation and Measurement and 4QZ3 Modelling of Biological Systems, are given as graduate courses in Biomedical Engineering at the University of Toronto. Several of the Year V electives such as "Advanced Topics in MRI" are also given at the University of Toronto at the graduate level. To summarize this reason, the iBioMed students, because of the nature of the program have a broader and more advanced undergraduate education than the standard engineering or life sciences student. Secondly, many of the students will have preparatory research experience for the MASc as a result of summer co-op placements in biomedical engineering or health sciences laboratories, and others will have taken research elective courses in Years III (Health Sciences stream), IV and V. This experience is not available to either engineering or life sciences students prior to their graduating year, which is why the accelerated option for the MASc in Biomedical Engineering is proposed to be limited to graduating McMaster's iBioMed students. In short, these students will be advanced in their research exposure and capability compared to other students.

### **Program option details:**

- Applicants in their penultimate year of undergraduate studies must have an annual sessional average of 9.0 (i.e. in the 3<sup>rd</sup> year) at the time of contacting the Director of the School of Biomedical Engineering to express their intention to apply for the accelerated MASc option. They will need to maintain 9.0 average until undergraduate degree completion.
- At the end of their 4<sup>th</sup> year, students will need to complete the first term of their research project with their proposed supervisor (i.e. during May through August), prior to completion of their undergraduate degree.
- The accelerated option requires students to complete one of either IBEHS-4FO4 (bioinstrumentation) or IBEHS-4QZ3 (Mathematical Modeling) with the additional 600 level evaluation components (i.e. either IBEHS-6QZ3 or IBEHS-6FO4) completed in their 5<sup>th</sup> and final year. The program will petition the School of Graduate Studies for advanced credit upon entry to the Masters degree.
- Students will officially start in the accelerated MASc program option in May (after completion of their 5<sup>th</sup> year, and once they have been cleared to graduate) and pursue research throughout the summer.

- Enrolled students would take either core course Biomed 701 3 unit course (required by HESE students) in the Fall or Biomed 706 3 unit course (required for Engineering students) in the Winter.
- Enrolled students would be required to take a third course, at the 700 level, which would be decided upon between them and their supervisor.

Entry into the MASc program under the accelerated option must occur less than one year upon completing one's undergraduate degree and must meet the same requirements for admissions as other candidates.

**Accelerated MASc Option – start in May**

Fall Winter	4 <sup>th</sup> year	- Find a supervisor - Apply for accelerated option
Summer		First semester of research project
Fall Winter	5 <sup>th</sup> year	- take a 600-level course (must be one of either IBEHS-6FO4, Bioinstrumentation or IBEHS-6QZ3, Mathematical Modeling) - Apply to School of Graduate Studies (SGS)
<b>Year 1</b> (summer)	Officially Start MASc	- Continue research project (now officially as a MASc student)
<b>Year 1</b> Fall/Winter		- BME 701 (if HESE student) OR BME 706 (if engineering student) - One other 700 level course in either fall or winter

## **Accelerated PhD Degree Option for Biomedical Engineering**

### **Justification**

The Integrated Biomedical Engineering and Health Science (IBEHS) program (aka iBiomed) is a 5 year program resulting in either a dual accredited engineering degree (e.g. electrical & biomed, mechanical & biomed, etc.) or a non-accredited health and engineering science degree. All other engineering programs have 4 years of engineering and science content. Typically, if an engineering student pursues a direct entry to PhD an additional 4 years is added to their education, making 8 years total. However, for current IBEHS students to complete an undergraduate and PhD degrees they would require 9 years. Thus an accelerated 3 year direct entry PhD degree option is proposed. This would result in a PhD after 8 years.

There are two reasons for considering an accelerated MSc program for iBioMed graduates. First, the Integrated Biomedical Engineering and Health Sciences program is a 5-year program but unlike the other 5-year programs in Engineering, i.e. Engineering and Management and Engineering and Society, the additional courses taken are all in the engineering or sciences areas. This gives the students a much broader technical and scientific background. As well, a number of existing iBioMed courses as well as future Year V courses are comparable in learning expectation as introductory graduate level courses at other universities. For instance, two of their present core courses, IBEHS 4FO4 Biomedical Instrumentation and Measurement and 4QZ3 Modelling of Biological Systems, are given as graduate courses in Biomedical Engineering at the University of Toronto. Several of the Year V electives such as "Advanced Topics in MRI" are also given at the University of Toronto at the graduate level. To summarize this reason, the iBioMed students, because of the nature of the program have a broader and more advanced undergraduate education than the standard engineering or life sciences student. Secondly, many of the students will also have preparatory research experience as a result of summer co-op placements in biomedical engineering or health sciences laboratories, and others will have taken research electives in Years III (Health Sciences stream), IV and V. In the proposed accelerated programs they will also have research experience in their chosen topic (and supervisor) in the summer between Years IV and V. This experience is not available to either engineering or life sciences students prior to their graduating year, which is why the accelerated option for the PhD in Biomedical Engineering is proposed to be limited to graduating McMaster's iBioMed students. In short, these students will be advanced in their research exposure and capability compared to other students.

### **Program option details:**

- Applicants in their penultimate year of undergraduate studies must have an annual sessional average of 11.0 (i.e. in the 3<sup>rd</sup> year) at the time of contacting the Director of the School of Biomedical Engineering to express their intention to apply for the accelerated PhD option. They will need to maintain 11.0 average until undergraduate degree completion.
- At the end of their 4<sup>th</sup> year, students will need to complete the first term of their research project with their proposed supervisor (i.e. during May through August), prior to completion of their undergraduate degree.
- The accelerated option requires students to complete one of either IBEHS-4FO4 (bioinstrumentation) or IBEHS-4QZ3 (Mathematical Modeling) with the additional 600 level evaluation components (i.e. either IBEHS-6QZ3 or IBEHS-6FO4) completed in their 5<sup>th</sup> and final year. The program will petition the School of Graduate Studies for advanced credit upon entry to the Doctoral degree
- Students will officially start in the accelerated PhD program option in May (after completion of their 5<sup>th</sup> year, and once they have been cleared to graduate) and pursue research throughout the summer.

- Enrolled students would take either core course Biomed 701 3 unit course (required by HESE students) in the Fall or Biomed 706 3 unit course (required for Engineering students) in the Winter.
- Enrolled students would be required to take 3 other courses, at the 700 level, which would be decided upon between them and their supervisory committee.

Entry into the PhD program under the accelerated option must occur less than one year upon completing one's undergraduate degree and must meet the same requirements for admissions as other candidates. The proposed accelerated PhD would take a total of 3 years of post-undergraduate studies.

Once in the PhD program these students would require one of the core BME courses (BME-701 or BME-706) and three 700 level courses beyond the one 600 level taken during the last year of their undergraduate degree (thus, a total of 5 courses).

**Accelerated PhD Option – start in May**

Fall Winter	4 <sup>th</sup> year	- Find supervisor - Apply for Accelerated Option
Summer		First semester of research project
Fall Winter	5 <sup>th</sup> year	- one of either IBEHS-6FO4 (bioinstrumentation) or IBEHS-6QZ3 (Mathematical Modeling) - Apply to School of Graduate Studies (SGS)
<b>Year 1</b> (summer)	Officially Start PhD	- Continue research project (now officially as a PhD student)
<b>Year 1</b> (fall/winter)		- BME 701 (if HESE student) OR BME 706 (if engineering student) - three other 700 level courses to be taken over 3 years of degree
<b>Year 2</b>		- comprehensive exam. <sup>1</sup> & research
<b>Year 3</b>		- research, writing and finish at end of winter term of 3 <sup>rd</sup> year

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<sup>1</sup> The BME comprehensive exam currently involves writing a grant proposal, giving a 20min presentation on the topic and defending it during an oral examination. From time to receiving of the topic to examination date is exactly 4 weeks.

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed. 2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca). 3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
<b>DEPARTMENT</b>	Engineering Physics		
<b>NAME OF PROGRAM and PLAN</b>	N/A		
<b>DEGREE</b>	M. A. Sc.		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Clarify the course requirement	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

## Program Structure

A candidate for the M.A.Sc. degree (Thesis) is required to complete a minimum of three half courses (the equivalent of two half courses must be at the 700 level) with an average of at least B and a thesis. The M.A.Sc. students are allowed to take one non-technical course at the 600- or 700-level among the three required half-courses. The thesis topic is normally chosen in consultation with an on-campus supervisor. A minimum period of twelve months in residence will normally be required. It is expected that many students will choose this route towards a Ph.D. degree. In addition to the minimum of three half courses, M.A.Sc. candidates are required to complete the mandatory seminar half course ENG PHYS 700.

An Advanced Credit Option is available to students currently enrolled in their final year of an Engineering Physics undergraduate program at McMaster University.

An Accelerated Option is also available to students currently enrolled at McMaster as undergraduate students in the Engineering Physics Department whereby the M.A.Sc. degree may be completed in 12-16 months of full-time study.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

## Program Structure

A candidate for the M.A.Sc. degree (Thesis) is required to complete a minimum of three half courses (~~the equivalent of two~~~~one of the three~~ half courses ~~must~~~~can~~ be at the ~~700~~~~600~~ level) with an average of at least B and a thesis. The M.A.Sc. students are allowed to take one non-technical course at the 600- or 700-level among the three required half-courses. The thesis topic is normally chosen in consultation with an on-campus supervisor. A minimum period of twelve months in residence will normally be required. It is expected that many students will choose this route towards a Ph.D. degree. In

addition to the minimum of three half courses, M.A.Sc. candidates are required to complete the mandatory seminar half course ENG PHYS ~~700~~702.

An Advanced Credit Option is available to students currently enrolled in their final year of an Engineering Physics undergraduate program at McMaster University.

An Accelerated Option is also available to students currently enrolled at McMaster as undergraduate students in the Engineering Physics Department. The graduate credit and thesis-related research work completed under the Accelerated Option are expected to reduce time to completion of the Master's program whereby the M.A.Sc. degree may be completed in 12-16 months of full-time study.

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**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Clarify the description on course requirement and avoid confusion.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

Sept. 1, 2020.

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Chang-qing Xu Email: [cxqu@mcmaster.ca](mailto:cqxu@mcmaster.ca) Extension: 24314 Date submitted: Dec.2, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)





**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.			
2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).			
3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.			
<b>DEPARTMENT</b>	Engineering Physics		
<b>NAME OF PROGRAM and PLAN</b>	N/A		
<b>DEGREE</b>	PhD		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Clarify the course requirement	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:

## Overview

Students with a Master's degree are required to take two half courses, at least two of which must be at the 700- level. Students entering into the Ph.D. program directly from a Baccalaureate degree, or transferring into the Ph.D. program without being required to complete the Master's degree are required to take a total of two half courses at the 700-level. Among these two half courses, one can be a non-technical course with approval of the Associate Chair (Graduate). For those students transferring to the Ph.D. without completion of the Master's degree, courses completed during the Master's at McMaster's Engineering Physics M.A.Sc. or M.Eng. program may be transferred to McMaster's Engineering Physics Ph.D. program. In addition to the minimum of two half courses, Ph.D. candidates are required to complete the mandatory seminar half course ENG PHYS 701 .

During their course of study, doctoral candidates will be required to pass a Departmental Comprehensive Examination.

Ph.D. students must present a thesis proposal to their Supervisory Committee, normally at the first Supervisory meeting after completion of one term in their program.

PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)

## Overview

Students with a Master's degree are required to take two half courses, ~~;~~ **both must be at the 700 level.** ~~at least two of which must be at the 700 level.~~ **If a student is transferring from the M. A. Sc. to the PhD without completing the Master's degree, then the courses completed under the M. A. Sc. may be counted towards the PhD.** ~~Students entering into the Ph.D. program directly from a Baccalaureate degree, or transferring into the Ph.D. program without being required to complete the Master's degree are required to take a total of two half courses at the 700-level.~~ Among these two half courses, one can be a

non-technical course with approval of the Associate Chair (Graduate). ~~For those students transferring to the Ph.D. without completion of the Master's degree, courses completed during the Master's at McMaster's Engineering Physics M.A.Sc. or M.Eng. program may be transferred to McMaster's Engineering Physics Ph.D. program.~~ In addition to the minimum of two half courses, Ph.D. candidates are required to complete the mandatory seminar half course ENG PHYS ~~701-702~~.

During their course of study, doctoral candidates will be required to pass a Departmental Comprehensive Examination.

Ph.D. students must present a thesis proposal to their Supervisory Committee, normally at the first Supervisory meeting after completion of one term in their program.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Clarify the description on course requirement and avoid confusion.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Sept. 1, 2020.

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Chang-qing Xu Email: [cxqu@mcmaster.ca](mailto:cqxu@mcmaster.ca) Extension: 24314 Date submitted: Dec.2, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		W Booth School of Engineering Practice and Technology		
<b>NAME OF PROGRAM and PLAN</b>		Master of Engineering Manufacturing Engineering		
<b>DEGREE</b>	Master of Engineering Manufacturing Engineering			
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>				
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
CREATION OF NEW MILESTONE <input type="checkbox"/>				
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>	<b>CHANGE IN COURSE REQUIREMENTS</b> <input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Change the length of the program and increase the number of units required to complete the program		
<b>OTHER CHANGES</b>	<input type="checkbox"/>			
<b>DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:</b>				
<ol style="list-style-type: none"> <li>1. The MEME program is 1.5 months for full time students and 28 months for part time students.</li> <li>2. All full time and part time students complete 24 units (24 units of course work or 18 units of course work and 6 units for their project) to complete the program degree requirements.</li> </ol>				

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.)**

1. Extend the full-time program to 24 months with an accelerated ~~option-path~~ to complete the program in 12 months. Extend the part time option from 28 months to 40 months.
2. Increase the number units to complete the program from 24 to 30 units.
3. Add SEP 772 as a mandatory course
4. Increase the number of professional development course by 1

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Most of our students are international students; many of them work off campus (their visa allows them to work 20 h/week). This makes it difficult for the students to devote sufficient time to their studies and to attain the level of excellence which we would like them to have. For those students who need to work off campus, this problem can be avoided if the students are allowed to extend their studies while reducing the course load and remaining full time students. At the same time, the students who do not need to work, should be able to finish their studies in an accelerated ~~medepath~~.
2. Currently, the students take 8 courses (24 units) who are completing course-based or 6 courses (18 units) plus project (6 units) for the project based option. Changing SEP 772 to a 3-unit course plus adding one professional development course elective course (3 units) increases the course count to 30 units for course based. For project based option, this increases the units from 18 to 24 units. In addition, there is 6 unit required project.
3. MED, MEPP and MEEI/MTEI students take the mandatory SEP 772 Innovation Studio, which accelerates their abilities to work in teams, brainstorm, cultivate new ideas, and carry out preliminary assessment of technical and financial viability of their ideas. The fact that MEME and MEST students do not take SEP 772 places them at a disadvantage in their studies and beyond.
4. Given that SEPT is a practice-based educational school, essential skills (i.e., communication, leadership, etc.), are central to our program learning outcomes. In addition, for many of our students English is a second language. Hence, one professional development course, which if often a project management course, is insufficient. Students need to take at least one communication related course in addition.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

## Program Description

The Master of Engineering in Manufacturing Engineering is a ~~24 month one and a half year~~ program for full time ~~students with an accelerated option path to complete the program in 12 months of study. Part time students will normally be expected to complete the program in or 3 years, one term, 28 (40 months) program for part students);~~ ~~†~~ The program attracts highly motivated students seeking advanced training in the discrete manufacturing. ~~Motivated students enrolled full time may complete the program in 12 months.~~ Students design their own program of studies by selecting (with approval of their academic advisor) courses of interest to them. Applications for admission to the program are made through the W Booth School of Engineering Practice and Technology. Applicants will be required to complete an online interview.

The program accepts full-time and part-time students.

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a degree in Engineering or Technology with at least a B average (equivalent to a McMaster 8.0/12 GPA) in the penultimate and final years.

Delivery of the program includes a strong emphasis on project-based experience within the Manufacturing Industry, which is obtained through an industry-based project and through projects defined within courses. Requirements for these are outlined below. Due to the strong practical orientation of the project components of the program, successful completion requires that students have strong interpersonal and communication skills. Students completing the Program on a course-only basis will be required to complete ~~8~~10 courses from the approved list of courses. Course selection must be done in consultation with the program lead.

Students completing the Program via course and project work will be required to complete ~~six~~eight courses from the approved list of courses and also successfully complete the M.Eng. project. Course and project selection must be done in consultation with the program lead.

McMaster students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

## Project

Students wishing to pursue the course plus project-based option must submit a project proposal for approval by both the faculty lead as well as the Associate Director of Graduate Studies in SEPT. If the project is not approved by either individual, students will be reverted to the course based option. Students are encouraged to develop their own ideas and find industrial sponsors. Projects are ideally undertaken at local companies but may be conducted at locations inside Canada or abroad with the Program Lead's approval and provided that none of the work on the project was done prior to admission into the program. Project groups or individuals will have an industry-based supervisor (stakeholder) with whom the student team can discuss progress, arrange trials, etc. Students will also have an academic supervisor who will normally have expertise in the subject area. It is expected that the teams will meet with their supervisors on a regular basis to discuss their progress.

The project team will orally defend their final project report to an examination committee comprised of their academic supervisor and the second reader (faculty member).

# Courses

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## Discrete Manufacturing Courses

Students enrolling in the program can tailor their program of studies according to their career interests. Students can take maximum of 2 half courses (one term courses) at 600 level. Courses can be selected from WBooth SEPT, Chemical, Materials or Mechanical Engineering departments.

Students wishing to take an elective course outside of the recommended electives need to obtain a permission from their program lead.

Students should note that not all courses are offered every year.

There are 2 pathways towards the degree:

- ~~68~~ courses (~~1824~~ units) + project (6 units)
  - 1 mandatory course
  - 2 professional development courses
  - 3 to 4 core courses
  - 1 to 2 elective courses

Students pursuing this option, in addition to taking ~~68~~ courses specified above, must register for the project-courses:

- MANUF 701 / Project, Part 1
- MANUF 701 / Project, Part 2

- ~~810~~ courses (~~2430~~ units)
  - 1 mandatory course
  - ~~1-2~~ 2 professional development courses
  - 4 to 6 core courses
  - 1 to 3 elective courses

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (seminar series, full-time students only)
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II

(seminar series, full-time students only)

SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M.Eng. programs at the School.

All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course the student must attend a minimum of 80% of the seminars.

### **Required course**

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[SEP 772 Innovation Studio](#)

### **Professional Development Courses**

Professional Development courses in MEng of Manufacturing Engineering, are listed below:

- SEP 6TC3 Technical Communications
- SEP 725 Practical Project Management for Today's Business Environment
- SEP 773 Leadership for Innovation
- SEP 760 Design Thinking

### **Technical Courses**

The following are core courses:

- MECH ENG 729 / SEP 729 Manufacturing systems
- CHEM ENG 720 / SEP 732 Six sigma for lean manufacturing
- SEP 726 Discrete Manufacturing Processes I
- SEP 727 Discrete Manufacturing processes II
- SEP 757 / MECH ENG 759 Rapid prototyping
- SEP 780 Advanced robotics and automation
- SEP 6I03 / MATLS 6I03 Sustainable manufacturing processes

Recommended elective courses are:

- MATLS 6T03 / SEP 6T03 Properties and processing of composites
- SEP 767 / CHEM ENG 765 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP 718 Industrial Automation

### **Other Elective Courses Available**

These courses require a written permission of the student's graduate advisor.

### **Courses from Chemical Engineering, Materials Science Engineering, and from Mechanical Engineering.**

In addition to the recommended elective courses listed above, students can take up to two 600 and an unrestricted number of 700 level courses as electives from Chemical Engineering, Materials Science Engineering, and from Mechanical Engineering.



## Additional Elective Courses

Students can select additional elective courses from the following list, provided that the approval has been received a priori from their program lead:

Note that not all courses are offered every year.

### ***Chemical Engineering***

[CHEM ENG 6B03 / Polymer Reaction Engineering](#)

[CHEM ENG 6C03 / Statistics for Engineers](#)

[CHEM ENG 6E03 / Digital Computer Process Control](#)

[CHEM ENG 6X03 / Polymer Processing](#)

[CHEM ENG 6Z03 / Interfacial Engineering](#)

[CHEM ENG 742 / Membrane Based Bioseparations](#)

[CHEM ENG 752 / Optimization of Chemical Processes](#)

[CHEM ENG 753 / Systems Modeling and Optimization](#)

[CHEM ENG 761 / Multivariable, Stochastic and Adaptive Control of Chemical Processes](#)

[CHEM ENG 764 / Process Control Design](#)

[CHEM ENG 765 / Multivariate Statistical Methods for Big Data Analysis and Process Improvement](#)

[CHEM ENG 770 / Selected Topics in Polymer Science and Engineering](#)

[CHEM ENG 772 / Polymer Rheology](#)

[CHEM ENG 773 / Advanced Concepts of Polymer Extrusion](#)

[CHEM ENG 774 / Advances in Polymeric Materials](#)

[CHEM ENG 782 / Biopharmaceuticals](#)

[CHEM ENG 786 / Artificial Intelligence and Machine Learning Fundamentals](#)

[CHEM ENG 787 / Machine Learning : Classification Models](#)

[CHEM ENG 788 / Neural Networks and Development Tools](#)

[CHEM ENG 789 / Deep Learning and Its Applications](#)

[CHEM ENG 791 / Nanotechnology in Chemical Engineering](#)

### ***Materials Science and Engineering***

[MATLS 6C03 / Modern Iron and Steelmaking](#)

[MATLS 6D03 / Corrosion](#)

[MATLS 6H03 / Thin Film Science and Engineering](#)

[MATLS 6I03 / Sustainable Manufacturing Processes](#)

[MATLS 6P03 / Properties of Polymeric Materials](#)

[MATLS 6T03 / Properties and Processing of Composites](#)

[ENGINEER 6T04 / Materials Selection in Design and Manufacturing](#)

MATLS 754 / Fracture Mechanics  
MATLS 760 / Electronic Materials  
MATLS 771 / Principles of Heterogeneous Kinetics  
MATLS 780 / Metallic and Non-metallic Coatings

***Mechanical Engineering***

MECH ENG 6B03 / Topics in Product Development  
MECH ENG 6K03 / Robotics  
MECH ENG 6L03 / Industrial Design  
MECH ENG 6Q03 / Mechanical Vibrations  
MECH ENG 6T03 / Finite Element Applications  
MECH ENG 6Z03 / CAD/CAM/CAE  
MECH ENG 702 / Advanced Dynamics of Machines  
MECH ENG 705 / Advanced Finite Element Analysis  
MECH ENG 710 / Machine Tool Analysis  
MECH ENG 714 / Solidification Processing  
MECH ENG 724 / Solid and Surface Modeling Techniques  
MECH ENG 728 / Manufacturing Processes I  
MECH ENG 729 / Manufacturing Systems  
MECH ENG 734 / Theory of Plasticity  
MECH ENG 735 / Additive Manufacturing  
MECH ENG 738 / Manufacturing Processes II  
MECH ENG 743 / Advanced Mechatronics  
MECH ENG 751 / Advanced Mechanical Engineering Control Systems  
MECH ENG 752 / Advanced MEMS Fabrication and Microfluidics  
MECH ENG 759 / Hardware Prototyping Tools and Methods  
MECH ENG 760 / Electric Drive Vehicles

***A Maximum of two courses can be selected from the following list:***

**Electrical Engineering**

ECE 710 / Engineering Optimization  
ECE 732 / Non-linear Control Systems  
ECE 736 / 3D Image Processing and Computer Vision  
ECE 744 / System-on-a-Chip (SOC) Design and Test: Part I - Methods  
ECE 772 / Neural Networks and Learning Machines  
ECE 778 / Introduction to Nanotechnology

**Software Engineering**

SFWR ENG 6HC3 / The Human Computer Interface

**Computer Science**

COMP SCI 6F03 / Distributed Computer Systems

COMP SCI 6TE3 / Continuous Optimization

**Computing and Software**

CAS 767 / Information Privacy and Security

CAS 771 / Introduction to Big Data Systems and Applications

**School of Engineering Practice and Technology**

SEP 6AS3 / Advanced System Components and Integration

SEP 6AT3 / Conceptual Design of Electric and Hybrid Electric Vehicles

SEP 6DM3 / Data Mining

SEP 735 / ADDITIVE MANUFACTURING

SEP 748 / Development of Sustainable Communities

SEP 751 / Process Design and Control for Operability

SEP 752 / Systems Modeling and Optimization

SEP 754 / Process Design and Integration for Minimal Environmental Impact

SEP 780 / Advanced Robotics and Automation

SEP 772 / Innovation Studio

SEP 771 / W Booth School of Engineering Practice and Technology Practitioner’s Forum Part I

SEP 771 / W Booth School of Engineering Practice and Technology Practitioner’s Forum Part II

**Manufacturing Engineering**

MANUF 6RM3 / Robot Mechanics and Mechatronics

MANUF 710 / SYSTEM ANALYSIS SIMULATION

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Vladimír Mahalec    Email: mahalec@mcmaster.ca    Extension: 26386    Date submitted: February 19, 2020

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If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	W Booth School of Engineering Practice and Technology		
<b>NAME OF PROGRAM and PLAN</b>	Master of Engineering and Public Policy		
<b>DEGREE</b>	Master of Engineering and Public Policy		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN COURSE REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COURSE REQUIREMENTS</b>	<input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input type="checkbox"/>	<b>EXPLAIN:</b> Change the length of the program and increase the number of units required to complete the program	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

1. The MEPP program is 12 months for full time students and 28 months for part time students.
2. All full time and part time students complete 24 units (21 units of course work and 3 units for their project) to complete the program degree requirements.
3. SEP 704, Public Policy Research Project is required in the MEPP program for all part time and full time students

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

1. Extend the full time program to 24 months with an accelerated ~~option-path~~ to complete the program in 12 months. Extend the part time option from 28 months to 40 months.
2. Increase the number units to complete the program from 24 to 30 units. It is already mandatory for students to enroll in SEP 772 which we are changing from zero to 3 units and in addition, we are changing SEP 704, Public Policy Research Project to part I and II with each consisting of 3 units each.
3. Split SEP 704, Public Policy Research Project to part I and II, each to consist of 3 units which will also switch from pass/fail course to a graded course

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Most of our students are international students; many of them work off campus (their visa allows them to work 20 hrs/week). This makes it difficult for the students to devote sufficient time to their studies and to attain the level of excellence which we would like them to have. For those students who need to work off campus, this problem can be avoided if the students are allowed to extend their studies while reducing the course load and remaining full time students. At the same time, the students who do not need to work, should be able to finish their studies in an accelerated ~~medepath~~.
2. Currently, the students take 7 courses (21 units). Changing SEP 772 to a 3 unit course increases the course count to 24 units. In addition, we are changing the project course, SEP 704 to part I and II which will consist of 3 units each (6 units for the project course).
3. Students in the MEPP program will complete the project course and work with other students in other programs within the department where they collaborate and work on projects together. Other programs within the department already have a project course, part I and II and converting SEP 704 to part I and II will align with the project course in other programs within the school.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Students must hold a 4-year undergraduate degree in STEM or a 4-year non-STEM degree in a public policy-related field including, for example, political science, public policy, public administration or global studies. Applicants must have at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

Prospective applicants who did not attain the required standing in their undergraduate degree, should discuss their situation with the Associate Director of Graduate Studies in SEPT. If the applicant's experience is deemed sufficient, the Associate Director of Graduate Studies in SEPT will recommend a live interview. Evidence of ability to do graduate work will be required. (See Sections [2.1.1 Admission Requirements](#) for Master's Degree and [2.1.3 Admission of Students with Related Work Experience or Course Work Beyond the Bachelor's Degree](#) in the Graduate Calendar.)

The W Booth School of Engineering Practice and Technology has the following program objectives for the Master's degree in Engineering and Public Policy (MEPP):

- to provide a high quality educational experience to graduate engineers and scientists in the areas of engineering, science and public policy;
- to foster applied research in the areas of engineering, science and public policy through the successful completion and dissemination of a research paper;
- to develop viable, working linkages between engineering, science and fields of study within social sciences and the humanities (public policy, economics, society, and others);
- to produce graduates who will provide inspired leadership in the engineering, science and public policy areas within the public, private and NGO sectors.

Candidates may be enrolled on a full- or part-time basis. Full-time students will complete the degree in [24 months with an accelerated option path to complete the program in consecutive](#) months of study, beginning in September or January. Part-time students will normally be expected to complete the program in [3 years, one term](#) 240 months.

McMaster students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

## Curriculum

The curriculum has the following components:

Core courses that provide the content and methodological skills necessary for understanding and analyzing societal issues for which engineering and science can contribute to public policy solutions;

Focus elective courses that allow students to deepen their knowledge of a range of engineering, science and social science applications;

The completion of a substantive research paper on a problem at the interface of engineering, science and public policy

### **Research Project - Inquiry/Thesis in Engineering and Public Policy**

Students select a research topic at the interface of engineering, science and public policy which is of interest to them and carries out inquiry-driven research; completes a formal research paper and prepares to publish their results for broad dissemination.

Candidates for the MEPP degree will follow a program consisting of the following [and will need to complete 30 units to meet the degree requirements](#):

#### **Required Courses**

Candidates are required to take the following [seven half courses \(21 units\)](#):

- [SEP 701 / Theory and Practice of Policy Analysis: Frameworks and Models](#)
- [SEP 702 / Systems Engineering and Public Policy](#)
- [SEP 709 / Emerging Issues, Technology and Public Policy](#)
- [SEP 772 / Innovation Studio](#)
- [SEP 773 / Leadership for Innovation](#)
- **OR**
- [SEP 6EL3 / Leading Innovation](#)
- [SEP 704 / Public Policy Research Project, Part I](#)
- [SEP 704 / Public Policy Research Project, Part II](#)
- 

**In addition students are required to take**

- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I \(zero units\)](#)
- (full-time students only)
- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II \(zero units\)](#)
- (full-time students only)
- [SEP 772 / Innovation Studio](#)

#### **Focus Elective Courses**

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Three half-courses ([12 units](#)) are required for electives. Recommended electives include but are not limited to:

- [SEP 6103 / Sustainable Manufacturing Processes](#)
- [SEP 6X03 / LIVABLE CITIES, THE BUILT AND NATURAL ENVIRONMENT](#)
- [SEP 705 / Green Engineering, Sustainability and Public Policy](#)
- [SEP 706 / Energy and Public Policy](#)
- [SEP 707 / Communication Technology and Public Policy](#)
- [SEP 708 / Special Topics in Engineering and Public Policy](#)
- [SEP 710 / International Governance and Environmental Sustainability](#)
- [POL SCI 784 / Quantitative Political and Policy Analysis](#)
- [POL SCI 785 / Public Sector Management](#)
- [POL SCI 790 / The Politics of Economic Policy in Market Economies](#)

#### Additional Courses

- Up to two graduate engineering half courses from departments within the Faculty of Engineering
- Other courses in other departments and Faculties with approval of the Associate Director of the Graduate Studies in SEPT

#### CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:

Name: Vladimir Mahalec Email: [mahalec@mcmaster.ca](mailto:mahalec@mcmaster.ca) Extension: 26386 Date submitted: February 13, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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<b>DEPARTMENT</b>	W Booth School of Engineering Practice and Technology		
<b>NAME OF PROGRAM and PLAN</b>	Master of Engineering Design		
<b>DEGREE</b>	Master of Engineering Design		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
		<b>CHANGE IN COURSE REQUIREMENTS</b>	<input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input type="checkbox"/>	<b>EXPLAIN:</b> Change the length of the program and increase the number of units required to complete the program	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

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**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

1. The MED program is 12 months for full time students and 28 months for part time students.
2. All full time and part time students complete 24 units (18 units of course work and 6 units for their project) to complete the program degree requirements.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient)** Formatted Table

1. Extend the full time program to 24 months with an accelerated option-path to complete the program in 12 months. Extend the part time option from 28 months to 40 months.
2. Increase the number units to complete the program from 24 to 30 units. It is already mandatory for students to enroll in SEP 772 which we are changing from zero to 3 units, therefore, students will need to enroll in an additional elective course.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Most of our students are international students; many of them work off campus (their visa allows them to work 20 hrs/week). This makes it difficult for the students to devote sufficient time to their studies and to attain the level of excellence which we would like them to have. For those students who need to work off campus, this problem can be avoided if the students are allowed to extend their studies while reducing the course load and remaining full time students. At the same time, the students who do not need to work, should be able to finish their studies in an accelerated medepath.
2. Currently, the students take 6 courses (18 units). Changing SEP 772 to a 3 unit course plus adding one elective course (3 units) increases the course count to 24 units. In addition, there is 6 unit required project.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Innovative new designs and the ability to improve performance of existing systems have become a basis for a competitive advantage in the marketplace. Innovativeness, performance, environmental sustainability, safety, usability, desirability, viability and efficiency are integral parts of the requirements in the design of industrial products, healthcare products, large-scale systems, or software solutions. Within this complex set of constraints, successful engineers and engineering

managers must be able to lead transformation of an idea to a complete design by working in interdisciplinary teams and with stakeholders. The Master of Engineering Design program provides its participants with technical expertise and leadership capabilities required to innovate and to lead technically-oriented organizations. The M.Eng. Design program emphasizes development of competencies in Design Thinking and innovations methodologies, as well as leadership, collaboration, and management skills to lead diverse teams. These competencies are combined with advanced technologies to enable design and implementation of solutions which integrate digital reality with the physical world to deliver solutions for daily living or for complex IT or industrial systems.

The following streams are currently offered in the Program:

Product Design: Design Thinking approach to development of products and services.

Digital Reality: Design of augmented-, virtual-, and mixed-reality immersive experiences.

## Admission

In addition to the general requirements for entry into a graduate program in Engineering, applicants must have a four-year undergraduate degree in STEM. Applicants with non-STEM degrees must have at least three years of experience (work or education) in the related fields such as industrial design or media design.

Applicants must have at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work.

Strong letters of recommendation are also required. Applicants will be required to complete an online interview.

Professional work experience will be desirable, but not essential.

Candidates may be enrolled on a full- or part-time basis. Full-time students will complete the degree in ~~24 months with an accelerated option path to complete in~~ twelve consecutive months ~~of study~~. Students are admitted for September. Part-time students will normally be expected to complete the program in ~~two~~three years and one term (~~28~~40 months).

Prospective applicants who did not attain the required standing in their undergraduate degree, but who have at least four (4) years of relevant work experience, should discuss their situation with the Program Lead. If the experience is deemed sufficient, the Program Lead may then recommend a live interview. Evidence of ability to do graduate work will still be required. (See Sections 2.1.1 Admission Requirements for Master's Degree

and 2.1.5 Admission of Students with Related Work Experience or Course Work beyond the Bachelor's Degree in the Graduate Calendar.)

McMaster Students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

## Curriculum

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The curriculum has three main components:

1. **Professional Development** courses that will enable M.Eng. Design graduates to deal with complex situations in the work environment, to lead teams, and to manage projects.
2. **Courses Relevant to the selected stream:** some courses are mandatory for a given stream while others are elective.
3. **An M.Eng. project** that requires synthesis of knowledge from various disciplines.

## Product Design Stream

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Innovative and creative systems, solutions, and product designs are emphasized through design in a collaborative design studio environment. The interdisciplinary nature of the program enables its participants to work on a variety of design work, such as industrial machinery, consumer products, automotive, etc.

The following course requirements need to be fulfilled by the candidates:

### Mandatory Courses

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Candidates are required to take the following five half courses (15 units):

[SEP 700 / M.Eng. Project in Engineering Design Part I](#)

[SEP 700 / M.Eng. Project in Engineering Design Part II](#)

[SEP 760 / Design Thinking](#)

~~[SEP 771 / W.Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#)~~

~~(seminar series: full-time students only)~~

~~[SEP 771 / W.Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#)~~

~~(seminar series: full-time students only)~~

[SEP 772 / Innovation Studio](#)

[SEP 773 / Leadership for Innovation](#)

OR

[SEP 6EL3 / Leading Innovation](#)

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#)  
(seminar series: full-time students only)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#)  
(seminar series: full-time students only)

SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M. Eng. programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course, the student must attend a minimum of 80% of the seminars.

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## Electives

Candidates are required to take ~~four~~five half courses (15 units) which should be selected from graduate courses offered by departments within the Faculty of Engineering. Candidates are required to have their elective course selection approved by the Associate Director of Graduate Studies in SEPT.

Strongly recommended:

[SEP 757 / Hardware Prototyping Tools and Methods](#)

Or

[SEP 758 / Prototyping Tools \(Mobile Applications\)](#)

[SEP 761 / Human-Centred Design](#)

**Other recommended electives include:**

[SEP 6CG3 / Fundamentals of computer graphics and animation development](#)

[SEP 6VE3 / Visual effects and animation production technology](#)

[SEP 714 / Workflow Management for Animated Prototypes](#)

[SEP 715 / Rendering techniques](#)

[SEP 791 / Augmented Reality, Virtual Reality and Mixed Reality](#)

[SEP 792 / GPU Intensive applications for real-time projects](#)

# Digital Reality Stream

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Graduates from Digital Reality stream develop competencies required to work on MR/AR/VR applications in e.g. autonomous vehicles, games design, entertainment, architecture, medicine, etc.,. All candidates will complete a project and an optional co-op with an organization which develops products in the digital reality space.

## Mandatory Courses

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The following four half courses (12 units) are required to be completed by the candidates

[SEP 700 / M.Eng. Project in Engineering Design Part I](#)

[SEP 700 / M.Eng. Project in Engineering Design Part II](#)

[SEP 760 / Design Thinking](#)

~~[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I \(seminar series; full-time students only\)](#)~~

~~[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II \(seminar series; full-time students only\)](#)~~

[SEP 772 / Innovation Studio](#)

~~All full-time students must register for the seminar series courses (attendance is mandatory), which are:~~

~~[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I \(seminar series; full-time students only\)](#)~~

~~[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II \(seminar series; full-time students only\)](#)~~

~~SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M. Eng. programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course, the student must attend a minimum of 80% of the seminars.~~

## Electives

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Five courses (15 units) from the following list must be completed by the candidates:

[SEP 6CG3 / Fundamentals of computer graphics and animation development](#)

[SEP 6VE3 / Visual effects and animation production technology](#)

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[SEP 714 / Workflow Management for Animated Prototypes](#)  
[SEP 715 / Rendering techniques](#)  
[SEP 791 / Augmented Reality, Virtual Reality and Mixed Reality](#)  
[SEP 792 / GPU Intensive applications for real-time projects](#)

An additional elective (3 units) must be taken with the approval of the Associate Director of Graduate Studies in SEPT, therefore 18 units must be completed in addition to -.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Vladimir Mahalec Email: [mahalec@mcmaster.ca](mailto:mahalec@mcmaster.ca) Extension: 26386 Date submitted: February 13, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>					
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>					
<b>DEPARTMENT</b>		WBooth School of Engineering Practice and Technology			
<b>NAME OF PROGRAM and PLAN</b>		Master of Engineering in Systems and Technology			
<b>DEGREE</b>	<b>Master of Engineering in Systems and Technology</b>				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<b>CHANGE IN COURSE REQUIREMENTS</b>	x
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		x	<b>EXPLAIN:</b> Change the length of the program and increase the number of units required to complete the program		
<b>OTHER CHANGES</b>					
<b>DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:</b>					
<p>1. The MEST program is 16 months for full time students and 28 months for part time students.</p> <p>2. All full time and part time students complete 27 units who complete course based or 18 units of course work and 6 units for their project for project based option to complete the program degree requirements.</p>					



**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.)**

1. Extend the full time program to 24 months with an accelerated option-path to complete the program in 12. Extend the part time option from 28 months to 40 months.
2. Increase the number units to complete the program from 27 to 30 units for course based and 24 to 30 units for project based option.
3. Add SEP 772 as a mandatory course
4. Increase the number of professional development course by 1 for course based.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Most of our students are international students; many of them work off campus (their visa allows them to work 20 hrs/week). This makes it difficult for the students to devote sufficient time to their studies and to attain the level of excellence which we would like them to have. For those students who need to work off campus, this problem can be avoided if the students are allowed to extend their studies while reducing the course load and remaining full time students. At the same time, the students who do not need to work, should be able to finish their studies in an accelerated modepath.
2. Currently, the students take 9 courses (27 units) who are completing course based or 24 units for project based option, 6 courses (18 units), plus project (6 units). Changing SEP 772 to a required 3 unit course will increase the number of units to 30 for course based. Changing SEP 772 to a required plus adding one professional development course elective course (3 units) increases the course count to 24 units. In addition, there is 6 unit required project for project based option.
3. MED, MEPP and MEEI/MTEI students take the mandatory SEP 772 Innovation Studio, which accelerates their abilities to work in teams, brainstorm, cultivate new ideas, and carry out preliminary assessment of technical and financial viability of their ideas. The fact that MEME and MEST students do not take SEP 772 places them at a disadvantage in their studies and beyond.
4. Given that SEPT is a practice-based educational school, essential skills (i.e., communication, leadership, etc.), are central to our program learning outcomes. In addition, for many of our students English is a second language. Hence, one professional development course, which is often a project management course, is insufficient. Students need to take at least one communication related course in addition.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

*Program description:*

The Master of Engineering in Systems and Technology is a ~~16~~<sup>24</sup> months program for full time ~~students with an acceleration option~~<sup>accelerated path to complete the program in 12 months of study.</sup> Part time students will normally be expected to complete the program in 3 years, one term (40 months) ~~and 32 months for part students.~~ The program attracts ~~aimed at~~ highly motivated students seeking advanced training in area of cyber-physical systems. ~~Motivated students enrolled as full-time may complete course-based route through the program in 12 months.~~ Students design their own program of studies by selecting (with approval of their academic advisor) courses of interest to them in one of the following streams: (i) Automation and Smart Systems, (ii) Automotive, and (iii) Digital Manufacturing. Application for admission to the program are made through the W Booth School of Engineering Practice and Technology. The program accepts full-time and part-time students.

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a degree in Engineering, Technology, Sciences, or Software with at least a B average (equivalent to a McMaster 8.0/12 GPA) in the penultimate and final years.

Delivery of the program includes a strong emphasis on project-based experience within the Manufacturing Industry, which is obtained through an industry-based project during the coursework portion of the program. Requirements for these are outlined below. Due to the strong practical orientation of the project components of the program, successful completion requires that students have strong interpersonal and communication skills. Applicants will be required to complete an online interview.

Students completing the Program on a course-only basis will be required to complete 910 courses from the approved list of courses. Course selection must be done in consultation with the program lead.

Students completing the Program through course and project work will be required to complete sixeight courses from the approved list of courses, plus successful completion of the project. Course and project selection must be done in consultation with the program lead.

McMaster students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

## Project

Students wishing to pursue the project-based option must submit a project proposal for approval by both the faculty lead as well as the Associate Director of Graduate Studies in SEPT. If the project is not approved by either individual, students will be reverted to course based stream. Students are encouraged to develop their own ideas and find industrial sponsors. Projects are ideally undertaken at local companies but may be conducted at locations inside Canada or abroad with the Program Lead's approval and provided that none of the work on the project was done prior to admission into the program. Project groups or individuals will have an industry-based supervisor (stakeholder) with whom the student team can discuss progress, arrange trials etc. Students will also have an academic supervisor who will normally have some expertise in the subject area. It is expected that the teams will meet with their supervisors on a regular basis to discuss their progress.

The project team will orally defend their final project report to an examination committee comprised of their academic supervisor and the second reader (faculty member).

## Curriculum

Students enrolling in the program choose their courses in one of the following streams:

- Automation and Smart Systems,
- Automotive, and
- Digital Manufacturing

Each stream has a set of core courses and a set of recommended elective courses. Students can take maximum of 2 half courses (one term courses) at 600 level.

Students wishing to take an elective course outside of the recommended electives need to obtain a written permission from their graduate advisor.

Students have to complete the minimum required number of core courses in order to complete the program. There are 2 pathways towards the degree:

- ~~68~~ courses (~~24~~ units) + project (~~6~~ units)
  - ~~12~~ required courses
  - ~~12~~ professional development courses
  - 3 to 4 core courses
  - 0 to 1 elective courses

Students pursuing this option, in addition to taking ~~86~~ courses specified above, must register for the project courses:

- SEP 799 / M. Eng. Project in Systems and Technology, part I
- SEP 799 / M. Eng. Project in Systems and Technology, part II

- ~~109~~ courses (~~30~~ units)
  - ~~24~~ required courses
  - ~~21 to 3~~ professional development courses
  - 4 to ~~76~~ core courses
  - 0 to ~~32~~ elective courses

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#) (seminar series, full-time students only)
- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series, full-time students only)

SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M. Eng. programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course, the student must attend a minimum of 80% of the seminars.

Students should note that not all courses are offered every year.

[Required core courses for all streams:](#)

- [SEP 769](#) [Cyber-physical systems](#)
- [SEP 772](#) [Innovation Studio](#)

## Professional Development Courses

Professional Development courses, common to all streams in MEng S&T, are listed below:

- SEP 6TC3 Technical Communications
- SEP 725 Practical Project Management for Today's Business Environment
- SEP 773 Leadership for Innovation
- SEP 760 Design Thinking

### Technical Courses – Automotive stream

The following are core courses:

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses:

- SEP 6DV3 Vehicle dynamics
- SEP 724 Intelligent transport systems
- SEP 716 Active safety design
- SEP 6AE3 Internal Combustion engines
- SEP 722/  
MECH ENG 760 Electric drive vehicles
- SEP 711 Electric powertrain components design
- SEP 734 Issues in vehicle production

Recommended electives are:

- Mech Eng 6Z03 CAD/CAM/CAE
- SEP 791 Augmented reality, virtual reality and mixed reality
- SEP 783 Sensors and actuators
- SEP 780 Advanced robotics and automation

### Technical Courses – Automation and Smart Systems

~~The following are core courses:~~

~~1 Required core course:~~

- ~~• SEP 769 Cyber-physical systems~~

Other core courses:

- SEP 728 Internet of Things (IoT) and industrial Internet of Things (IIoT) systems
- SEP 6CS3 Computer security
- SEP 780 Advanced robotics and automation
- CHEM ENG 765/ SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP / CHEM ENG 786# Artificial Intelligence and Machine Learning Fundamentals
- SEP / CHEM ENG 787# Machine Learning : Classification Models
- SEP / CHEM ENG 788# Neural Networks and Development Tools
- SEP / CHEM ENG 789# Deep Learning and Its Applications
- CAS 771 Introduction to Big Data Systems and Applications
- SEP 6DA3 Data Analytics and Big Data
- SEP 6DM3 Data Mining

Recommended electives are:

- SEP 723 / MECH ENG 761 Industrial components, networks and interoperability
- SEP 720 Cloud Computing
- SEP 721 Data Analytics, Machine Learning and AI on Cloud Platforms
- SEP 791 Augmented reality, virtual reality and mixed reality
- SEP 783 Sensors and actuators
- SEP 7xx Industrial Automation

## Technical Courses – Digital Manufacturing

### 1 Required core course:

- [SEP 769 Cyber-physical systems](#)

### Other core courses

- SEP / MECH ENG 735 Additive Manufacturing
- SEP 728 Internet of Things (IoT) and industrial Internet of Things (IoT) systems
- SEP 783 Sensors and actuators
- SEP 723 / MECH EGN 761 Industrial components, networks and interoperability
- SEP 780 Advanced robotics and automation
- SEP 718 Industrial Automation

### Recommended elective courses are:

- SEP / CHEM ENG 786# Artificial Intelligence and Machine Learning Fundamentals
- SEP / CHEM ENG 787# Machine Learning: Classification Models
- SEP / CHEM ENG 788# Neural Networks and Development Tools
- SEP / CHEM ENG 789# Deep Learning and Its Applications
- CHEM ENG 765/ SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP 6FM4 Computer Integrated Manufacturing (CIM) and Flexible Manufacturing

Moreover, a maximum of two courses can be selected from the following list:

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### Electrical Engineering

- [ECE 710 / Engineering Optimization](#)
- [ECE 732 / Non-linear Control Systems](#)
- [ECE 736 / 3D Image Processing and Computer Vision](#)
- [ECE 744 / System-on-a-Chip \(SOC\) Design and Test: Part I - Methods](#)
- [ECE 772 / Neural Networks and Learning Machines](#)
- [ECE 778 / Introduction to Nanotechnology](#)

### Software Engineering

- [SFWR ENG 6HC3 / The Human Computer Interface](#)

### Computer Science

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- [COMP SCI 6F03 / Distributed Computer Systems](#)
- [COMP SCI 6TE3 / Continuous Optimization](#)

**Computing and Software**

- [CAS 767 / Information Privacy and Security](#)
- [CAS 771 / Introduction to Big Data Systems and Applications](#)

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Vladimir Mahalec Email:mahalec@mcmaster.ca Extension: 26386

Date submitted: February 20, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	WBooth School of Engineering Practice and Technology		
<b>NAME OF PROGRAM and PLAN</b>	Master of Engineering in Systems and Technology		
<b>DEGREE</b>	Master of Engineering in Systems and Technology		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
		<b>CHANGE IN COURSE REQUIREMENTS</b>	<input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input type="checkbox"/>	<b>EXPLAIN:</b> This is a new program. Calendar description needs to be created.	
<b>OTHER CHANGES</b>	<input type="checkbox"/>		
<b>DESCRIBE THE <u>EXISTING</u> REQUIREMENT/PROCEDURE:</b>			
1. Stream that was approved was "Advanced Manufacturing"			

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.)**

1. Change stream to "Digital Manufacturing"

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. The new name describes much better the content of the stream. In addition, it eliminates any possible confusion with Manufacturing Engineering.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.)**

***Program description:***

The Master of Engineering in Systems and Technology is a 16 months program for full time and 32 months for part students aimed at highly motivated students seeking advanced training in area of cyber-physical systems. Motivated students enrolled as full-time may complete course-based route through the program in 12 months. Students design their own program of studies by selecting (with approval of their academic advisor) courses of interest to them in one of the following streams: (i) Automation and Smart Systems, (ii) Automotive, and (iii) ~~Advanced Manufacturing~~ Digital Manufacturing ~~Digital Manufacturing~~. Application for admission to the program are made through the W Booth School of Engineering Practice and Technology. The program accepts full-time and part-time students.

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a degree in Engineering, Technology, Sciences, or Software with at least a B average (equivalent to a McMaster 8.0/12 GPA) in the penultimate and final years.

Delivery of the program includes a strong emphasis on project-based experience within the Manufacturing Industry, which is obtained through an industry-based project during the coursework portion of the program. Requirements for these are outlined below. Due to the strong practical orientation of the project components of the program, successful completion requires that students have strong interpersonal and communication skills. Applicants will be required to complete an online interview.

Students completing the Program on a course-only basis will be required to complete 9 courses from the approved list of courses. Course selection must be done in consultation with the program lead.

Students completing the Program through course and project work will be required to complete six courses from the approved list of courses, plus successful completion of the project. Course and project selection must be done in consultation with the program lead.

McMaster students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.



## Project

Students wishing to pursue the project-based option must submit a project proposal for approval by both the faculty lead as well as the Associate Director of Graduate Studies in SEPT. If the project is not approved by either individual, students will be reverted to course based stream. Students are encouraged to develop their own ideas and find industrial sponsors. Projects are ideally undertaken at local companies but may be conducted at locations inside Canada or abroad with the Program Lead's approval and provided that none of the work on the project was done prior to admission into the program. Project groups or individuals will have an industry-based supervisor (stakeholder) with whom the student team can discuss progress, arrange trials etc. Students will also have an academic supervisor who will normally have some expertise in the subject area. It is expected that the teams will meet with their supervisors on a regular basis to discuss their progress.

The project team will orally defend their final project report to an examination committee comprised of their academic supervisor and the second reader (faculty member).

### M. Eng. in Systems and Technology Courses Curriculum

Students enrolling in the program choose their courses in one of the following streams:

- Automation and Smart Systems,
- Automotive, and
- [Advanced Manufacturing Digital Manufacturing](#)

Each stream has a set of core courses and a set of recommended elective courses. Students can take maximum of 2 half courses (one term courses) at 600 level.

Students wishing to take an elective course outside of the recommended electives need to obtain a written permission from their graduate advisor.

#### Students have to complete the minimum required number of core courses in order to complete the program

There are 2 pathways towards the degree:

- 6 courses + project
  - 1 required course
  - 1 professional development course
  - 3 to 4 core courses
  - 0 to 1 elective course

Students pursuing this option, in addition to taking 6 courses specified above, must register for the project courses:

- SEP 7xx / M. Eng. Project in Systems and Technology, part I
- SEP 7xx / M. Eng. Project in Systems and Technology, part II

- 9 courses
  - 1 required course
  - 1 to 3 professional development courses
  - 4 to 7 core courses
  - 0 to 3 elective courses

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#) (seminar series, full-time students only)
- [SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series, full-time students only)

SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M. Eng. programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course, the student must attend a minimum of 80% of the seminars.

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Students should note that not all courses are offered every year.

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### Professional Development Courses

Professional Development courses, common to all streams in MEng S&T, are listed below:

- SEP 6TC3 Technical Communications
- SEP 725 Practical Project Management for Today's Business Environment
- SEP 773 Leadership for Innovation
- SEP 760 Design Thinking

### Technical Courses – Automotive stream

The following are core courses:

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses:

- SEP 6DV3 Vehicle dynamics
- SEP 7xx Intelligent transportation systems
- SEP 7xx Active safety design
- SEP 6AE3 Internal Combustion engines
- SEP 722/  
MECH ENG 760 Electric drive vehicles
- SEP 7xx Electric powertrain components design
- SEP 7xx Issues in vehicle production

Recommended electives are:

- Mech Eng 6Z03 CAD/CAM/CAE
- SEP 791 Augmented reality, virtual reality and mixed reality
- SEP 783 Sensors and actuators
- SEP 780 Advanced robotics and automation

### Technical Courses – Automation and Smart Systems

The following are core courses:

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses:

- SEP 7xx Internet of Things (IoT) and industrial Internet of Things (IoT) systems
- SEP 6CS3 Computer security
- SEP 780 Advanced robotics and automation
- CHEM ENG 765/ SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP / CHEM ENG 786# Artificial Intelligence and Machine Learning Fundamentals
- SEP / CHEM ENG 787# Machine Learning : Classification Models
- SEP / CHEM ENG 788# Neural Networks and Development Tools
- SEP / CHEM ENG 789# Deep Learning and Its Applications
- CAS 771 Introduction to Big Data Systems and Applications
- SEP 6DA3 Data Analytics and Big Data
- SEP 6DM3 Data Mining

Recommended electives are:

- SEP 723 / MECH ENG 761 Industrial components, networks and interoperability
- SEP 720 Cloud Computing
- SEP 721 Data Analytics, Machine Learning and AI on Cloud Platforms
- SEP 791 Augmented reality, virtual reality and mixed reality
- SEP 783 Sensors and actuators
- SEP 7xx Industrial Automation

### Technical Courses – Digital Manufacturing

1 Required core course:

- SEP 769 Cyber-physical systems

Other core courses

- SEP / MECH ENG 735 Additive Manufacturing
- SEP 7xx Internet of Things (IoT) and industrial Internet of Things (IoT) systems
- SEP 783 Sensors and actuators
- SEP 7XX / MECH EGN 761 Industrial components, networks and interoperability
- SEP 780 Advanced robotics and automation
- SEP 7xx Industrial Automation

Recommended elective courses are:

- SEP / CHEM ENG 786# Artificial Intelligence and Machine Learning Fundamentals
- SEP / CHEM ENG 787# Machine Learning: Classification Models
- SEP / CHEM ENG 788# Neural Networks and Development Tools
- SEP / CHEM ENG 789# Deep Learning and Its Applications
- CHEM ENG 765/ SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP 6FM4 Computer Integrated Manufacturing (CIM) and Flexible Manufacturing

Moreover, a maximum of two courses can be selected from the following list:

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**Electrical Engineering**

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- [ECE 710 / Engineering Optimization](#)
- [ECE 732 / Non-linear Control Systems](#)
- [ECE 736 / 3D Image Processing and Computer Vision](#)
- [ECE 744 / System-on-a-Chip \(SOC\) Design and Test: Part I - Methods](#)
- [ECE 772 / Neural Networks and Learning Machines](#)
- [ECE 778 / Introduction to Nanotechnology](#)

**Software Engineering**

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- [SFWR ENG 6HC3 / The Human Computer Interface](#)

**Computer Science**

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- [COMP SCI 6F03 / Distributed Computer Systems](#)
- [COMP SCI 6TE3 / Continuous Optimization](#)

**Computing and Software**

---

- [CAS 767 / Information Privacy and Security](#)
  - [CAS 771 / Introduction to Big Data Systems and Applications](#)
- 

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Vladimir Mahalec Email: mahalec@mcmaster.ca Extension: 26386

Date submitted: October 22, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbyce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S)  
INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		W Booth School of Engineering Practice and Technology	
<b>NAME OF PROGRAM and PLAN</b>		Master of Engineering Manufacturing Engineering	
<b>DEGREE</b>	<b>Master of Engineering Manufacturing Engineering</b>		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Program description is changed to focus it more on physical / electromechanical aspects of manufacturing to eliminate duplication with M.Eng. in Systems and Technology	
<b>OTHER CHANGES</b>	<input checked="" type="checkbox"/>	Allow MEME students to take as many courses from SEPT as needed, in addition to courses from Chemical Engineering, Materials Science Engineering, and Mechanical Engineering.	

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

1. Current streams are as follows: (i) Automotive or (ii) Digital Manufacturing.
2. MEME students are allowed to take courses from Chemical Engineering, Mechanical Engineering, and Materials Science Engineering. In addition, the students are allowed to take up to 2 courses outside of these departments including SEPT.
3. The following information exists in the calendar "Students are required to successfully complete a compulsory full year project course and six graduate half courses (or equivalent), of which at least four must be 700 level and up to two 600 level courses approved by the program lead. Two of these 600 level courses can be taken in the final undergraduate year at McMaster for graduate credit with the approval of the Associate Dean of Graduate Studies.

Students who opt to complete the program on a course basis must complete eight courses in consultation with the program lead.

Students should note that not all option courses are offered every year."

4. The following exists in the calendar:

Compulsory Courses:

MANUF 701 / Project, Part 1 (Please note that this course is only required for students in the project option of the program.)

MANUF 701 / Project, Part 2 (Please note that this course is only required for students in the project option of the program.)

SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (seminar series, full-time students only)

SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series, full-time students only)

5. The following exists in the calendar under optional courses "Students will select any combination from the list below totaling six half courses for the project-based or eight half courses for the course-based option, of which a maximum of two half courses can be taken at the 600 level. Two of these 600 level courses can be taken in the final undergraduate year for graduate credit. Stream specific requirements are listed above. Other manufacturing-related courses may be substituted with permission of the Program lead. Note that not all courses are offered every year"

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)** Formatted Table

1. Remove ~~current~~ streams (i) Automotive or (ii) Digital Manufacturing
2. MEME students are allowed to take courses from Chemical Engineering, Mechanical Engineering, Materials Science Engineering, and from W Booth School of Engineering Practice and Technology. In addition, the students are allowed to take up to 2 courses outside of these departments.
3. Remove this text
4. Move this text under pathways
5. Remove this from the calendar
6. Introduce Discrete Manufacturing
7. Adding professional development courses as a requirement, add core courses, and recommended Electives to discrete manufacturing

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Automotive stream and Digital Manufacturing streams were introduced for 2019/2020 as an addition to the general manufacturing program of studies which the students could tailor as desired. These two streams were introduced in response to the student demands and also due to the fact that it was not clear when the new M.Eng. in Systems and Technology was going to be approved by the Ministry. Since M.Eng. S&T has been approved, Automotive and Digital Manufacturing streams need to be removed from MEME in order to eliminate duplication between MEME and MEng S&T.
2. MEME currently restrict its students to take maximum 2 courses offered by WBooth SEPT (maximum 2 SEP xxx courses). This has led to a situation where WBooth SEPT Faculty members offer courses under the labels of CHEM ENG, MATLS, and MECH ENG in order to deliver the desired learning [program outcomes](#). Such mechanism for offering courses causes additional work for other departments and creates confusion for the students (where to go if there is an issue with registering for a course?). Moreover, since CHEM ENG, MATLS, and MECH ENG do not offer graduate courses in the summer term, SEPT students can not take in the summer the courses which are taught by SEPT faculty members under the label of other departments. We are requesting to allow MEME students to take as many courses from SEPT as needed, in addition to courses from Chemical Engineering, Materials Science Engineering and Mechanical Engineering.
3. This text has moved after discrete manufacturing and some language clean up. Notation of courses not being offered every year is indicated under optional courses.
4. Manuf 701, part I and II is appropriate under the first option of the pathway in the tracking changes below providing clarification. In addition to the project or course based requirements, we are moving the seminar series course, SEP 771, part I and II to this section as well to clarify this is also mandatory for all full time students.
5. This seems redundant since we already have this information in either the program description or in the new text outlining the course requirements below discrete manufacturing.
6. [Introduction Clarifying that the focus of MEME is of discrete manufacturing in MEME will make it easier for the students to select the courses in their area of interest, it distinct from M.Eng. in Systems and Technology. This area corresponds to the two major types of manufacturing industries: discrete manufacturing, and continuous manufacturing \(process industries\).](#)
7. MEME students don't currently enroll in any mandatory technical or professional courses. Introduction of a minimum required set of professional development and of core technical courses facilitates [the](#) definition of discrete manufacturing in MEME.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

## Program Description

The Master of Engineering in Manufacturing Engineering is a one and a half year program for full time ~~and~~ [or](#) 28 months [program](#) for part students; ~~the program attracts~~ [aimed at](#) highly motivated students seeking advanced training in the ~~broad area of discrete M~~ manufacturing. Motivated students enrolled full time may complete the program in 12 months. Students design their own program of studies by selecting (with

approval of their academic advisor) courses of interest to them. ~~or can enroll in one of the following streams: (i) Automotive or (ii) Digital Discrete Manufacturing-~~ Applications for admission to the program ~~may be~~ made through the W Booth School of Engineering Practice and Technology. Applicants will be required to complete an online interview.

The program accepts full-time and part-time students.

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a degree in Engineering or Technology with at least a B average (equivalent to a McMaster 8.0/12 GPA) in the penultimate and final years.

Delivery of the program includes a strong emphasis on project-based experience within the Manufacturing Industry, which is obtained through an industry-based project and through projects during the coursework portion of the program defined within courses. Requirements for these are outlined below. Due to the strong practical orientation of the project components of the program, successful completion requires that students have strong interpersonal and communication skills. Applicants will be required to complete an online interview.

Students completing the Program on a course-only basis will be required to complete 8 courses from the approved list of courses. Course selection must be done in consultation with the program lead.

Students completing the Program through via course and project work will be required to complete six courses from the approved list of courses, ~~plus and also~~ successfully ~~completion of complete~~ the M.Eng. project. Course and project selection must be done in consultation with the program lead.

McMaster students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

## Project

Students wishing to pursue the course plus project-based option must submit a project proposal for approval by both the faculty lead as well as the Associate Director of Graduate Studies in SEPT. If the project is not approved by either individual, students will be reverted to the course based stream option. Students are encouraged to develop their own ideas and find industrial sponsors. Projects are ideally undertaken at local companies but may be conducted at locations inside Canada or abroad with the Program Lead's approval and provided that none of the work on the project was done prior to admission into the program. Project groups or individuals will have an industry-based supervisor (stakeholder) with whom the student team can discuss progress, arrange trials, etc. Students will also have an academic supervisor who will normally have some expertise in the subject area. It is expected that the teams will meet with their supervisors on a regular basis to discuss their progress.

The project team will orally defend their final project report to an examination committee comprised of their academic supervisor and the second reader (faculty member).

Students are required to successfully complete a compulsory full year project course and six graduate half



~~courses (or equivalent), of which at least four must be 700 level and up to two 600 level courses approved by the program lead. Two of these 600 level courses can be taken in the final undergraduate year at McMaster for graduate credit with the approval of the Associate Dean of Graduate Studies.~~

~~Students who opt to complete the program on a course basis must complete eight courses in consultation with the program lead.~~

~~Students should note that not all option courses are offered every year.~~

## Courses

### Compulsory Courses:

~~MANUF 701 / Project, Part 1 (Please note that this course is only required for students in the project option of the program.)~~

~~MANUF 701 / Project, Part 2 (Please note that this course is only required for students in the project option of the program.)~~

~~SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (seminar series, full-time students only)~~

~~SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series, full-time students only)~~

### ***Automotive stream students must complete at least three of the following courses:***

~~MECH ENG 760 / Electric Drive Vehicles~~

~~SEP 6AT3 / Conceptual Design of Electric and Hybrid Electric Vehicles~~

~~MECH ENG 754 / Management and Control of Electric Vehicle Batteries~~

~~MECH ENG 755 / Advanced Control on Internal Combustion Engines~~

~~MECH ENG 761 / Industrial Components, Networks, and Interoperability~~

~~SEP 780 / Advanced Robotics and Automation~~

~~MECH ENG 735 / Additive Manufacturing~~

### ***Digital Manufacturing stream students must complete at least four half courses from the following list:***

~~MECH ENG 729 / Manufacturing Systems~~

~~MECH ENG 735 / Additive Manufacturing~~

~~MECH ENG 759 / Hardware Prototyping Tools and Methods~~

~~MECH ENG 761 / Industrial Components, Networks, and Interoperability~~

CHEM ENG 786 / Artificial Intelligence and Machine Learning Fundamentals

CHEM ENG 787 / Machine Learning : Classification Models

CHEM ENG 788 / Neural Networks and Development Tools

CHEM ENG 789 / Deep Learning and Its Applications

MANUF 710 / SYSTEM ANALYSIS SIMULATION

SEP 780 / Advanced Robotics and Automation

***Additional Information for SEP 771***

This is a seminar series presented by guest speakers, invited by the School, of relevance to all M.Eng programs at the School. All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course the student must attend a minimum of 80% of the seminars.

## Discrete Manufacturing Engineering Courses

Students enrolling in the program can tailor their program of studies according to their career interests. Students select discrete

Manufacturing which has a set of core courses and a set of recommended elective courses. Students can take maximum of 2 half courses

(one term courses) at 600 level. Courses can be selected from WBooth SEPT, Chemical, Materials or Mechanical Engineering departments.

Students wishing to take an elective course outside of the recommended electives need to obtain a permission from

their graduate advisor/program lead.

Students should note that not all courses are offered every year.

There are 2 pathways towards the degree:

- 6 courses (18 units) + project (6 units)
  - 1 professional development course
  - 3 to 4 core courses
  - 1 to 2 elective courses

Students pursuing this option, in addition to taking 6 courses specified above, must register for the project-courses:

- MANUF 701 / Project, Part 1
- MANUF 701 / Project, Part 2

- 8 courses (24 units)
  - 1 to 2 professional development courses
  - 4 to 6 core courses
  - 1 to 3 elective courses

All full-time students must register for the seminar series courses (attendance is mandatory), which are:

- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I (seminar series, full-time students only)
- SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series, full-time students only)

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SEP 771 is a seminar series presented by guest speakers, invited by the School, of relevance to all M.Eng. programs at the School.

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All full-time students are required to take these courses. Course grades are either 'pass' or 'fail'. In order to pass the course the student must attend a minimum of 80% of the seminars.

### **Professional Development Courses**

Professional Development courses in MEng of Manufacturing Engineering, are listed below:

- SEP 6TC3 Technical Communications
- SEP 725 Practical Project Management for Today's Business Environment
- SEP 773 Leadership for Innovation
- SEP 760 Design Thinking

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### **Technical Courses – Discrete Manufacturing**

The following are core courses:

- MECH ENG 729 / SEP 7XX Manufacturing systems
- CHEM ENG 720 / SEP 7XX Six sigma for lean manufacturing
- SEP 726 Discrete Manufacturing Processes I
- SEP 727 Discrete Manufacturing processes II
- SEP 757 / MECH ENG 759 Rapid prototyping
- SEP 780 Advanced robotics and automation
- SEP 6I03 / MATLS 6I03 Sustainable manufacturing processes

Recommended elective courses are:

- MATLS 6T03 / SEP 7XX Properties and processing of composites
- SEP 767 / CHEM ENG 765 Multivariate Statistical Methods for Big Data Analysis and Process Improvement
- SEP 718 Industrial Automation

### **Other Elective Courses Available**

These courses require a written permission of the student's graduate advisor.

### **Courses from Chemical Engineering, Materials Science Engineering, and from Mechanical Engineering.**

In addition to the recommended elective courses listed above, students can take up to two 600 and an unrestricted number of 700 level courses as electives from Chemical Engineering, Materials Science Engineering, and from Mechanical Engineering.

## **Additional Optional Elective Courses**

Students [can select additional elective courses from the following list, provided that the approval](#)

[has been received a priori from their program lead:](#)

~~requirements are listed above. Other manufacturing-related courses may be substituted with permission of the Program lead.~~ Note that not all courses are offered every year.

### ***Chemical Engineering***

[CHEM ENG 6B03 / Polymer Reaction Engineering](#)

[CHEM ENG 6C03 / Statistics for Engineers](#)

[CHEM ENG 6E03 / Digital Computer Process Control](#)

[CHEM ENG 6X03 / Polymer Processing](#)

[CHEM ENG 6Z03 / Interfacial Engineering](#)

[CHEM ENG 742 / Membrane Based Bioseparations](#)

[CHEM ENG 752 / Optimization of Chemical Processes](#)

[CHEM ENG 753 / Systems Modeling and Optimization](#)

[CHEM ENG 761 / Multivariable, Stochastic and Adaptive Control of Chemical Processes](#)

[CHEM ENG 764 / Process Control Design](#)

[CHEM ENG 765 / Multivariate Statistical Methods for Big Data Analysis and Process Improvement](#)

[CHEM ENG 770 / Selected Topics in Polymer Science and Engineering](#)

[CHEM ENG 772 / Polymer Rheology](#)

[CHEM ENG 773 / Advanced Concepts of Polymer Extrusion](#)

[CHEM ENG 774 / Advances in Polymeric Materials](#)

[CHEM ENG 782 / Biopharmaceuticals](#)

[CHEM ENG 786 / Artificial Intelligence and Machine Learning Fundamentals](#)

[CHEM ENG 787 / Machine Learning : Classification Models](#)

[CHEM ENG 788 / Neural Networks and Development Tools](#)

[CHEM ENG 789 / Deep Learning and Its Applications](#)

[CHEM ENG 791 / Nanotechnology in Chemical Engineering](#)

### ***Materials Science and Engineering***

[MATLS 6C03 / Modern Iron and Steelmaking](#)

[MATLS 6D03 / Corrosion](#)

[MATLS 6H03 / Thin Film Science and Engineering](#)

[MATLS 6I03 / Sustainable Manufacturing Processes](#)

[MATLS 6P03 / Properties of Polymeric Materials](#)

[MATLS 6T03 / Properties and Processing of Composites](#)

[ENGINEER 6T04 / Materials Selection in Design and Manufacturing](#)

[MATLS 754 / Fracture Mechanics](#)

[MATLS 760 / Electronic Materials](#)

[MATLS 771 / Principles of Heterogeneous Kinetics](#)

[MATLS 780 / Metallic and Non-metallic Coatings](#)

### ***Mechanical Engineering***

[MECH ENG 6B03 / Topics in Product Development](#)

[MECH ENG 6K03 / Robotics](#)

[MECH ENG 6L03 / Industrial Design](#)

[MECH ENG 6Q03 / Mechanical Vibrations](#)

[MECH ENG 6T03 / Finite Element Applications](#)

[MECH ENG 6Z03 / CAD/CAM/CAE](#)

[MECH ENG 702 / Advanced Dynamics of Machines](#)

[MECH ENG 705 / Advanced Finite Element Analysis](#)

[MECH ENG 710 / Machine Tool Analysis](#)

[MECH ENG 714 / Solidification Processing](#)

[MECH ENG 724 / Solid and Surface Modeling Techniques](#)

[MECH ENG 728 / Manufacturing Processes I](#)

[MECH ENG 729 / Manufacturing Systems](#)

[MECH ENG 734 / Theory of Plasticity](#)

[MECH ENG 735 / Additive Manufacturing](#)

[MECH ENG 738 / Manufacturing Processes II](#)

[MECH ENG 743 / Advanced Mechatronics](#)

[MECH ENG 751 / Advanced Mechanical Engineering Control Systems](#)

[MECH ENG 752 / Advanced MEMS Fabrication and Microfluidics](#)

[MECH ENG 759 / Hardware Prototyping Tools and Methods](#)

[MECH ENG 760 / Electric Drive Vehicles](#)

***A Maximum of two courses can be selected from the following list:***

### **Electrical Engineering**

[ECE 710 / Engineering Optimization](#)

[ECE 732 / Non-linear Control Systems](#)

[ECE 736 / 3D Image Processing and Computer Vision](#)

[ECE 744 / System-on-a-Chip \(SOC\) Design and Test: Part I - Methods](#)

[ECE 772 / Neural Networks and Learning Machines](#)

[ECE 778 / Introduction to Nanotechnology](#)

### **Software Engineering**

[SFWR ENG 6HC3 / The Human Computer Interface](#)

<p><b>Computer Science</b></p> <hr/> <p><a href="#">COMP SCI 6F03 / Distributed Computer Systems</a>  <a href="#">COMP SCI 6TE3 / Continuous Optimization</a></p> <p><b>Computing and Software</b></p> <hr/> <p><a href="#">CAS 767 / Information Privacy and Security</a>  <a href="#">CAS 771 / Introduction to Big Data Systems and Applications</a></p> <p><b>School of Engineering Practice and Technology</b></p> <hr/> <p><a href="#">SEP 6AS3 / Advanced System Components and Integration</a>  <a href="#">SEP 6AT3 / Conceptual Design of Electric and Hybrid Electric Vehicles</a>  <a href="#">SEP 6DM3 / Data Mining</a>  <a href="#">SEP 735 / ADDITIVE MANUFACTURING</a>  <a href="#">SEP 748 / Development of Sustainable Communities</a>  <a href="#">SEP 751 / Process Design and Control for Operability</a>  <a href="#">SEP 752 / Systems Modeling and Optimization</a>  <a href="#">SEP 754 / Process Design and Integration for Minimal Environmental Impact</a>  <a href="#">SEP 780 / Advanced Robotics and Automation</a>  <a href="#">SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I</a>  <a href="#">SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II</a></p> <p><b>Manufacturing Engineering</b></p> <hr/> <p><a href="#">MANUF 6RM3 / Robot Mechanics and Mechatronics</a>  <a href="#">MANUF 710 / SYSTEM ANALYSIS SIMULATION</a></p> <hr/> <p><b>CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b></p> <p>Name: Vladimir Mahalec    Email: mahalec@mcmaster.ca    Extension: 26386    Date submitted: <del>December 17, 2019</del> <a href="#">January 9, 2020</a></p>
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If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	WBooth School of Engineering Practice and Technology		
<b>NAME OF PROGRAM and PLAN</b>	Master of Engineering Design		
<b>DEGREE</b>	Master of Engineering Design		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input checked="" type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input type="checkbox"/>	<b>EXPLAIN:</b> Removal of streams and calendar changes	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

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**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

1. The following streams exist in the MED program:  
Product Design: Design Thinking approach to development of products and services.  
Digital Reality: Design of augmented-, virtual-, and mixed-reality immersive experiences.  
Smart Systems: Design and integration of AI, robotics, automation, and physical systems  
Process and Production Systems: Engineering design and operations improvement
2. Professional work experience will be highly desirable is currently in the calendar

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (Attach additional pages if space is not sufficient.)**

1. Remove the following streams:  
Smart Systems: Design and integration of AI, robotics, automation, and physical systems  
Process and Production Systems: Engineering design and operations improvement
2. Change to "Professional work experience will be desirable, but not essential.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

1. Process and Production Systems stream has been moved to the Master of Engineering and Manufacturing Engineering program under a new stream called "Process Engineering" and aligns more with the MEME degree. Also, since the Systems and technology master degree has been approved, Smart systems stream is under this new program called "Automation and smart systems"  
MED has two streams: Product Design stream and Digital Reality stream.

Product Design focuses on early stages of design, particular human centered design and its applications across a wide cross-section of issues in the society. Such design problems can very effectively solved by students from both STEM and non-STEM backgrounds.

Digital Reality deals with techniques and theory of virtual reality, augmented reality, and mixed reality. Successful students need to have ability to visualize virtual spaces and apply VR/AR/MR techniques to create successful applications.

SEPT admission process will ensure that students with appropriate aptitude and qualifications are admitted to the program.

2. To provide clarification that work experience is preferred, however, not mandatory.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

September 1, 2020



**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Innovative new designs and the ability to improve performance of existing systems have become a basis for a competitive advantage in the marketplace. Innovativeness, performance, environmental sustainability, safety, usability, desirability, viability and efficiency are integral parts of the requirements in the design of industrial products, healthcare products, large-scale systems, or software solutions. Within this complex set of constraints, successful engineers and engineering managers must be able to lead transformation of an idea to a complete design by working in interdisciplinary teams and with stakeholders. The Master of Engineering Design program provides its participants with technical expertise and leadership capabilities required to innovate and to lead technically-oriented organizations. The M.Eng. Design program emphasizes development of competencies in Design Thinking and innovations methodologies, as well as leadership, collaboration, and management skills to lead diverse teams. These competencies are combined with advanced technologies to enable design and implementation of solutions which integrate digital reality with the physical world to deliver solutions for daily living or for complex IT or industrial systems.

The following streams are currently offered in the Program:

Product Design: Design Thinking approach to development of products and services.

Digital Reality: Design of augmented-, virtual-, and mixed-reality immersive experiences.

~~Smart Systems: Design and integration of AI, robotics, automation, and physical systems~~

~~Process and Production Systems: Engineering design and operations improvement~~

## Admission

In addition to the general requirements for entry into a graduate program in Engineering, students must hold a four-year engineering undergraduate degree or equivalent, with at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Students with a degree in Science, Technology or Mathematics will also be considered.

Strong letters of recommendation are also required. Applicants will be required to complete an online interview.

Professional work experience will be **highly** desirable, **but not essential**.

Prospective applicants who did not attain the required standing in their undergraduate degree, but who have at least four (4) years of relevant work experience, should discuss

their situation with the Program Lead. If the experience is deemed sufficient, the Program Lead may then recommend a live interview. Evidence of ability to do graduate work will still be required. (See Sections 2.1.1 Admission Requirements for Master's Degree and 2.1.5 Admission of Students with Related Work Experience or Course Work beyond the Bachelor's Degree in the Graduate Calendar.)

McMaster Students may receive advanced standing for up to two courses (note that a maximum of two 600-level courses can count towards a SEPT graduate program) with the approval of the Associate Dean of Graduate Studies.

## Curriculum

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The curriculum has three main components:

- 1. Professional Development** courses that will enable M.Eng. Design graduates to deal with complex situations in the work environment, to lead teams, and to manage projects.
- 2. Courses Relevant to the selected stream:** some courses are mandatory for a given stream while others are elective.
- 3. An M.Eng. project** that requires synthesis of knowledge from various disciplines.

## ~~Process and Production Systems Stream~~

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~~Master of Engineering Design program in the field of Process and Production Systems provides advanced competencies for engineers and supervisors typically working in:~~

~~Process Design  
Advanced Process Control  
Plant Operations  
Process Industry Oriented R&D  
Control Systems and Software~~

~~-~~

## ~~Required Courses~~

---

~~Candidates are required to take the following:~~

~~SEP 700 / M.Eng. Project in Engineering Design Part I~~

~~SEP 700 / M.Eng. Project in Engineering Design Part II~~

~~SEP 760 / Design Thinking~~

~~SEP 771 / W. Booth School of Engineering Practice and Technology Practitioner's Forum Part I (seminar series full-time students only)~~

~~SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II (seminar series full-time students only)~~

~~SEP 772 / Innovation Studio~~

~~SEP 773 / Leadership for Innovation~~

OR

~~SEP 6EL3 / Leading Innovation~~

## Electives

Candidates are required to select four half courses which should be selected from graduate courses offered by departments within the Faculty of Engineering. Candidates are required to have their elective course selection approved by the Associate Director of Graduate Studies in SEPT.

-

Recommended courses include, however are not limited to the following:

~~SEP 751 / Process Design and Control for Operability~~

~~SEP 752 / Systems Modeling and Optimization~~

~~SEP 754 / Process Design and Integration for Minimal Environmental Impact~~

~~CHEM-ENG 752 / Optimization of Chemical Processes~~

~~CHEM-ENG 765 / Multivariate Statistical Methods for Big Data Analysis and Process Improvement / SEP 767 Multivariate Statistical Methods for Big Data Analysis and Process Improvement~~

~~COMP-SCI 6F03 / Distributed Computer Systems~~

~~GAS 704 / Embedded, Real-Time Software Systems~~

~~GAS 703 / Software Design~~

~~CHEM-ENG 6E03 / Digital Computer Process Control~~

~~ECE 732 / Non-linear Control Systems~~

~~ECE 771 / Algorithms for Parameter and State Estimation~~

~~ECE 772 / Neural Networks and Learning Machines~~

## Product Design Stream

Innovative and creative systems, solutions, and product designs are emphasized through design in a collaborative design studio environment. The interdisciplinary nature of the program enables its participants to work on a variety of design work, such as industrial machinery, consumer products, automotive, etc.

The following course requirements need to be fulfilled by the candidates:

## Mandatory Courses

Candidates are required to take the following:

[SEP 700 / M.Eng. Project in Engineering Design Part I](#)

[SEP 700 / M.Eng. Project in Engineering Design Part II](#)

[SEP 760 / Design Thinking](#)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#) (seminar series: full-time students only)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series: full-time students only)

[SEP 772 / Innovation Studio](#)

[SEP 773 / Leadership for Innovation](#)

OR

[SEP 6EL3 / Leading Innovation](#)

## Electives

Candidates are required to take four half courses which should be selected from graduate courses offered by departments within the Faculty of Engineering. Candidates are required to have their elective course selection approved by the Associate Director of Graduate Studies in SEPT.

Strongly recommended:

[SEP 757 / Hardware Prototyping Tools and Methods](#)

Or

[SEP 758 / Prototyping Tools \(Mobile Applications\)](#)

[SEP 761 / Human-Centred Design](#)

**Other recommended electives include:**

[SEP 6CG3 / Fundamentals of computer graphics and animation development](#)

[SEP 6VE3 / Visual effects and animation production technology](#)

[SEP 714 / Workflow Management for Animated Prototypes](#)

[SEP 715 / Rendering techniques](#)

[SEP 791 / Augmented Reality, Virtual Reality and Mixed Reality](#)

[SEP 792 / GPU Intensive applications for real-time projects](#)

## Digital Reality Stream

Graduates from Digital Reality stream develop competencies required to work on MR/AR/VR applications in e.g. autonomous vehicles, games design, entertainment, architecture, medicine, etc.,. All candidates will complete a project and an optional co-op with an organization which develops products in the digital reality space.

## Mandatory Courses

The following courses are required to be completed by the candidates

[SEP 700 / M.Eng. Project in Engineering Design Part I](#)

[SEP 700 / M.Eng. Project in Engineering Design Part II](#)

[SEP 760 / Design Thinking](#)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#) (seminar series; full-time students only)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series; full-time students only)

[SEP 772 / Innovation Studio](#)

## Electives

Five courses from the following list must be completed by the candidates:

[SEP 6CG3 / Fundamentals of computer graphics and animation development](#)

[SEP 6VE3 / Visual effects and animation production technology](#)

[SEP 714 / Workflow Management for Animated Prototypes](#)

[SEP 715 / Rendering techniques](#)

[SEP 791 / Augmented Reality, Virtual Reality and Mixed Reality](#)

[SEP 792 / GPU Intensive applications for real-time projects](#)

## Smart Systems Stream

Graduates from Smart Systems stream develop competencies required to develop and integrate machine learning and AI applications (e.g. image recognition, fault detection, natural language processing, time varying pattern forecasting, etc.) with software and hardware components comprising intelligent devices and systems.

## Mandatory Courses

The following courses are required to be completed by the candidates:

[SEP 700 / M.Eng. Project in Engineering Design Part I](#)

[SEP 700 / M.Eng. Project in Engineering Design Part II](#)

[SEP 760 / Design Thinking](#)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part I](#) (seminar series; full-time students only)

[SEP 771 / W Booth School of Engineering Practice and Technology Practitioner's Forum Part II](#) (seminar series; full-time students only)

## Electives

At least three half courses from the following list must be completed by the candidates:

[SEP 786 / Artificial Intelligence and Machine Learning Fundamentals](#)

[SEP 787 / Machine Learning : Classification Models](#)

[SEP 788 / Neural Networks and Development Tools](#)

[SEP 789 / Deep Learning and Its Applications](#)

[SEP 720 / Cloud Computing](#)

[SEP 721 / Data Analytics, Machine Learning and AI on Cloud Platforms](#)

[SEP 780 / Advanced Robotics and Automation](#)

[SEP 767 / Multivariate Statistical Methods for Big Data Analysis and Process Improvement](#)

[MECH ENG 761 / Industrial Components, Networks, and Interoperability](#)

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Vladimir Mahalec Email: [mahalec@mcmaster.ca](mailto:mahalec@mcmaster.ca) Extension: 26386 Date submitted: Nov. 27, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	W Booth School of Engineering Practice and Technology		
<b>NAME OF PROGRAM and PLAN</b>	Master of Engineering and Public Policy		
<b>DEGREE</b>	Master of Engineering and Public Policy		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input checked="" type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<b>EXPLAIN:</b>	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Students must hold a 4-year engineering, science, technology or mathematics undergraduate degree, with at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Students must hold a 4-year undergraduate degree in STEM or a 4-year non-STEM degree in a public policy-related field including, for example, political science, public policy, public administration or global studies. Applicants must have at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

MEPP deals with policy issues ranging from environmental to social to industrial topics. More diverse student backgrounds is expected to improve the quality of the work in the program. SEPT admission process will ensure that students with appropriate aptitude and qualifications are admitted to the program.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Students must hold a 4-year undergraduate degree in STEM or a 4-year non-STEM degree in a public policy-related field including, for example, political science, public policy, public administration or global studies. ~~undergraduate degree.~~ Applicants must have ~~with~~ at least a B- average (equivalent to a McMaster 7.0 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work.

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Applicants will be required to complete an online interview. Professional work experience is desirable but not essential.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Vladimir Mahalec Email: [mahalec@mcmaster.ca](mailto:mahalec@mcmaster.ca) Extension: 26386 Date submitted: Nov. 27, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

To : Graduate Council

From : Christina Bryce  
Assistant Graduate Secretary

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At its meeting on March 13<sup>th</sup> and via e-ballot on March 24<sup>th</sup>, 2020 the Faculty of Health Sciences Graduate Policy and Curriculum Committee approved the following recommendations.

Please note that these recommendations were approved by the Executive Committee of the Faculty of Health Sciences.

**For Approval of Graduate Council**

- 1. Child Life**
  - **Change to Calendar Copy**
- 2. Health Science Education**
  - **Change to Course Requirements and Calendar Copy**
- 3. Nursing**
  - **Change to Course Requirements and Calendar Copy**
- 4. Occupational Therapy**
  - **Change to Calendar Copy**
- 5. Physiotherapy**
  - **Change to Admission Requirements and Calendar Copy**
- 6. Public Health**
  - **Change in Course Requirements and Calendar Copy**

**For Information of Graduate Council**

- 7. Health Research Methodology**
  - **Change to Requisites**
  - **Change to Course Description**
    - i. **727 Theory and Practice of Measurement**
    - ii. **733 Statistical and Methodologic Issues in Randomized Clinical Trials**
    - iii. **759 Survival Analysis in Health Research**

**8. Health Science Education**

- **Course Cancellations**
  - i. **702 Research Methods**
  - ii. **708 Scholarly Paper**

**9. Nursing**

- **Change to Course Title and Description**
  - i. **706 Research Issues in the Introduction and Evaluation of Advanced Practice Nursing**
  - ii. **707 Foundations of Nursing Leadership**
- **Change to Course Description**
  - i. **701 Theoretical Basis of Nursing Practice**

**10. Physiotherapy**

- **Change to Course Description and Evaluation**
  - i. **781 Clinical Practice I**
  - ii. **782 Clinical Practice II**
  - iii. **783 Clinical Practice III**
  - iv. **784 Clinical Practice IV**

**11. Public Health**

- **Course Cancellation**
  - i. **705 Master of Public Health Seminar Series Year One**
- **Change in Course Title and Description**
  - i. **708 Master of Public Health Seminar Series Year Two**
- **New Courses**
  - i. **712 Professional Development Studio I**
  - ii. **713 Professional Development Studio II**

**12. Rehabilitation Sciences**

- **Course Cancellations**



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		Pediatrics			
<b>NAME OF PROGRAM and PLAN</b>		Child Life and Pediatric Psychosocial Care			
<b>DEGREE</b>	MSc.				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<b>CHANGE IN COURSE REQUIREMENTS</b>	
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		x <b>EXPLAIN:</b> This change relates to edits to the deadline date for prerequisite volunteer hour completion, the application personal statement, and aligning SGS 101 & 201 completion requirements to grad. calendar.			
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

The current SGS Calendar with track changes is attached to reflect the requested updates. A brief description of the recommended changes per section are below.

**Stream 1 Application Requirements**

- In the volunteer work form bullet point, it notes "Admission will be contingent upon confirmation of these 100 hours being complete by August 15 in that year." It is requested that these hours instead be completed by June 30 in that year to better align with admissions clearance procedures and to ensure there is more time to offer admission to an applicant on the waiting list should that be needed.
- In the last bullet point related to personal statement, it is requested that the language be changed to "A personal statement (approximately 750 words) of intent that addresses the specific questions posed in the application checklist", rather than listing 3 specific questions applicants should address as in the current copy. This will enable greater flexibility for the program to revise moving forward.

**Required Online Modules**

- It is requested that the time to complete the SGS 101 & 201 modules be modified to "These modules must be completed within the first month of a student's first term in Year 1" to align with procedures noted elsewhere in the grad. calendar.

**Stream 2 Application Requirements**

- As above, in the last bullet point related to personal statement, it is requested that the language be changed to, "A personal statement (approximately 750 words) of intent that addresses the specific questions posed in the application checklist", rather than listing 3 specific questions applicants should address as in the current copy.

**Elective Options**

- It is requested that the CLPPC 721/Independent Study course be included within this list.

**Required Online Modules**

- As above in the Stream 1 section, it is requested that the time to complete the SGS 101 & 201 modules be modified to "These modules must be completed within the first month of a student's first term in Year 1" to align with procedures noted elsewhere in the grad. calendar.

<p><b>RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):</b></p>
<p><b>PROVIDE IMPLEMENTATION DATE: (<i>Implementation date should be at the beginning of the academic year</i>)</b></p>
<p><b>ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.</b></p>
<p><b>PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):</b></p>
<p><b>CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b></p> <p>Name: Cathy Humphreys Email: <a href="mailto:humphrc@mcmaster.ca">.humphrc@mcmaster.ca</a> Extension: x22795 Date submitted: Mar.2, 2020</p>

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013

## MSc Child Life and Pediatric Psychosocial Care Graduate Calendar

### MSc General Regulations for Admissions

Applicants are expected to meet the School of Graduate Studies requirements for admission. Post-graduate coursework will also be considered in GPA calculation, and calculated on a case-by-case basis.

Applicants whose native language is not English, will be required to demonstrate evidence of proficiency in the use of the English language, as outlined in the General Regulations of the Graduate School. The minimum acceptable TOEFL (iBT) score is 92 overall with a minimum of 22 for reading 24 for speaking, 24 for listening and 22 for writing, or 600 (paper based) **with a minimum of 45 for speaking score and a minimum of 50 in the other areas**. Alternately an overall minimum IELTS score of 7.0 will be required.

### MSc degree - Stream 1 option

Stream 1 of the Child Life and Pediatric Psychosocial Care program provides academic and clinical training to prepare students to practice as entry level child life specialists. This stream is only offered full-time. The anticipated completion of all program requirements for students enrolled in stream 1 is 2 years from initial enrollment.

### Stream 1 Application Requirements

Stream 1 applicants are required to submit:

- An official transcript(s) of academic work completed to date at all post-secondary institutions attended, sent directly from the issuing institution(s). Non-English transcripts must be translated and notarized. Applicants may apply during the fourth year of their degree. In such cases, the pre-admission GPA for eligibility purposes is calculated using the most recent 10 courses towards their degree. Should an applicant in this category be offered admission to the program, the offer is “conditional” upon successful completion of their four-year degree by June 30 in that year, and maintenance of a B+ average in their final year of study.
- A minimum of two undergraduate courses in child development. This course work must cover growth and development from birth to 18 years of age as a requirement for child life specialist certification eligibility through the Child Life Council. Should an applicant still completing this course work be offered admission to the program, the offer is “conditional”. Admission will be contingent upon confirmation of these courses being successfully completed by June 30 in that year.
- A current CV
- A volunteer work form demonstrating completion of 100 volunteer hours in a child life setting. Applicants who have not fully completed these hours may still apply. Should an applicant who has not demonstrated completion of these hours be offered admission, the offer is "conditional". Admission will be contingent upon confirmation of these 100 hours being complete by [June 30](#) ~~August 15~~ in that year.
- Three confidential reference forms:
  - Two confidential academic reference forms from an instructor most familiar with the applicant's academic work.
  - One confidential reference form from a supervisor familiar with the applicant's work with

children

- A personal statement (maximum 750 words) of intent that addresses the specific questions posed in the application checklist, explains:
  - ~~ways in which the work of a child life specialist contributes to the health care experience of a child and family~~
  - ~~what prior knowledge, skills and experience they will bring to the program~~
  - ~~what is desired from this degree~~

### **Stream 1 Additional Admission Requirements**

- Successful completion of the program's multiple-mini-interviews.
- An offer of admission is contingent upon a "clear" approved police check, or approval by the Program Director. This condition of admission follows the Police Records Check Policy - Faculty of Health Sciences.

Meeting the above minimum admissions requirements does not guarantee admission. Limited space will be available. The admission process is competitive.

### **Course requirements**

Complete, with at least a B- standing 48 units of mandatory courses. All courses are half courses with the exception of 4 quarter courses (\*) and clinical internships (6 units), and are scheduled as follows:

First Year Fall Term:

- CLPPC 700/Child Life Studies Residency Week\*
- CLPPC 702/The Child, Youth and Family in Healthcare
- CLPPC 703/Educational Research Methods in Health Sciences Education

First Year Winter Term:

- CLPPC 706/Pediatric Psychosocial Assessment
- CLPPC 705/Grief, Loss and Bereavement in Childhood and Adolescence
- CLPPC 707/Evaluating Evidence: An Approach to Critical Evaluation of the Literature\*

First Year Summer Term:

- CLPPC 709/The Vulnerable Child and Youth
- CLPPC 708/Child Life: Foundations of Play
- CLPPC 712/Professional Ethics\*
- CLPPC 710/Child Life Studies Residency Week 2\*

Second Year Fall Term:

- CLPPC 715/Clinical Internship 1 (360 hours)
- CLPPC 718/Clinical Skills Seminar 1

Second Year Winter Term:

- CLPPC 716/Clinical Internship 2 (360 hours)
- CLPPC 719/Clinical Skills Seminar 2

Second Year Summer Term:

- CLPPC 717/Program Planning and Evaluation



- CLPPC 713/Independent Master's Project

All courses are offered online with the exception of the mandatory on-campus residency week courses, and clinical internships.

### **Required Online Modules**

Online modules must also be taken by all graduate students:

- SGS 101/ Academic Research Integrity and Ethics
- SGS 201/ Accessibility for Ontarians with Disabilities act (AODA)

These modules must be completed within the first month of a student's first ~~Year 1 Fall~~ term in Year 1.

Students are required to successfully complete the above graduate course work in addition to clinical internships and clinical skills seminars. All are required, with the exception of course 720 which is offered to students eligible for remediation.

### **Clinical Internship Requirements**

In addition to the required coursework, students in Stream 1 will be required to successfully complete two twelve-week internships to establish minimum entry-level competence within the scope of child life practice across identified domains. Internships and competency areas follow the criteria set forth by the Child Life Council (CLC). Clinical internships will be evaluated utilizing an internship evaluation tool designed to assess skills and knowledge base reflective of the CLC Child Life Competencies, and the Child Life Professional Certification Exam Classification System. It will be utilized a minimum of twice per internship with the clinical preceptors in each internship, and the faculty Internship Coordinator/Clinical Educator to assess student progress and professional competencies. Internship locations at children's hospitals, general hospitals, and/or community settings vary each year, and may occur in different regions and cities. Students are responsible for their own transportation and all associated costs in order to meet this program requirement.

Health Sciences Graduate programs with clinical courses requires that all clinical activities associated with such courses must be successfully achieved for attainment of a passing grade in the course. Unsatisfactory standing or serious deficits in matters related to work in clinical settings (e.g. patient safety, ethical behaviour, professional competence), or professionalism when interacting with patients and families may result in termination of the clinical internship. In most situations termination of the clinical placement constitutes a failure and will result in the student receiving a grade of F in the Clinical Internship course, and may result in dismissal from the program. Students will receive a Program Handbook, and Clinical Education Handbook which provide additional information and details regarding procedures, guidelines and requirements. In the event of a discrepancy between these documents and the Graduate Calendar, the Graduate Calendar represents the official policy.

## MSc degree - Stream 2 Option

Stream 2 the Child Life and Pediatric Psychosocial Care program provides advanced practice skills in pediatric psychosocial care. It is offered on both a full and part-time basis to applicants who already hold qualifications as a healthcare professional with an interest in pediatric psychosocial care. Clinical internships and clinical skills seminars are therefore not required. The anticipated completion time of all Stream 2 program requirements for full-time students is 1 year, and 2-4 years from initial enrollment for part-time students. Students admitted as a Stream 2 student are not permitted to transfer to Stream 1. Changing streams requires reapplication.

### Stream 2 Application Requirements

Stream 2 applicants are required to submit:

- An official transcript(s) of academic work completed to date at all post-secondary institutions attended, sent directly from the issuing institution(s). Non-English transcripts must be translated and notarized.
- A current CV
- Proof of active registration in a professional association (e.g. membership number, certification or licensure number) must be included on the applicant's resume.
- Two confidential reference forms from an instructor most familiar with the applicant's academic work. Consideration on the use of an employer reference will be provided on a case-by-case basis.
- A personal statement (maximum 750 words) of intent that ~~explains:~~ addresses the specific questions posed in the application checklist.
  - ~~why they are seeking graduate education in this program~~
  - ~~what they will bring to the program such as prior experience in a field related to healthcare~~
  - ~~what is desired from this degree~~

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Meeting the above minimum admissions requirement does not guarantee admission. Limited space will be available. The admission process is competitive.

### Course requirements

Complete with at least a B- standing 7 core and 3 elective graduate courses. All courses are half courses with the exception of 4 quarter courses (\*).

Core Courses:

- CLPPC 701/Pediatric Psychosocial Care Residency 1\*
- CLPPC 703/Educational Research Methods in Health Sciences Education
- CLPPC 707/Evaluating Evidence: An Approach to Critical Evaluation of the Literature\*
- CLPPC 712/Professional Ethics\*
- CLPPC 711/Pediatric Psychosocial Care Residency 2\*
- CLPPC 704/Current Issues in Pediatric Psychosocial Care
- CLPPC 713/Independent Master's Project

### Elective Options

- CLPPC 714/Special Topics in Pediatric Psychosocial Care
- RS 708 Reasoning and Decision Making
- RS 770 Leadership in Rehabilitation
- CLPPC 709/The Vulnerable Child and Youth
- CLPPC 706/Pediatric Psychosocial Assessment
- CLPPC 705/Grief, Loss & Bereavement in Childhood and Adolescence
- CLPPC 717/Program Planning and Evaluation
- CLPPC 702/Children, Youth and Families in Healthcare
- CLPPC 721/Independent Study
- Other graduate elective(s) approved in advance by the program

All courses are offered online with the exception of the mandatory on-campus residency week courses. Course CLPPC 720 is only offered to students eligible for remediation.

### Required Online Modules

Online modules must also be taken by all graduate students:

- SGS 101/ Academic Research Integrity and Ethics
- SGS 201/ Accessibility for Ontarians with Disabilities act (AODA)

The School of Graduate Studies SGS 101 and 201 courses must be completed within the first month of a student's first ~~Year 1 Fall~~ term in Year 1.

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		MSc Health Science Education (HSED)	
<b>NAME OF PROGRAM and PLAN</b>		Health Science Education ( HSED) & HSCEDCRMSC	
<b>DEGREE</b>	Master of Science		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input checked="" type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<b>EXPLAIN:</b> Removing the requirement for 702 Research Methods, 708 Scholarly Paper and replacing it with Capstone Portfolio	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

HSEDUC 708 - The Scholarly Paper is the final degree requirement for the course-based MSc. The paper should reflect the student's ability to integrate ideas that reflect their analysis and use of knowledge in areas of health science teaching and learning, research and leadership in a scholarly way as well as the ability to independently apply and discuss these concepts in a concise, critical, and coherent manner. The paper will demonstrate integrative thinking and focus on a topic selected by the student in consultation with their Scholarly Paper Supervisor and one additional Reader which will then be submitted to the MSc HS Ed Administrative Assistant prior to commencement. The scholarly paper is distinctive from a thesis, as it does not require the collection or analysis of primary data or the conduct of research with subjects, although this may be an option in some circumstances. The scholarly paper will be graded by the scholarly paper Supervisor and one additional Reader. The student may start some components of the paper in a preliminary form during their program.

HSEDUC 702 - In this course students are introduced to a range of research methods used to investigate learning and education in the health sciences. The course will introduce the major traditions including psychometrics, epidemiology, experimentation, quantitative, and qualitative methods. General research issues such as ethical research, sampling, and data collection will also be covered. Students will be asked to integrate the course material as well as their preferred or chosen tradition into existing research projects or research questions. This course is offered online and is mandatory for students.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

We are proposing that HSEDUC 702 and HSEDUC 708 courses get cancelled and replaced by a new Capstone Portfolio milestone.

The current final degree requirement for students in the course-based stream of the Health Sciences Education Graduate Program (HSED) is the Scholarly Paper assignment. The Scholarly Paper is operationalized for registration and assessment as a one-term 6-Unit Course (HS EDUC 708: Scholarly Paper). Students register for HS EDUC 708 in the term that they intend to draft and complete the essay for final assessment. However, given the distributed, professional, and largely part-time nature of our cohort, it has proven difficult for our students to meet the 6-unit requirements within the real time associated with one academic term. Accordingly, the Program provides instrumental, staged support to students in preparing for their Scholarly Paper term. This support takes the form of workshops on forming supervisory relationships, performing literature searches, completing literature review, and academic writing and presentation during the second in person residency week (HS EDUC 707: Residency Week 2); a series of online modules that guide learners and supervisors through the preliminary stages of writing a scholarly paper; and a committee review of the intended paper, which serves to identify students that are not sufficiently prepared and supported to be successful within the registered term.

The HS EDUC 702 is the research methods course. Given that this course is an overview of methods and approaches to scholarship in health professions education and health professions education

research, and not a comprehensive course on a specific set of methodological techniques, it is not appropriate for HSED thesis students. Taken together, provided the previous two requested changes receive approval, this course has little utility for the Program moving forward. Notably, the HS EDUC 702 Course Coordinator has agreed to be the faculty lead for the proposed online modules in support of the proposal assignment.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

We would like to remove the Scholarly Paper assignment as the final degree requirement for the course-based students in the HSED program on the following grounds:

- The essay writing activity is generally inauthentic with respect to the future professional activities of the HSED students, and has little impact on advancing their future scholarship in health professions education.
- The activity does little to advance the health professions education scholarship of the faculty members who engage the scholarly paper assignment as supervisors.
- The combination of the term-constrained nature of registration and assessment with the independent nature of the academic writing exercise presents students with numerous challenges pertaining to academic planning, engaging supervision, and balancing their professional commitments. These challenges manifest as an increase in administrative requests during this period of the student's trajectory.

**PROVIDE IMPLEMENTATION DATE: (Implementation date should be at the beginning of the academic year)**

Fall 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

n/a

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Course-based option students must:

- Complete, with at least a B- standing:
  - The program's seven required courses (HSEDUC 701, HSEDUC 703, HSEDUC 700, HSEDUC 707 and three elective courses)
  - ~~A scholarly paper~~
  - Capstone Portfolio

Changing from a Scholarly Paper to a "Capstone Portfolio" milestone.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Lawrence Grierson    Email: [hsed@mcmaster.ca](mailto:hsed@mcmaster.ca)    Extension: 26798    Date submitted: Feb 20 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca) SGS/2013

## Capstone Portfolio Curriculum Reform

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Title – Capstone portfolio final degree requirement

Prerequisites – 5 Courses must be completed

Instructors – Core HSED Faculty

We are requesting approval to change the HSED curriculum in 3 ways:

### **Remove the Scholarly Paper as the HSED Final Degree Requirement**

The current final degree requirement for students in the course-based stream of the Health Sciences Education Graduate Program (HSED) is the Scholarly Paper assignment. The Scholarly Paper is operationalized for registration and assessment as a one-term 6-Unit Course (HS EDUC 708: Scholarly Paper). Students register for HS EDUC 708 in the term that they intend to draft and complete the essay for final assessment. However, given the distributed, professional, and largely part-time nature of our cohort, it has proven difficult for our students to meet the 6-unit requirements within the real time associated with one academic term. Accordingly, the Program provides instrumental, staged support to students in preparing for their Scholarly Paper term. This support takes the form of workshops on forming supervisory relationships, performing literature searches, completing literature review, and academic writing and presentation during the second in person residency week (HS EDUC 707: Residency Week 2); a series of 15 online modules that guide learners and supervisors through the preliminary stages of writing a scholarly paper; and a committee review of the intended paper, which serves to identify students that are not sufficiently prepared and supported to be successful within the registered term.

The Scholarly Paper assignment addresses the following Program Learning Outcomes:

- An understanding of knowledge and a critical awareness of current problems and/or new insights in health professions education (HPE) and health professions education research (HPER), much of which is at, or informed by, the forefront of the academic discipline, field of study or area of professional practice.
- A conceptual understanding and methodological competence that:
  - Enables a working comprehension of how established techniques of research, scholarship, and inquiry are used to create and interpret knowledge in HPE and HPER;
  - Enables a critical evaluation of current research and advanced research and scholarship in the discipline; and,
  - Enables management of complex HPE issues and judgments (for e.g., pertaining to curricula or assessment) based on established principles and techniques; and, on the basis of that competence, has shown at least one of the following:
    - The development and support of a sustained argument in written form, or
    - Originality in the application of knowledge.



- Competence in the process of scholarship by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a health professions education setting
- Recognition of the complexity of knowledge and of the potential contribution of other interpretations, methods, and disciplines.
- The ability to appreciate the broader implications of applying knowledge to particular contexts.
- The exercise of initiative and of personal responsibility and accountability.
- The intellectual independence required for continuing professional development.
- The ethical behavior consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of scholarship and/or research.

We would like to remove the Scholarly Paper assignment as the final degree requirement for the course-based students in the HSED program on the following grounds:

- The essay writing activity is generally inauthentic with respect to the future professional activities of the HSED students, and has little impact on advancing their future scholarship in health professions education.
- The activity does little to advance the health professions education scholarship of the faculty members who engage the scholarly paper assignment as supervisors.
- The combination of the term-constrained nature of registration and assessment with the independent nature of the academic writing exercise presents students with numerous challenges pertaining to academic planning, engaging supervision, and balancing their professional commitments. These challenges manifest as an increase in administrative requests during this period of the student's trajectory.

### **Add the Presentation of a Capstone Portfolio as the HSED Final Degree Requirement**

We would like to replace the Scholarly Paper assignment with a Capstone Portfolio requirement. As the name suggests, this will be conceptualized as an assemblage of curricular activities and outputs that will be presented by the student at the end of the program for final assessment.

In particular, a completed portfolio will be comprised of several practical and applied elements.

1. The final assignments associated with each of the students' 5 completed courses
2. A series of submissions associated with scholarly activities, operationalized via continuous milestones. These milestones will exist outside of the term-to-term calendar that defines course offerings. The submissions are summarized here:
  - a. attendance at a seminar series
  - b. an education research or education innovation proposal
  - c. a statement of teaching philosophy

Each submission is described in more detail below and has its own intended learning outcomes, teaching and learning activities, and assessments.

#### Seminar Series

##### *Intended Learning Outcomes:*

At the end of the seminar series, the learner will be able to:

1. Recognize current problems and/or new insights in health professions education (HPE) and health professions education research (HPER).
2. Understand techniques of research, scholarship, and inquiry that are used to create and interpret knowledge in HPE and HPER;
3. Recognize the application of an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a health professions education setting
4. Consider a variety of interpretations, methods, and disciplines to advancements in HPE and HPER,
5. Demonstrate their commitment to the exercise of initiative and of personal responsibility and accountability within their learning plan.

*Teaching and Learning Activities:*

The HSED program is closely aligned with the McMaster FHS Program for Education Research, Innovation, and Theory (MERIT). The MERIT community is committed to serving as key faculty contributors to program design, development, and operations of the HSED Program – a commitment which facilitates the alignment of resources within the University’s constraints on funding, space, and faculty allocation that have mutual benefits for both Programs. The HSED Program benefits in numerous ways from this relationship. The engagement of the MERIT community ensures:

- HSED students experience high quality instruction, mentorship, research supervision, and assessment.
- HSED students have access to the peer review, rounds, consultation, journal club, bursary, local research conference, and annual retreat opportunities organized by MERIT
- Student and faculty interactions with the Centre for Simulation-Based Learning, Clinical Educator Program, Clinician Investigator Program, McMaster Midwifery Research Centre, Department of Family Medicine Medical Education Research Group, and Centre for Health Economics and Policy Analysis are facilitated.
- HSED candidate selection, remediation, program evaluation, and quality improvement activities are of the highest standards.

The MERIT program hosts between 7-10 Education Research Rounds throughout the year. These events happen at regular intervals and invite McMaster faculty and external scholars to present programs of research, study findings, and novel perspectives on health professions education and health professions education scholarship. Each presentation event is accompanied by a set of learning objectives that are specific to the topic being presented within that session. The MERIT Education Rounds is a self-approved group learning activity (Section 1) as defined by the Maintenance of Certification Program of the Royal college of Physicians and Surgeons of Canada.

These events are open to members and friends of the MERIT community. Through close programmatic alignment, these rounds are also open to all members of the HSED student body. While the rounds are public events with dedicated space for an audience to engage the presentation, the MERIT program also makes rounds available via synchronous online broadcasting of the presentation (via Zoom) as well as asynchronously through an archive of recorded presentations that are viewable via a secure MERIT YouTube Channel.

HSED Students will be required to attend a minimum of 10 rounds presentations prior to their completion of the Program. Students that attend a seminar synchronously will be required to register their attendance with the MERIT host at the beginning of each Education Rounds presentation. For students attending in person, this registration will involve providing their name and student number on the attendance sheet provided at the session. For students that participate online, this information will be collected by the Program staff operating the online connection. Students that choose to view the seminar in an asynchronous fashion will do so through a dedicated course shell on the A2L learning management system. This shell will present direct links to the recordings of the relevant suite of seminars on the secure MERIT YouTube Channel, and a continuous discussion forum. These students will be required to comment within the discussion forum upon viewing the seminar, identifying the topic of the seminar and providing a reflection on what was learned through viewing the presentation. The posts within this forum will only be viewable by Program faculty and will be reviewed to validate student participation.

Students will be permitted to participate in a maximum of 2 seminars asynchronously. Students may lobby the Program for permission to attend more seminars asynchronously as necessary. The Program recognizes that the timing of synchronous sessions may not be conducive to certain professional responsibilities or the time zones in which some of our students live.

#### *Assessment:*

The Seminar Series will be represented as a required Milestone within the MOSAIC system for registration and assessment. The milestone will be assessed as complete by way of attendance at a minimum of 10 seminars. Students will include a list of the titles and speakers of all the seminars they attended as part of their Capstone Portfolio. This list will checked against the attendance records.

We estimate that participation in each seminar event is concomitant with a 0.25 education credit; such that participation in 10 seminar events is equivalent to 2.5 education credits.

#### Education Research (or Innovation) Grant Proposal

*Intended Learning Outcomes:* Upon completion of the Research or Innovation Grant Proposal, students will be able to:

1. Demonstrate knowledge and critical awareness of current problems and/or new insights in health professions education (HPE) and health professions education research (HPER)
2. Demonstrate a conceptual understanding and methodological competence that:
  - a. Enables a working comprehension of how established techniques of research, scholarship, and inquiry are used to create and interpret knowledge in HPE and HPER;
  - b. Enables a critical evaluation of current research and advanced research and scholarship in the discipline; and,
  - c. Enables management of complex HPE issues and judgments (for e.g., pertaining to curricula or assessment) based on established principles and techniques.
3. Develop a balanced and sustained argument in written form, which incorporates the complexity of knowledge and of the potential contribution of other interpretations, methods, and disciplines.
4. Apply knowledge of research design and methods in one of two contexts: in review of a peer's work and in the generation of a new research or innovation proposal.

5. Apply an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a health professions education setting
6. Demonstrate personal responsibility and accountability to scholarship.
7. Contribute independently to scholarship for continuing professional development in the health professions education domain.
8. Conduct themselves in the ethical behaviour consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of scholarship and/or research.

### *Teaching and Learning Activities*

Each student will generate a short, 5-page education research or education innovation proposal that will be included in their Capstone Portfolio. Templates are provided for each type of proposal. These are derived from the application requirements of several prominent education research and education innovation funding competitions (See Appendix 1 for an education research template and Appendix 2 for an education innovation template). In each case, the proposals require students to complete sections pertaining to Objectives and/or Research Questions, Literature Foundations, Methodology and Analysis/Evaluation Techniques, Potential Collaborators, Budget, Schedule and Timeline, Significance and Potential Impact, and the Knowledge Translation/Dissemination Plan. The proposal templates will also include a section that affords declaration of research ethics approval.

The teaching and learning activities that support the development of this proposal requirement will involve two sets of formal curricular activities: a milestone-based series of 15 online modules and dedicated proposal generation workshops that are integrated directly into the HS EDUC 700: Residency Week 1 and HS EDUC 707: Residency Week 2 courses.

The 15 online modules will be organized into 4 relevant units that will provide content and activities to guide students through the various stages of the proposal generation activity. These modules will begin with a focus on the deeper conceptual and philosophical considerations that are necessary for determining one's orientation to research and/or innovation in health professions education, and progress to provide coverage and instrumental challenges that will serve to populate the required components of the proposal templates.

Students are expected to complete these modules in a self-directed manner in the period between their attendance at the first (HS EDUC 700) and second (HS EDUC 707) residency weeks. Each unit will include a pre-recorded, faculty-led, lecture-based modules, a set of supplementary reading materials, gold standard exemplars, and an assignment that is designed to either stimulate the student's thinking about their proposal or to facilitate the generation of specific components of the proposal; as it pertains to the unit topic. Completion of the 15 modules will also require each student to receive feedback on their assignment from a peer before submission. In this regard, students are expected to form partnerships or collaborative groups to move through the proposal modules together, providing feedback to each other along the way. The program acknowledges, however, that partnerships and the peers that deliver feedback may change module to module and also that it may need to facilitate peer relationships for certain individuals.

It is suggested that the students organize the assignment activities associated with each unit such that the outputs support the development of the research or innovation proposal they intend to pursue. In this regard, students will be encouraged to focus on a particular research or innovation topic early in the proposal development process. The Program recognizes that some students will be hesitant to make a decision about the final proposal at too early of a stage and that others will want to change their mind

about their proposal directions along the way. In this regard, it is noteworthy that the activities described here will have formative value for students regardless of their commitment to the topic or issue addressed. Moreover, while the workshop activities that will support proposal development during HS EDUC 707: Residency Week 2 may benefit from continuity with the online modules, these will not be dependent on such continuity. In this way, students will be able to change their focus as they progress through the modules.

In particular, and in order, the units, modules, and related activities are presented in Table 1.

Table 1: The online proposal preparation modules

Modules	Assignment Activities
<p><u>Unit 1: The Nature of Knowing</u></p> <p>The Philosophy of Science: Thinking About Ontology, Epistemology, and Theory</p> <p>The Nature of Evidence: Inductive and Deductive Reasoning</p> <p>Common Methods of Education Research</p>	<p>Prepare a 1-page statement of personal epistemological preferences and the types of HPE studies favoured.</p>
<p><u>Unit 2: Approaching the Project</u></p> <p>Searching and Reviewing the Literature</p> <p>Defining Research Objectives and Formulating Research Questions</p> <p>Setting and Defending your Methodological Choices</p>	<p>Prepare a 2.5-page summary of an HPE issue or question of particular interest, which includes:</p> <ul style="list-style-type: none"> <li>• A literature-based summary of the issue/question</li> <li>• An articulation of the gap in knowledge and the reasons why addressing this gap is important</li> <li>• An annotated bibliography of at least 3 but no more than 5 key related articles.</li> </ul> <p>Conduct a <i>critical appraisal</i> of a published paper listed in their annotated bibliography, which describes the linkages between the epistemology, research question, methods, analysis, and conclusions.</p>
<p><u>Unit 3: Telling your Story &amp; Reaching the Audience</u></p> <p>Generating an Introduction (Problem-Gap-Hook)</p> <p>Writing a Methods Section and Articulating Hypotheses</p> <p>The Anatomy of a Discussion</p> <p>Rhetoric and the Articulation of Potential Impact</p>	<p>Using the provided template (Appendix 3), generate a response to the peer feedback elicited from Unit 2, which explains how the comments and suggestions raised were addressed. A revised version of the Unit 2 assignment should be included.</p> <p>Generate a 1-page methods section for the intended proposal; justifying the decisions and outlining hypotheses (<i>where relevant</i>).</p> <p>Construct a ½-page impact statement of for the research or innovation proposal</p>
<p><u>Unit 4: The Logistics of Getting it Done</u></p> <p>Considerations for Research Ethics</p> <p>Working Collaboratively: Building a Research Team (including authorship ethics)</p> <p>The Road to Publication (from journal selection to surviving peer review)</p> <p>Budgets, Study Schedules, and Project Management</p> <p>Planning Knowledge Translation and Dissemination Activities</p>	<p>Using the provided template (Appendix 3), generate a response to the peer feedback elicited from Unit 3, which explains how the comments and suggestions raised were addressed. A revised version of the Unit 3 assignment should be included.</p> <p>Generate a ½-page statement of requirements for ethical approval, including a list of necessary documents (i.e., adverts, informed consent forms).</p> <p>Prepare a 1-page description of the roles that will need to be filled on the research or innovation team, justify choices and consider specific individuals (where applicable).</p> <p>Assemble a 1-page budget and justification for the research or innovation proposal</p> <p>Assemble a 1-page timeline for the research or innovation proposal</p>

The proposal generation workshops will be integrated directly into the mandatory HS EDUC 700: Residency Week 1 and HS EDUC 707: Residency Week 2 courses. These workshops will serve as anchor points between the online modules, and serve to help the learners start and complete, respectively, their independent (but peer supported) proposal generation activities.

The curriculum for HS EDUC 700: Residency Week 1 is specifically constructed to introduce HSED students to the A2L Learning Management System and approaches to learning, collaborating, and dialoguing within an online education environment. Within the context of this curriculum, students will participate in a dedicated workshop that focuses explicitly on practices of peer-to-peer feedback delivery as it pertains to the types of tasks associated with the proposal generation activity. This workshop will cover the generation of constructive feedback, the utility of referential exemplars, and the importance of peer-to-peer accountability. Through participation in this workshop, students will be prepared to support each other through the online module activities.

The curriculum for HS EDUC 707: Residency Week 2 is specifically constructed to support students in the writing associated with their major scholarly paper or thesis assignments. In this regard, the week is already organized as a dedicated workshop for students to advance works in progress, provide feedback to and receive feedback from their peers, and to interact with faculty in the refinement of their written ideas.

In this regard, the core structure of HS EDUC 707 will be maintained; however, the focus of the workshop activities will shift from support to scholarly paper assignments to proposal generation assignments. Specifically, this week-long course includes faculty-supported workshop sessions for:

- Literature review;
- Generating a compelling justification for research or innovation;
- Articulating research questions and/or innovation objectives; and,
- Academic writing

The shift in focus provides an imperative for additional sessions to be added that will support the articulation of research or innovation methods, hypotheses, teams, budgets, and knowledge translation activities. This will require some adaptation to the allocation of time and topics covered throughout the HS EDUC 707 course, but will not impact the role of the course with respect to the Program Learning Outcomes.

### *Assessment*

The final proposal will be included in each student's Capstone Portfolio. The assessment of the Proposal Project will occur in 3 ways:

1. Students will be required to participate in the relevant workshop portion of HS EDUC 700: Residency Week 1. This assessment will be captured via the attendance records collected during the residency week activities.
2. Students will be required to submit the assignment for each unit of the 15 online modules; including the relevant peer feedback forms to the program office. The assignment will be formatted such that the relevant components can be easily ported into the template for the final assignment. A peer feedback form (Appendix 4) will guide the delivery of peer feedback. The peer will be required to sign this form. A feedback response template (Appendix 3) will guide student responses to their

peers. Responses will not need to be signed by the peer, only submitted as part of the relevant assignment.

3. Students will be required to attend HS EDUC 707: Residency Week 2 and participate in the workshops related to the writing exercise. The week is designed such that learners will have generated a peer-reviewed and faculty-supported proposal by its conclusion. In this regard, the week will serve as an extended period of formative feedback around the proposal generation. Accordingly, formal assessment of the assignment will be comprised of proposal completion. That is, it will not be graded summatively.

We estimate that completing the research proposal assignment is equivalent to 3 education credits.

### Statement of Teaching Philosophy

*Intended Learning Outcomes:* Upon completion of the Statement of Teaching Philosophy Assignment, students will be able to:

1. Apply knowledge to particular contexts.
2. Demonstrate personal responsibility and accountability to scholarship.
3. Contribute independently to scholarship for continuing professional development in the health professions education domain.
4. Articulate their approach and philosophy related teaching;
5. Describe experiences and beliefs influencing their approach to teaching;
6. Present a statement of teaching philosophy

### *Teaching and Learning Activities:*

Each student will generate a 1-page Statement of Teaching Philosophy that will be included in their Capstone Portfolio.

HSED Students are challenged with the construction of a Statement of Teaching Philosophy as part of HS EDUC 701: Learning and Curriculum, which is the first course students experience in the Program. This portion of the Capstone Portfolio asks students to revisit this exercise at the completion of all their other HSED requirements. The generation of this statement is supported by the same module and materials that facilitate the same activity in HS EDUC 701. In particular, students are asked to consider and articulate their personal narrative about teaching and learning, the ways in which they convey their discipline to students, their unique perspectives on their discipline, their contributions to education, their beliefs about how students learn, their intents in teaching, and their actions in the teaching environment. The assignment also assists students in outlining evidence that supports their position on their teaching activities. By scaffolding this activity on the HS EDUC 701 assignment, the assignment works to encourage students to reflect upon the impact and influence that the HSED program had on the development of their teaching philosophy.

### *Assessments:*

The Statement of Teaching Philosophy will be included in each Student's Capstone portfolio.



Upon submission of the document, each Statement will be assigned to a Faculty member who will review the Statement and provide instrumental feedback to improve the impact and clarity of the document. Students will be required to respond to the feedback iteratively until Faculty member and Student are satisfied with the product. In this way, assessment is largely formative, with summative assessment taking the form of an indication that the assignment is either complete or incomplete. Submission of the final Statement of Teaching Philosophy will be confirmed via Programmatic form (Appendix 5) that requires the signature of both the Faculty member and the student.

We estimate that completing the teaching philosophy assignment is equivalent to 0.5 education credits.

#### Summary: PLO's and Course Credits

In summary, the Capstone Portfolio will include:

1. A 1-page statement of teaching philosophy
2. A list of seminars attended
3. A 5-page education research or education innovation proposal
4. The final assignment for each HSED course completed

The course credits for the final assignments are accounted for within each of the relevant courses, such that the additional work associated with the Capstone Portfolio equal 6 course credits (Seminars = 2.5; Proposal = 3; Teaching Philosophy = 0.5). This is equivalent to the credits associated with the HS EDUC 708: Scholarly Paper course. Furthermore, this arrangement of assignments facilitate students in meeting the same Program Learning Outcomes associated with the Scholarly Paper (Table 2). However, this approach enhances the alignment between the education activities and students' future professional scholarship, the involvement of faculty, and students' ability to meet the course requirements within the intersection of constraints associated with the graduate program and their professional and personal commitments.

Table 2. Program Learning Outcomes mapped as a function of Capstone Portfolio Components

Program Learning Outcome	Seminar Series	Research Proposal	Teaching Philosophy
An understanding of knowledge and a critical awareness of current problems and/or new insights in health professions education (HPE) and health professions education research (HPER), much of which is at, or informed by, the forefront of the academic discipline, field of study or area of professional practice.	x	x	x
<p>A conceptual understanding and methodological competence that:</p> <ul style="list-style-type: none"> <li>• Enables a working comprehension of how established techniques of research, scholarship, and inquiry are used to create and interpret knowledge in HPE and HPER;</li> <li>• Enables a critical evaluation of current research and advanced research and scholarship in the discipline; and,</li> <li>• Enables management of complex HPE issues and judgments (for e.g., pertaining to curricula or assessment) based on established principles and techniques; and, on the basis of that competence, has shown at least one of the following: <ul style="list-style-type: none"> <li>○ The development and support of a sustained argument in written form, or</li> <li>○ Originality in the application of knowledge.</li> </ul> </li> </ul>	x	x	x
Competence in the process of scholarship by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a health professions education setting		x	
Recognition of the complexity of knowledge and of the potential contribution of other interpretations, methods, and disciplines.			x
The ability to appreciate the broader implications of applying knowledge to particular contexts		x	
The exercise of initiative and of personal responsibility and accountability			x
The intellectual independence required for continuing professional development.		x	
The ethical behaviour consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of scholarship and/or research.		x	

## **Remove HS EDUC 702: Education Research Methods as a course offering in HSED**

The HS EDUC 702 curriculum focuses on the elements that are covered in the proposed online modules in support of the proposal assignment within the Capstone Portfolio, making this course redundant to Course-based students in HSED. Given that this course is an overview of methods and approaches to scholarship in health professions education and health professions education research, and not a comprehensive course on a specific set of methodological techniques, it is not appropriate for HSED thesis students. Taken together, provided the previous two requested changes receive approval, this course has little utility for the Program moving forward. Notably, the HS EDUC 702 Course Coordinator has agreed to be the faculty lead for the proposed online modules in support of the proposal assignment.

## LIST OF APPENDICES

APPENDIX 1	Education Research Proposal Form
APPENDIX 2	Education Innovation Proposal Form
APPENDIX 3	Review Response Form
APPENDIX 4	Milestone Student Feedback Form
APPENDIX 5	Statement of Teaching Philosophy Form

Health Science  
Education



**Master of Science in  
Health Science Education  
Education Research Proposal**

**Value : up to \$50,000 per project (max : \$25,000 / year)  
Duration: 1 to 3 years**

Personal information provided in your application will be used solely for the purposes of adjudication.

**Last name, First name (Principal Investigator)**

**PI's university affiliation**

**Email**

**Co-investigators (include university affiliation)**

**Area of Research – Project title**

**Duration of project (in months)**

**Proposed starting date**

**Please provide the following information in a separate document**

- 1) A cover page to include the project's title, start date and duration, a list of investigators with an explanation of the role of each participant named on the application (i.e. who does what), a summarized budgetary request and a 300-word abstract (describing the project's objectives, design, setting, statistical analysis and conclusion). Your application will be disqualified if your abstract is over the 300 word requirement.
- 2) Project description (maximum 5 pages, excluding bibliography and appendices, 10-point font minimum) to include the following:
  - objectives, literature foundations, methodology, and significance to postgraduate medical education or continuing professional development
  - a summary of the research design to be used, including the process for ethics approval if applicable
  - details on data collection procedures, data analysis, proposed project schedule and anticipated products/outcomes
  - a plan to disseminate research findings
- 3) Proposed budget (itemized use of funds) and justification must be provided for each year of study (one-page maximum). *Please refer to budgetary guidelines on next page.*
- 4) Abbreviated curricula vitae detailing principal and co-investigators' education, teaching and administrative positions held in the last five years, publications, grants received, and any additional pertinent training (maximum 4 pages each CV, 10-point font minimum, any curricula vitae that exceeds the 4 pages will be truncated).
- 5) Letter of approval from Ethics Board or letter of submission for ethical approval (if applicable)
- 6) Letter of support, from your division, department or faculty representative

Principal Investigator's Signature

*I agree to provide the Royal College with a final report on the outcome of this research at project completion.*

Signature:

Date:

The following list of acceptable and unacceptable expenses is intended to assist applicants in preparing their budgetary requests; the list is not exhaustive.

**Acceptable expenses:**

- materials and supplies (including telephone, photocopying and postage costs)
- meeting/focus group costs (including modest refreshment)
- salary support for principal investigator (maximum of \$10,000 per year)
- personnel/project staff (i.e., salary and benefits for work performed by research associates, research assistants, technicians, statisticians, secretaries, clerks)
- software purchase or licensing fees
- fees paid to research subjects (i.e., modest incentive for participation)
- honoraria for expert consultants or professional participants
- a maximum rate of \$150/audio hour for transcription costs; rates that exceed this maximum must be clearly justified and are subject to approval

Dissemination costs:

- editing and translation of manuscripts, publication and/or poster costs
- a maximum of \$2,000 towards travel, meals, accommodation and conference registration for one researcher to disseminate project findings at one meeting
- Note: travel expenses are to be categorized as post-project dissemination and project-related travel expenses. These must be clearly delineated within the budget to distinguish between travel to attend a conference (maximum \$2,000) versus those anticipated and related to project conduct or implementation. Project-travel costs will be approved by project and as applicable.

**Unacceptable expenses:**

- tuition or course fees
- capital equipment costs (e.g., computer hardware, office equipment)
- overhead costs
- university or other organization administrative or indirect fees
- co-investigators fees for services rendered.

**Your budget must be provided in a one-page outline; all items must be justified.**

Grant funds:

- must be administered by a third party (such as a university or hospital department or research institution)
- are to be used strictly as described in the grant proposal's budget page; if projects are completed under budget, all surplus grant funds must be reported and returned to the Royal College on project completion

Health Science  
Education



**Master of Science in  
Health Science Education  
Education Innovation Proposal**

**Value: \$10,000 max**

Personal information provided in your application will be used solely for the purposes of adjudication.

**Last name, First name (Principal Investigator)**

**PI's university affiliation**

**Email**

**Co-investigators (include university affiliation)**

**Area of Research – Project title**

**Duration of project (in months)**

**Proposed starting date**

**Budget Request: \$**

While full proposals will include a detailed budget & justification, please indicate here the approximate breakdown (in \$) of your budget request:

<b>(Temporary) technical or administrative support</b>	
<b>Supplies and materials</b>	
<b>Data management, transcription</b>	
<b>Research incentives</b>	



<b>Hardware essential to conducting research (beyond what an institution typically provides)</b>	
<b>Communication costs</b>	
<b>Other</b>	
<b>Total</b>	

### **Pre-proposal Instructions**

- Describe your proposed research using the headings below. Additional information has been included in parenthesis under each heading; please delete this information before submitting your pre-proposal.
- Pre-proposals should be no more than three (3) single-spaced pages in 12-point font and 1-inch margins (not including the Cover Sheet and Title Pages above or the References section below).
- To submit your pre-proposal, please email it as a single PDF attachment to [hshed@mcmaster.ca](mailto:hshed@mcmaster.ca) by the deadline of that year. Subject Line: **“Education Innovation Grant – [YOUR LAST NAME]”**

### **Rationale of the study and review of the pertinent literature**

(Describe state of the field; statement of the problem. Why should this research be done? Describe conceptual framework(s) that may illuminate this research.)

### **Study objectives and research question/hypothesis**

(Describe the objectives of the study, as well as the specific research question(s) or hypothesis posed.)

### **Description of methods**

(Clearly describe the quantitative and/or qualitative research methods that are applicable to the proposal’s purpose and objectives. These may include, but are not limited to: target population, sampling strategy, data collection procedures, instrumentation, proposed analytic methods, and statistical tools used [if applicable].)

**Anticipated outcomes**

(Describe the potential impact on medical education including anticipated outcome data)

**Total funds requested and preliminary budget breakdown**

(Include the total amount requested and a brief justification of how the funds will be spent. Use the categories on the cover sheet above to organize your budget justification.)

**Qualifications of research team**

(List members of the research project team, including the PI and any co-investigators, with institutional affiliations noted. Briefly describe each member's role in the project and their relevant skills and experience. Each description should be two or three sentences in length.)

**References** (*references not included in three-page limit*)

(A maximum of 10 relevant references may be included. Be sure to reference prior work in the area of study.)

## Full Proposal Submission Guidelines

A limited number of pre-proposals will be invited for full proposals. Full proposals must be typed with 12-point font, 1-inch margins and **should not exceed five single spaced typed pages** including all tables, figures and appendices (*but excluding references*). The full proposal must include:

1. Rationale of the study and review of pertinent literature
  - Statement of the problem
  - Significance of need (*including relevance and generalizability*)
  - Conceptual framework(s) that illuminate the research question/rationale
  - Identified gaps in the literature that serve as the basis for the project
2. Study objectives and research question/hypothesis
3. Description of methods
  - Clearly identified research paradigms/constructs that apply to the research question/hypothesis
  - Research methods described (*e.g. target population/recruitment, sampling strategy, outcome measures, analytical techniques*)
  - Reference to issues of validity, reliability, and potential confounding variables
  - Power analysis and/or sample size justification (*applicable to both quantitative and qualitative research*)
  - Data analysis and statistical tests which are appropriate for the project
4. Anticipated outcomes
  - Impact on medical education
5. Plan for dissemination (*regionally and nationally*)
  - Includes a statement of intent to present work at the annual Learn Serve Lead within 3 years of the award start date
6. Project timeline (*not to exceed 24 months*)
  - Briefly describes the proposed activities and timeline
7. Budget
  - Anticipated budget including itemized costs and statement of justification for each budget line item (*see below for more details*)
8. Necessary addendums/appendices (*e.g. preliminary data, sample surveys/data collection tools*)

Additional components of the full proposal, **not** counted as part of the five-page limit, include:

1. References for sources cited in the proposal
2. Biographical sketches of PI and Co-PIs (no more than 2 pages per author – please no CVs), including relevant skills and lists of durable educational materials/publications that demonstrate knowledge/skill in the area being proposed for study
3. Letters of support for each project author from an institutional support personnel (*e.g. dean, vice chair for research, department chair*) stating their commitment to the project. Project authors may not write a letter on their own behalf (*letters should be included in the single pdf document*).
4. Human Subjects Approval. If this is a research project involving human subjects, a letter from the host Institutional Review Board (IRB) stating that the project is approved is required. IRB pre-approval is required for funds to be released to the grantees; no project work can be initiated until final IRB approval has been received.

### Review Response Template

**When responding to reviewers, it is best practice to address each comment or explain why you chose not to heed their advice. Please display your response to each of the reviewer’s comments in this table as demonstrated below and submit the completed table with your revised document files (which should have tracked changes).**

Instructions:

1. Step 1: Copy and paste verbatim each unique reviewer comment into the first column of the table. Make sure each comment is included in its own row. Please add rows to the table to accommodate reviewers comments. In the second column, respond to the reviewer comment, explaining how you decided to address the concern in your revised manuscript. In the last column, provide the approximate location (e.g. page number) where the change can be found (optional: provide paragraph and/or line numbers). *Submit a tracked changes version of your files for your final revision, alongside this document.*

Reviewers’ comment	Description of revisions	Location of revisions
Example: Please ensure that your research question, hypothesis, or purpose is clearly stated.	Example: Added purpose statement to the introduction	Example: See page 4



Milestone Student Feedback Form

Student Name

Date

Reviewer Name

Course Name & Number

Student Name

Date

Signature

Reviewer Name

Date

Signature



Statement of Teaching Philosophy

Student Name

Date

Reviewer Name

Course Name & Number

Student Name

Date

Signature

Faculty Member

Date

Signature



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		School of Nursing	
<b>NAME OF PROGRAM and PLAN</b>		Graduate Nursing Programs	
<b>DEGREE</b>	Masters of Science (all streams) and PhD		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input type="checkbox"/> No			
CREATION OF NEW MILESTONE <input checked="" type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<b>EXPLAIN:</b>	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

N/A

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

All incoming students to the Graduate Nursing Programs (Masters of Science all streams, PhD and Diplomas) will be required to complete online training related to Indigenous Health and cultural safety in the first term of their program.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

The School of Nursing believes all students should have the knowledge, skills and competencies to address Truth and Reconciliation Commission recommendations as they relate to health.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

This recommendation is part of Curriculum Renewal and approved by Curriculum Committee.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

All incoming students to the Graduate Nursing Programs (Masters of Science all streams, PhD and Diplomas) will be required to complete online training related to Indigenous Health and cultural safety in the first term of their program. Information about approved training programs will be made available to students at the time of admission.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Nancy Carter      Email: carterm      Extension: 22259      Date submitted: March 4, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca





**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		School of Nursing			
<b>NAME OF PROGRAM and PLAN</b>		Nursing Graduate Program			
<b>DEGREE</b>	Master of Science (by course work PHC NP)				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<b>CHANGE IN COURSE REQUIREMENTS</b>	x
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		x	<b>EXPLAIN:</b> Description in calendar is based on change to course requirements		
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Currently students in Master by Course Work PHC NP take 4 McMaster courses including 3 required courses and 1 elective and seven courses offered through the COUPN provincial consortium

The required McMaster courses are:

NUR 712 Evidence Based Nursing

NUR 714 Scholarly Paper

NUR 715 Introduction to Quantitative Methods

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Students in the Masters by course work PHC NP program will continue to have 4 McMaster courses, including 1 elective and seven courses offered through the COUPN provincial consortium. We will change the required courses for students in the program. Required courses will now be:

NUR 712 Evidence Based Nursing

NUR 707 Foundations of Nursing Leadership

NUR 706 Achieving Quality Patient Care through Applied Research and Evaluation

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

These changes are based on recommendations from our Curriculum Review Process. Over the past two years we have reviewed the literature, surveyed our students, faculty, alumni and stakeholder, held a think take with community partners, and reviewed the current curriculum. Students who graduate from the Masters by coursework PHC NP often move into careers centred on clinical practice in the community and health care organizations and also take on leadership, education or policy roles.

One of the key gaps in our curriculum is content related to leadership in nursing and healthcare, so NUR 707 becomes a required course. This course will include a scholarly paper.

Feedback about NUR 714 Scholarly Paper has suggested there is content in the course other than support to write the scholarly paper. This course will be removed from requirements.

We have also identified that the need for curricular content for these students related to applied evaluation and research methods – NUR 706 is a more relevant course for student as opposed to NUR 715 Quantitative Methods which is geared towards students doing thesis research.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020 Admission

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

These changes are supported by our Curriculum Committee (which includes student representatives), graduate faculty, and our Community Advisory group.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

M.Sc. Course/Primary Health Care Nurse Practitioner

For those wishing to obtain a Primary Health Care Nurse Practitioner certificate and a course-based M.Sc. degree, admission requirements are the same as for other course-based M.Sc. students with the additional requirement of two years' full-time nursing practice within the past five years. Students complete three core courses, one elective (level 600 or above), and complete the seven courses offered through the NP Consortium. Since the seven PHCNP courses are offered every year, they can be completed in 12 months of full-time study. The program typically requires 2 years to complete. Once the PHCNP courses have been completed successfully, students are eligible to write their RN (Extended Class) exams.

Course Requirements

~~NURSING 715 / Introduction to Quantitative Research Methods in Health Research~~

NURSING 712 / Evidence-Based Health Care

[NURSING 706/ Achieving Quality Patient Care through Applied Research and Evaluation](#)

[NUR 707 /Foundations of Nursing Leadership](#)

~~NURSING 714 / Scholarly Paper~~

NURSING 761 / Pathophysiology for NPs

NURSING 762 / Advanced Health Assessment and Diagnosis I

NURSING 763 / Advanced Health Assessment and Diagnosis II

NURSING 764 / Therapeutics in Primary Health Care I

NURSING 765 / Therapeutics in Primary Health Care II

NURSING 766 / Roles and Responsibilities

NURSING 767 / Integrative Practicum

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Nancy Carter      Email: carternm@mcmaster.ca      Extension: 22259 Date submitted: March 4 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
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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</b>		School of Nursing			
<b>NAME OF PROGRAM and PLAN</b>		Nursing Graduate Program			
<b>DEGREE</b>	Master of Science (by course work)				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>	<b>CHANGE IN COURSE REQUIREMENTS</b>	<input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Description in calendar is based on change to course requirements			
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Currently students in Master by Course Work take 8 courses, 4 required and 4 electives

The required courses are

NUR 701 Theoretical Basis of Nursing Practice

NUR 714 Scholarly Paper

NUR 715 Introduction to Quantitative Methods

NUR 711 Advanced Practicum in Nursing

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Students will continue to have 8 courses, including 4 electives. We will change the required courses for students in the program. Required courses will now be:

NUR 701 Theoretical Basis of Nursing Practice

NUR 707 Foundations of Nursing Leadership

NUR 706 Achieving Quality Patient Care through Applied Research and Evaluation

NUR 711 Advanced Practicum in Nursing

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

These changes are based on recommendations from our Curriculum Review Process. Over the past two years we have reviewed the literature, surveyed our students, faculty, alumni and stakeholder, held a think take with community partners, and reviewed the current curriculum. Students who graduate from the Masters by coursework often want careers in health care organizations in leadership, education or policy roles.

One of the key gaps in our curriculum is content related to leadership in nursing and healthcare, so NUR 707 becomes a required course. This course will include a scholarly paper.

Feedback about NUR 714 Scholarly Paper has suggested there is content in the course other than support to write the scholarly paper. This course will be removed from requirements.

We have also identified that the need for curricular content for these students related to applied evaluation and research methods – NUR 706 is a more relevant course for student as opposed to NUR 715 Quantitative Methods which is geared towards students doing thesis research.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020 Admission

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

These changes are supported by our Curriculum Committee (which includes student representatives), graduate faculty, and our Community Advisory group.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

M.Sc. by Course Work

Program Requirements

A course-based M.Sc. degree option in Nursing is offered on a full-time or part-time basis. The admission requirements are the same as for the M.Sc. thesis option 1-4 (see above). Each student will have a Faculty Advisor assigned by the Assistant Dean. Each student will be required to complete a minimum of eight graduate half courses which must include the four required courses below. The remaining courses will be chosen by the student with the approval of his/her faculty advisor. With the permission of the course instructor and faculty advisor, a student's minimum course requirements may include up to two 600-level graduate half courses.

NURSING 701 / Theoretical Basis of Nursing Practice

[NURSING 706/ Achieving Quality Patient Care through Applied Research and Evaluation](#)

[NUR 707 Foundations of Nursing Leadership](#)

~~[NURSING 715 / Introduction to Quantitative Research Methods in Health Research](#)~~

NURSING 711 / Advanced Practicum in Nursing

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Nancy Carter      Email: [carternm@mcmaster.ca](mailto:carternm@mcmaster.ca)      Extension: 22259      Date submitted: March 4 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013





**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		School of Nursing			
<b>NAME OF PROGRAM and PLAN</b>		Nursing Graduate Program			
<b>DEGREE</b>	Master of Science (by thesis)				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<b>CHANGE IN COURSE REQUIREMENTS</b>	x
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		x	<b>EXPLAIN:</b> Description in calendar is based on change to course requirements		
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				



**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Currently students in Master by Thesis take 5 graduate half courses and do a thesis. The required McMaster courses are:

NURSING 701 / Theoretical Basis of Nursing Practice

NURSING 745 / Qualitative Research Methods

NURSING 715 / Introduction to Quantitative Research Methods in Health Research

NURSING 709 / Statistical Methods in Health Sciences Research

OR

HTH RS M 701 or HTH RS M 702

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Requirements

Candidates may be full-time or part-time and must:

Complete, with at least a B- standing, a minimum of **six** graduate half courses which must include the courses below as well as one additional half course selected by the student in conjunction with his/her supervisory committee which may be at the 600 level.

Complete a thesis on an approved health care issue and defend the thesis at a final oral examination.

NURSING 701 / Theoretical Basis of Nursing Practice

NUR 707 /Foundations of Nursing Leadership

NURSING 745 / Qualitative Research Methods

NURSING 715 / Introduction to Quantitative Research Methods in Health Research

NURSING 709 / Statistical Methods in Health Sciences Research

OR

HTH RS M 701 or HTH RS M 702

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

These changes are based on recommendations from our Curriculum Review Process. Over the past two years we have reviewed the literature, surveyed our students, faculty, alumni and stakeholder, held a think take with community partners, and reviewed the current curriculum. Students who graduate from the Masters by Thesis often move into careers in health care organizations and also take on leadership, education or policy roles or they continue to do research in organizations or move on to doctoral work.

One of the key gaps in our curriculum is content related to leadership in nursing and healthcare, so NUR 707 becomes a required course.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020 Admission

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

These changes are supported by our Curriculum Committee (which includes student representatives), graduate faculty, and our Community Advisory group.

We have reviewed curriculum at a number of other university nursing programs in Ontario and the change from 5-6 required courses is in line with what most other programs require.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Requirements

Candidates may be full-time or part-time and must:

Complete, with at least a B- standing, a minimum of ~~five~~-six graduate half courses which must include the courses below as well as one additional half course selected by the student in conjunction with his/her supervisory committee which may be at the 600 level.

Complete a thesis on an approved health care issue and defend the thesis at a final oral examination.

NURSING 701 / Theoretical Basis of Nursing Practice

[NUR 707 /Foundations of Nursing Leadership](#)

NURSING 745 / Qualitative Research Methods

NURSING 715 / Introduction to Quantitative Research Methods in Health Research

NURSING 709 / Statistical Methods in Health Sciences Research

OR

HTH RS M 701 or HTH RS M 702

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Nancy Carter      Email: carternm@mcmaster.ca      Extension: 22259 Date submitted: March 4 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

SGS/2013



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		School of Nursing			
<b>NAME OF PROGRAM and PLAN</b>		Nursing Graduate Program			
<b>DEGREE</b>	PhD				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<b>CHANGE IN COURSE REQUIREMENTS</b>	x
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		x	<b>EXPLAIN:</b> Description in calendar is based on change to course requirements		
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Currently students in PhD Program take 3 courses including one required course, take a graduate seminar milestone, pass a comprehensive exams and a thesis.

The required course is

NUR 700 Philosophical Basis of Nursing Research

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Students in PhD Program will take 4 courses including 2 required courses, take a graduate seminar milestone, pass a comprehensive exams and a thesis.

The required courses are

NUR 700 Philosophical Basis of Nursing Research

NUR 707 Foundations of Leadership in Nursing

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

These changes are based on recommendations from our Curriculum Review Process. Over the past two years we have reviewed the literature, surveyed our students, faculty, alumni and stakeholder, held a think take with community partners, and reviewed the current curriculum. Students who graduate with the PhD become leaders in research, academia, health care organizations and the government.

One of the key gaps in our curriculum is content related to leadership in nursing and healthcare, so NUR 707 becomes a required course.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020 Admission

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

These changes are supported by our Curriculum Committee (which includes student representatives), graduate faculty, and our Community Advisory group.

We have reviewed program requirements in other PhD nursing programs in Canada, and the increase in required courses is in line with other programs.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Obtain at least B- standing in a minimum of ~~four~~ ~~three~~ half courses beyond those required for the M.Sc. degree, ~~one including of which must be~~ including NURSING 700 and ~~NUR 707~~. NURSING 701 must also be taken as one of the three required courses for the degree, if an equivalent course was not previously taken at the Master's level.

In addition to the above minimum course requirements for the Ph.D., candidates must successfully complete an approved research methods half course, and one ~~HRM~~ statistics half course, if equivalent courses were not previously taken at the Master's level.

Pass a Comprehensive Examination before the 24th month following the start of their doctoral studies for full-time students and 36th month for students in the part-time program.

Submit a thesis on an approved topic and defend the thesis at a final oral examination.

Students entering the Ph.D. program after transferring from the McMaster M.Sc. Program in Nursing must obtain at least B- standing in a minimum of ~~three~~ ~~four~~ half courses beyond those required for the M.Sc. degree, one of which must be NURSING 700. For students who have completed this course at the master's level, another course must be selected by the student and the supervisory committee. Items 3 and 4 of the above listed Ph.D. requirements must also be completed.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Nancy Carter      Email: carternm@mcmaster.ca      Extension: 22259 Date submitted: March 4 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, cbryce@mcmaster.ca

SGS/2013



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		School of Rehabilitation Science	
<b>NAME OF PROGRAM and PLAN</b>		Occupational Therapy Program	
<b>DEGREE</b>	MSc (OT)		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Changes to graduate calendar to refer to the program requirements for students enrolled in the Dual OT/PhD program.  There is an updated police check policy in the FHS – and as such the wording in the graduate calendar will need to be updated	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

The Graduate Calendar currently has the following paragraph under Program Requirements, where it states that all courses are required *except* for the remediation courses. :

The Master of Science in Occupational Therapy is a full time course-based accredited professional Master's program. It prepares students with knowledge, skills, and professional behaviours to practice as entry level occupational therapists. The program utilizes a problem-based self-directed learning philosophy. Students will complete course work, clinical practica, and an independent evidence-based practice project during their two extended study years. All courses are required with the exception of OT 798 and 799 which are elective courses offered to students who have failed a required course and are eligible for remediation.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

In Sept. 2018, the first student was enrolled in the OT/PhD Dual program; that student is expected to enter the OT program in September 2020. In the Dual Program, students are to be exempted from OT program evidence-based practice course requirements; this is because they will have already fulfilled course requirements in research methods, analysis and design through doctoral courses.

The following paragraph is the wording provided in the graduate calendar for the Rehabilitation Science – Dual Program Option (with highlights of the relevant sentence):

Students in the dual degree option must successfully undertake complete the requirements for either the Masters of Science (Occupational Therapy) or the Masters of Science (Physiotherapy) outlined in the School of Graduate Studies Calendar. They will complete both the academic and the clinical education courses in both the Occupational Therapy Program OR the Physiotherapy Program. **Students who enter this dual degree option will be exempt the course requirements for evidence based practice in both the OT and PT programs.** The activities of the evidence based practice course will be replaced by coursework in research methods and analyses in the first two years followed by independent data collections and analyses during the doctoral program. This will allow students to continue with their thesis work during their professional program.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

We are proposing wording in the OT Program Requirements section, that will refer readers to the dual option course requirements to that section of the handbook. This mirrors the approach used for the students enrolled in the PT/PhD option.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (proposed new content is highlighted)**

The Master of Science in Occupational Therapy is a full time course-based accredited professional Master's program. It prepares students with knowledge, skills, and professional behaviours to practice as entry level occupational therapists. The program utilizes a problem-based self-directed learning philosophy. Students will complete course work, clinical practica, and an independent evidence-based practice project during their two



extended study years. All courses are required\* with the exception of OT 798 and 799 which are elective courses offered to students who have failed a required course and are eligible for remediation.

**\*NOTE: The MSc(OT) Program offers a dual degree option in collaboration with Rehabilitation Sciences. For program fulfillment requirements for students enrolled in the dual degree option please see the Dual Degree section of the Graduate Calendar (insert link here)**

Police Check:

~~An offer of admission is contingent upon a “clear” approved police check or approval by the Assistant Dean. This condition of admission follows the Police Records Check Policy—Faculty of Health Sciences, that was approved in November 2013. Click here for the full policy.~~

Vulnerable Sector Checks are required as a condition of continued registration with a FHS Health Professional Program. An original Vulnerable Sector Check must be submitted on an annual basis and meet the directives of the current FHS Police Records Check Policy approved June 26, 2019. Click here for the full policy.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Lori Letts

Email: [lettsl@mcmaster.ca](mailto:lettsl@mcmaster.ca)

Extension: 27816 Date submitted: Feb 19, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	School of Rehabilitation Science		
<b>NAME OF PROGRAM and PLAN</b>	Physiotherapy		
<b>DEGREE</b>	Master of Science (Physiotherapy)		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<b>X</b>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<b>X</b>	<b>EXPLAIN:</b> 1) If approved, the requested change in admission requirements will impact a section of the calendar. 2) There is an updated police check policy in the FHS – and as such the wording in the graduate calendar will need to be updated 3) The applicant fee for 2021 will be increased and the calendar needs to reflect this change	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

- 1) Admission Requirement: Currently applicants to the MSc(PT) program are required to have one 3 unit (1/2 year) humanities course.
- 2) Vulnerable Sector Screen (VSS): Offer of admission to the MSc(PT) Program is contingent upon a “clear” approved Police Records Check Vulnerable Sector Screen or approval by the Assistant Dean
- 3) Applicant fee: Currently applicants to the PT Program pay a \$40.00 fee to participate in an online interview

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

- 1) Admission Requirement: The pre-requisite will be adjusted such that students are required to have one 3 unit (1/2 year) humanities OR social science course. However, the courses accepted as a social science or humanities course will only be subject areas identified by either of these two faculties at McMaster (see attached). Students can take an elective from their host university – but can only submit the grade to fulfill this requirement if the subject areas are recognized by the respective Faculties at McMaster.
- 2) VSS Requirement: Currently the language in the Graduate Calendar reflects the Police Records Check Policy that was approved in Nov 2013. However, a new Policy was approved in 2019. The recommended change in language (see attached sheet) was provided by the Professionalism Office
- 3) Applicant fee: The contractual costs of KIRA will be increased in the 2020-2021 applicant cycle; the fee increase from \$40.00 to \$50.00 will address these costs

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department’s program and/or tie to existing Program Learning Outcomes from the program’s IQAP cyclical review?):**

- 1) Admission Requirement: The variation of what is considered a course in a faculty / department of humanities or social sciences across Universities is great, making it difficult for applicants and admissions staff to ensure they have met this pre-requisite course.
- 2) VSS Requirement: A new FHS Police Records Check policy was approved in 2019, and the language in the calendar needs to be amended to reflect this change
- 3) Applicant fee: The contractual fees associated with the use of the KIRA software will increase in the 2020-2021 application cycle; this increase is to assist with covering these costs.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

- 1) Admission Requirements: Effective as of July 1, 2020 for applicants who are seeking admissions in the Fall of 2021
- 2) VSS Requirement: Effective as of July 1, 2020 for all students enrolled in or seeking admission to the MSc(PT) Program
- 3) Applicant fee: Effective July 1, 2020 for all applicants who are seeking admissions in the Fall of 2021

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

no

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

See attached

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Sarah Wojkowski Email: [wojkows@mcmaster.ca](mailto:wojkows@mcmaster.ca) Extension: 27814

Date submitted: January 31, 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013

**M.Sc. Physiotherapy Admissions Requirements  
Humanities and Social Science Credit**

**Humanities Courses Include:**

- Art History
- Classics
- Communication Studies
- English
- French
- History
- Linguistics
- Multimedia
- Music
- Peace Studies
- Philosophy
- Studio Art
- Theatre & Film Studies
- Women's Studies

**Social Science Courses Include:**

- Anthropology
- Economics
- Geography
- Health, Aging and Society
- Indigenous Studies
- Labour Studies
- Political Science
- Psychology
- Religious Studies
- Social Psychology
- Social Work
- Sociology

## Requested Graduate Calendar Changes

### Admission Requirements

#### ~~1) Admission Requirement Change – Information for the Graduate Calendar:~~

To be eligible for admission to the M.Sc. (PT) Program, applicants will have completed a four-year baccalaureate degree or the equivalent number of courses (120 units/credits), and will have achieved a minimum grade-point average of “B+” or 77% or 3.0/4.0 or 8.0/12.0 in their final 60 units of credit. Post-graduate coursework is also considered in this GPA calculation. Applicants may apply during the fourth year of their degree. In this case, the pre-admission GPA for eligibility purposes is calculated using the most recent 60 units of credit towards their degree. If an applicant in this category is subsequently offered admission to the program, the offer is “conditional” upon successful completion of their four-year degree by June 30 in that year, and maintenance of a B+ average in their final 60 units of credit.

Additional requirements include:

A minimum of one (1) human anatomy course, at any level, with a grade of at least B+ (77%) or higher

A minimum of one (1) human physiology course, at any level, with a grade of at least B+ (77%) or higher

A minimum of one (1) statistics course, at any level, with a grade of at least B+ (77%) or higher

A minimum of one (1) humanities course or social science course\*, at any level, with a grade of at least B+ (77%) or higher

~~±~~ \*Note only subject areas identified by McMaster University’s Faculties of Humanities or Social Sciences will be accepted.

Please see Program website for more details regarding prerequisites.

~~Vulnerable Sector Checks are required as a condition of continued registration with a FHS Health Professional Program. An original Vulnerable Sector Check must be submitted on an annual basis and meet the directives of the current FHS Police Records Check Policy approved June 26, 2019. Click here for the full policy.~~

~~An offer of admission is contingent upon a “clear” approved Police Records Check Vulnerable Sector Screen or approval by the Assistant Dean. This condition of admission follows the Police Records Check Policy – Faculty of Health Sciences that was approved in November 2013. Click here for the full policie~~

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## Application Procedure

Applicants are required to apply *via* the ORPAS on-line application service located at the Ontario Rehabilitation Sciences Programs Application Service (ORPAS), Guelph, Ontario website: <http://www.ouac.on.ca/orpas/>.

### **Applicant On-line Video Interview**

All applicants who meet the required GPA admission requirements and pre-requisite courses will be invited to participate in an on-line, video-based interview comprised of a series of 'mini interview' questions. Once applicants have submitted their online application and paid the \$540 video interview fee, the Program will notify applicants of the link to the video interview questions, instructions on how to complete the interview and the due date for completion of this component of the application. Please refer to the Program website for more details. Applicants will require an internet connection, a computer/laptop/phone with a functioning webcam and microphone to complete the on-line, video-based interview.

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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</b>	Health Research Methods, Evidence and Impact		
<b>NAME OF PROGRAM and PLAN</b>	Master of Public Health Program, thesis and professional plans		
<b>DEGREE</b>	Master of Public health		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input checked="" type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input type="checkbox"/>	<b>EXPLAIN:</b>	
<b>OTHER CHANGES</b>	<input type="checkbox"/>	<b>EXPLAIN:</b>	



**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Thesis and professional students are currently required to complete 7 core courses:

PUBHLTH 700, Foundations of Population and Public Health Practice

PUBHLTH 701, Population and Public Health Epidemiology

PUBHLTH 702, Introduction to Biostatistics

PUBHLTH 703, Population and Public Health Epidemiology

PUBHLTH 704, Population and Public Health Research Methods

PUBHLTH 705, Master of Public Health Seminar Series Year One

PUBHLTH 708, Master of Public Health Series Year Two

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

The Master of Public Health Seminar Series (PUBHLTH 705 & 708) will be cancelled. PUBHLTH 705 will be replaced with a professional development fall-winter course series. The first course, titled "Public Health and Professional Development I" will be 1.5 credit and offered in the fall term. The second course, titled "Public Health and Professional Development II" will also be 1.5 credits but offered in the winter term. PUBHLTH 708 will remain a 3-credit course but will be renamed "Leadership and Applied Public Health."

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

The MPH program is a relatively new program and has not gone through an IQAP review but feedback from students and instructors reveal that Seminar Series PUBHLTH 705 & 708 overlaps with PUBHLT 700 and that a more flexible learning experience is needed to better support students as they enter and progress through the MPH program.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

Fall 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

All MPH students complete ~~eight~~seven mandatory courses, which are scheduled as follows:

First Year Fall Term:

- PUBHLTH 700 / Foundations of Population and Public Health Practice
- PUBHLTH 701 / Population and Public Health Epidemiology
- HTH RS M 702 / Introduction to Biostatistics
- ~~PUBHLTH Public Health Professional Development Studio I, 705 / Master of Public Health Seminar Series Year One~~

First Year Winter Term:

- PUBHLTH 704 / Population and Public Health Research Methods
- PUBHLTH 703 / Population and Public Health Policy
- ~~PUBHLTH Public Health Professional Development Studio II~~
  - Electives (2) required for practicum only, optional for thesis

First Year Summer Term:

- Practicum or Thesis

Second Year Fall Term

- ~~PUBHLTH Leadership & Applied Public Health, 708 / Master of Public Health Seminar Series Year Two~~
- Electives (3 for practicum students or 1 plus a part-time practicum)
- Thesis and Capstone

**Thesis**

Thesis students are not required to complete electives however they can take electives at their own discretion to complement their thesis studies.

**Practicum**

Practicum students are required to complete five (5) electives or three (3) electives plus one (1) part-time practicum (17.5 hours per week for 16 weeks) in addition to the one (1) full-time (35 hours per week for 16 weeks) practicum they complete.

MPH students are required to achieve at least B- standing in all mandatory and elective courses and pass the practicum or thesis to complete the MPH degree.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Emma Apatu Email: apatue@mcmaster.ca Extension: Date submitted: March 16, 2020

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If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013

To : Graduate Council

From : Christina Bryce  
Assistant Graduate Secretary

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At its meetings on November 15<sup>th</sup> and January 30<sup>th</sup> the Faculty of Humanities Graduate Curriculum and Policy Committee approved the following recommendations.

Please note that these recommendations were approved by the Faculty of Humanities.

**For Approval of Graduate Council:**

- a. **Classics**
  - i. **Change to Course Requirements (Ph.D.)**
  - ii. **Dual Degree Option (Ph.D.)**
  
- b. **Cognitive Science of Language**
  - i. **Change to Program Requirements (Ph.D.)**

**For Information of Graduate Council:**

- c. **Classics**
  - i. **New Courses**
    - 701 Latin Reading List
    - 702 Greek Reading List
  
- d. **Communication and New Media**
  - i. Course Cancellations
  
- e. **English and Cultural Studies**
  - i. **New Courses**
    - 743 Reimagining Nature: Science and Empire in the Long Eighteenth Century
    - 746 American Counterculture Literature, 1950-1990: Beat, Hippie, Punk
    - 748 Last Things: Life and Death in the Anthropocenes
  
  - ii. **Course Cancellations**
    - 705 Music, Gender and Sexuality
    - 722 Activist Bodies in the Public Sphere
    - 741 The Sexuality of Genre
    - 789 Studies in Asian North American Literature, Culture and Identity

- f. **Gender Studies and Feminist Research**
  - i. **New Cross-listed Course**
    - 6QA3 Queerness in the Archives: Lesbian and Gay Writing, Art and Activism in Canada, 1969-1989
- g. **History**
  - i. **Change to Course Title**
    - 766 Imperialism and History



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		Classics			
<b>NAME OF PROGRAM and PLAN</b>		Classics			
<b>DEGREE</b>	PhD				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> XNo					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>	<b>CHANGE IN COURSE REQUIREMENTS</b>	<input checked="" type="checkbox"/> X
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<input checked="" type="checkbox"/> X	<b>EXPLAIN:</b> We request a change in the wording of the calendar section on PhD requirements to reflect the compulsory nature of the new courses, Classics 701 and 702.		
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Requirements of the PhD are six appropriate graduate half courses.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Requirements of the PhD are six graduate half courses, which must include Classics 701 and 702.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Our 2 new courses, Classics 701 and Classics 702, are designed to prepare the students for successful and expeditious completion of their Greek and Latin Comprehensive Exams, and we are therefore requiring all level 1 PhD students to enrol in both courses.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

**Requirements for the Ph.D. degree are:**

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1. Six appropriate graduate half courses, two of which must be Classics 701 and Classics 702. These are the minimum requirements; candidates may be requested by their supervisor to take additional courses;
2. One comprehensive examination in each of Greek and Latin translation;
3. A language examination to demonstrate reading knowledge of two of the following languages: German, French, Italian; exemption from these tests may be granted to candidates who have completed equivalent tests at this or other universities;

4. Two comprehensive examinations, covering special areas of Greek and Latin literature or Ancient History or Classical Art and Archaeology; these are to be assigned by the supervisory committee in preparation for the thesis;
  5. A thesis proposal approved by the Department with an oral defense;
  6. Any other requirement established by the Department on admission;
  7. A satisfactory thesis on an approved topic;
  8. An oral examination to defend the thesis.
- 

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Kathryn Mattison Email: [mattisk@mcmaster.ca](mailto:mattisk@mcmaster.ca) Extension: 24577 Date submitted: November 1, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

SGS/2013





**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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<b>DEPARTMENT</b>	Classics		
<b>NAME OF PROGRAM and PLAN</b>	Dual Ph.D. Degree stream between McMaster University and The University of Rome "La Sapienza"		
<b>DEGREE</b>	Ph.D.		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	X	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<b>CHANGE IN COURSE REQUIREMENTS</b>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	X	<b>EXPLAIN:</b> Admission: students must be accepted by both universities in order to matriculate in the program	
<b>OTHER CHANGES</b>	X	<b>EXPLAIN:</b> (under "Supervisory Committees" section of description) Students will have two co-supervisors, one from each institution.	

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Applicants for the Ph.D. Program in Classics may be admitted if they are graduates with either a grade of at least A- in at least two half courses or distinction in an approved thesis of an M.A. Program in Classics or Classical Studies (with sufficient Greek and Latin), taken at this University or of equivalent programs taken at other universities. Graduates of other programs may be admitted in exceptional cases. Applicants without sufficient preparation may be admitted with the requirement that they complete extra prerequisite courses.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

This proposal creates a PhD stream within the Department of Classics at McMaster University in which students will undertake a dual degree with the Department of Classics at the University of Rome, "La Sapienza." The full requirements for the Ph.D. at McMaster are included below in the section relevant to the course catalogue. The requirements for the Ph.D. in the Dept. of Classics at The University of Rome, "La Sapienza" are:

Positive assessment from supervisory committee on an annual basis;  
Dissertation on an original research topic;  
Thesis defence before the supervisory committee;

All three of these criteria correspond to requirements at McMaster University and do not require deviations from current McMaster practices. As the requirements for the Ph.D. in Classics at the University of Rome do not deviate from those of the Ph.D. in Classics at McMaster, there is no double counting of courses, exams, or other milestones. The Ph.D. in Classics at the University of Rome does not require any additional material in place of an original requirement.

Students in the dual degree stream will fulfill all requirements of the Ph.D. in the Department of Classics at McMaster University and adhere to McMaster policies regarding courses, comprehensive exams, and milestones (including regulations in the event that a student is unsuccessful in any of these components).

The dual degree Ph.D. stream is open to students working in any of the research areas supported by both Departments (philology, history, archaeology). Student applying from each institution will indicate their intent to be considered for the dual degree stream when applying for the Ph.D. The expected time for completion is four years, two of which will normally be spent at each institution.

Proposed addition to calendar text:

Applicants may opt to be considered for the dual Ph.D. Degree stream with the University of Rome “La Sapienza” as part of their application to the Department of Classics at McMaster University. Applicants must be accepted by both universities for admission to the dual Ph.D. stream.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department’s program and/or tie to existing Program Learning Outcomes from the program’s IQAP cyclical review?):**

This new program enriches McMaster’s graduate offerings and provides the opportunity for students to work with faculty at and to utilize resources of the University of Rome, “La Sapienza.”

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)** Sept. 2021

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

Students enrolled in the dual degree stream should expect to spend two years at each institution. Student will have two co-supervisors, one from each institution. Ph.D. Coursework and qualifying exams are completed at McMaster and are recognized at La Sapienza. Upon successful completion, students will receive the PhD degree from both universities. Students will pay tuition to their home institution, which is defined as the institution to which their application is made.

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

## Admission Requirements for the PhD program

Applicants for the PhD. Program in Classics may be admitted if they are graduates with either a grade of at least A- in at least two half courses and distinction in an approved thesis (or project) of an M.A. program in Classics or Classical Studies (with sufficient Greek and Latin), taken at this university or of equivalent programs taken at other universities. Graduates of other programs may be admitted in exceptional cases. Applicants without sufficient preparation may be admitted with the requirement that they complete extra prerequisite courses.

**Dual PhD Degree stream with University of Rome, La Sapienza**

Students enrolled in the Dual Degree stream will spend time at both McMaster and La Sapienza. PhD Coursework and qualifying exams are completed at McMaster and are recognized at La Sapienza. Students should expect to spend at least two years in Rome. Student will have two co-supervisors, one from each institution. Upon successful completion, students will receive the PhD degree from both universities.

## Admission Requirements for the Dual PhD Degree stream

Applicants may opt to be considered for the Dual PhD Degree stream as part of their application to the Department of Classics at McMaster University. Applicants for the PhD. Program in Classics may be admitted if they are graduates with either a grade of at least A- in at least two half courses and distinction in an approved thesis (or project) of an M.A. program in Classics or Classical Studies (with sufficient Greek and Latin), taken at this university or of equivalent programs taken at other universities. Graduates of other programs may be admitted in exceptional cases.

## Program Requirements

A grade of at least B- is required in all courses and Special Area examinations.

1. Six appropriate graduate half courses, two of which must be Classics 701 and Classics 702. These are the minimum requirements; candidates may be requested by their supervisor to take additional courses;
2. One comprehensive examination in each of Greek and Latin translation;
3. A language examination to demonstrate reading knowledge of two of the following languages: German, French, Italian; exemption from these tests may be granted to candidates who have completed equivalent tests at this or other universities;
4. Two comprehensive examinations, covering special areas of Greek and Latin literature or Ancient History or Classical Art and Archaeology; these are to be assigned by the supervisory committee in preparation for the thesis;
5. A thesis proposal approved by the Department with an oral defense;
6. Any other requirement established by the Department on admission;
7. A satisfactory thesis on an approved topic;
8. An oral examination to defend the thesis.

## Supervisory Committees

All incoming PhD students will be assigned a supervisor upon admission, and no student shall be admitted without a specific supervisor. New PhD students will meet with their supervisor immediately upon arrival on campus and begin discussion of the thesis topic, composition of thesis committee, and topics of comprehensive exams, including contents of Greek and Latin reading lists (see below). All thesis committees will be set by the end of Sept. of year 1 of program (i.e., within one month of arrival on campus). **Students in the dual degree stream with La Sapienza will have two co-supervisors, one from each institution.** When necessary, committee members

external to McMaster may be invited to join a committee, and must be given permission to do so by the Dean of Graduate Studies. The student and supervisory committee decide upon the appropriate special subject areas for the comprehensive examinations, and establish a timetable for the completion of all comprehensive exams. Progress reports are made at committee meetings which are held and formally reported twice a year (April and November). Additional meetings may be called by the supervisor or student as necessary.

## Comprehensive Examinations

Students must write two examinations in two special subjects related to their areas of specialization, one in the subject area of the student's thesis, and one in a subject that provides breadth, allowing some focus on the thesis but also including coverage of less closely related material. The subject matter is discussed and agreed up by the supervisory committee and the student, and a reading lists for all are drawn up. The exams are three hours in length and are to be completed 18 months after the student enters the program. An oral exam might be required if performance on the written exam is inferior, in order to allow the student another opportunity to answer the questions. A minimum grade of B- must be obtained in order to pass. A "Pass with distinction" is awarded when the student achieves a grade of A or A+.

## For the Greek and Latin exams

The aim of the comprehensive exams is to ensure that each student has reached an established level of familiarity with Greek and Latin texts. In September, new incoming PhD students and their supervisors construct a reading list that is tailored to their interests and to gaps in their knowledge. The minimum number of 500 Oxford Classical Text pages is required for each of Greek and Latin for philology and ancient history students (i.e., 1000 pages total), and 400 pages for each of Greek and Latin for archaeology students (800 pages total). Up to 20% of the list may consist of material already read by the student. The list will include a mix of poetry and prose and must be approved by the student's thesis committee. Students may bring a dictionary and grammar book into the language exams. For each language comprehensive the student will choose 3 passages (out of 5) of 20-30 lines in length for translation; in addition, there will be 1 'sight unseen' passage taken from an author on the core list. All 4 passages shall be equal in value. The language exams will be set by a faculty member other than the supervisor, and there will be an appropriate second reader for each exam.

## PhD thesis proposal and thesis

By April of year 1, student and supervisor should be prepared to present to the rest of the thesis committee for discussion and approval:

- i. the proposed thesis topic, with 2-3 page summary and initial bibliography;
- ii. the topics and bibliographies for the two area comprehensive exams;
- iii. reading lists for the Greek and Latin language exams;

- iv. a timetable for completion of all comprehensives, which must be completed by December of that calendar year.

By February of year 2, the student must submit to the department a formal thesis proposal of 15-20 pages of text (including chapter outlines), with additional bibliography. The proposal must be defended orally before the supervisory committee immediately following its submission. The proposal must outline the issues or body of material to be addressed and the primary methodologies that the student intends to adopt. The proposal is not meant to present conclusions; rather, it should demonstrate a sufficient familiarity with the subject matter and its scholarly bibliography to instil confidence that the student is ready to pursue further investigation equipped with clear goals and intentions. The oral defence of the proposal should demonstrate substantial knowledge of the subject and its related issues, some discussion of anticipated problems and potential solutions, and an ability to think and speak about the topic thoughtfully and spontaneously. A completed thesis must constitute original research and make a contribution to learning in the chosen field.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Spencer Pope      Email: [spope@mcmaster.ca](mailto:spope@mcmaster.ca)      Extension: 23378      Date submitted: 23 Jan. 2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

<b><u>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</u></b>			
<p>1. This form must be completed for <b><u>ALL</u></b> changes involving degree program requirements/procedures. <b><u>All</u></b> sections of this form <b><u>must</u></b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b><u>not</u></b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b><u>required to attend</u></b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>		Linguistics and Languages	
<b>NAME OF PROGRAM and PLAN</b>		Cognitive Science of Language	
<b>DEGREE</b>	PhD		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> We are adding a requirement similar to the Language Requirement that we already have. This is in response to IQAP follow-up feedback on the need for proof of quantitative skills or completed make-up studies in research methods and statistics to show up on the student transcript.	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Presently, students often need to take, or sit in on, additional quantitative research methods courses to be able to design their empirical research and data analysis. Proof of this extra work, or existing skills, is not visible on the student transcript.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

**Proposed calendar text:**

**Quantitative Methods Requirement**

To ensure a solid command of quantitative research methods, the Department of Linguistics and Languages has a quantitative methods requirement for the PhD degree in Cognitive Science of Language. This requirement is evaluated as Pass/Fail, and can be fulfilled by providing evidence of knowledge equivalent to the content of two undergraduate-level courses (or one graduate-level course) in quantitative research methods and/or statistics, or by taking an examination administered by the department. Students should complete this program requirement within the first 24 months of their studies.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

This is proposed in partial response to a request by the **Quality Assurance Committee** for more detailed information with regard to the recommendation that "the department examine the need for graduate students to take make-up courses in areas where they lack sufficient background", the committee asked that the program investigate further the proposed follow-up suggested and, if possible, provide the committee with further details on how this plan could be executed.

We have responded earlier to IQAP by creating new milestones. The present addition of a quantitative requirement is the last piece of the response we have committed to.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 2020.



<b>ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.</b>
No.
<b>CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:</b>
Name: Elisabet      Email: <a href="mailto:eservic@mcmaster.ca">eservic@mcmaster.ca</a> Extension: 21352      Date submitted: Nov 1, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies, [cbryce@mcmaster.ca](mailto:cbryce@mcmaster.ca)



**School of Graduate Studies**

1280 Main Street West  
Hamilton, Ontario, Canada  
L8S 4L8

Phone 905.525.9140  
Ext. 23679  
<http://graduate.mcmaster.ca>

To : Graduate Council

From : Christina Bryce  
Assistant Graduate Secretary

---

At its meetings on February 26<sup>th</sup> the Faculty of Science Graduate Curriculum, Policy, Admissions and Study Committee approved the following recommendations.

Please note that these recommendations were approved by the Faculty of Science.

**For Approval of Graduate Council:**

- a. **Radiation Sciences**
  - i. **Change to Calendar Copy**
  
- b. **Kinesiology**
  - i. **Change to Calendar Copy**

**For Information of Graduate Council:**

- c. **Geography and Earth Sciences**
  - i. **New Course**
    - 1. 712 Reproducible Research Workflow with GitHub and R
    - 2. 771 Applied Earth Observation
  - ii. **Change to Course Title**
    - 1. 6CC3 Environmental Reconstruction Using Stable Isotopes
    - 2. 710 Data Processing Using Python
  
- d. **Physics**
  - i. **Course title changes**



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS /PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		Physics & Astronomy	
<b>NAME OF PROGRAM and PLAN</b>		Health & Radiation Physics	
<b>DEGREE</b>	MSc		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Inform potential applicants that this degree can be pursued part time	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Students have pursued this degree part time. However, there is no explicit statement to that effect in the calendar.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Insert the following statement:

This program may be pursued part time. Applicants who are interested in this option should contact the program administration at an early stage of their application.

**RATIONALE FOR THE RECOMMENDED CHANGE(How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Since it has been possible to pursue this degree part time, it may encourage some potential applicants if this is made explicit

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

With effect from September 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Insert a statement that this degree may be pursued part time. Please see attached document with tracked changes.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: David Chettle      Email: chettle@mcmaster.ca      Extension: 27340      Date submitted: 20-02-2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,  
cbryce@mcmaster.ca

SGS/2013

# Health and Radiation Physics, M

← Return to: [Faculty of Science](#)

The M.Sc. in Health and Radiation Physics is relatively course intensive and is designed to provide the education and professional development required for a career in Health Physics.

[This program may be pursued part time. Applicants who are interested in this option should contact the program administrator at the stage of their application.](#)

## M.Sc. Degree

### Admission

Normal admission requirements are a B.Sc. honours degree, at least B+ standing (or equivalent) in Physics, Engineering Physics, or Chemistry, or some course of study approved by the Radiation Sciences Graduate

### Requirements

A candidate for the M.Sc. degree must:

#### Course Requirements

Complete satisfactorily the courses:

[MED PHYS 772 / Medical Health Physics](#)

[MED PHYS 773 / Basic Clinical Radiobiology](#)

[MED PHYS 775 / Advanced Radiation Physics](#)

[MED PHYS 776 / Introduction to Operational Health Physics](#)

Additional Required Courses

Students must complete satisfactorily one additional 700-level course from the following list:

[MED PHYS 770 / Medical Imaging Systems I](#)

[MED PHYS 771 / Isotopes In-Vivo](#)

[MED PHYS 778 / Radiation Oncology Physics](#) *or*

[MED PHYS 774 / Monte Carlo simulation for Medical, Health and Radiation Physics](#)

Students who have not satisfactorily completed [MED PHYS 6R03](#) must also complete this course satisfactorily.

## Comprehensive Examination

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Pass a final comprehensive examination.

## Research Report

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Complete and defend a research report based on a project approved by the Program.

## Course Substitutions

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A student with a strong background in Health and Radiation Physics may be permitted to replace one or more courses with relevant courses approved by the Department. A student may not take more than one 600-level course to satisfy the minimum course requirements.

**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS /PROCEDURES / MILESTONES**

<b>IMPORTANT: PLEASE READ THE FOLLOWING NOTES BEFORE COMPLETING THIS FORM:</b>			
<p>1. This form must be completed for <b>ALL</b> changes involving degree program requirements/procedures. <b>All</b> sections of this form <b>must</b> be completed.</p> <p>2. An electronic version of this form (must be in MS WORD <b>not</b> PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@mcmaster.ca).</p> <p>3. A representative from the department is <b>required to attend</b> the Faculty Curriculum and Policy Committee meeting during which this recommendation for change in graduate curriculum will be discussed.</p>			
<b>DEPARTMENT</b>	Physics & Astronomy		
<b>NAME OF PROGRAM and PLAN</b>	Radiation Sciences		
<b>DEGREE</b>	MSc		
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>			
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
CREATION OF NEW MILESTONE <input type="checkbox"/>			
<b>CHANGE IN ADMISSION REQUIREMENTS</b>	<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>	<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>	<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Inform potential applicants that this degree can be pursued part time	
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>		



**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Students have pursued this degree part time. However, there is no explicit statement to that effect in the calendar.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Insert the following statement:

This program may be pursued part time. Applicants who are interested in this option should contact the program administration at an early stage of their application.

**RATIONALE FOR THE RECOMMENDED CHANGE(How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Since it has been possible to pursue this degree part time, it may encourage some potential applicants if this is made explicit

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

With effect from September 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Insert a statement that this degree may be pursued part time. Please see attached document with tracked changes.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: David Chettle      Email: chettle@mcmaster.ca      Extension: 27340      Date submitted: 20-02-2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,  
cbryce@mcmaster.ca

SGS/2013

## Requirements

[These programs may be pursued part time. Applicants who are interested in this option should contact the program administration at an early stage of their application.](#)

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### M.Sc. in Radiation Sciences (Medical Physics)

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The M.Sc. in Radiation Sciences (Medical Physics) requires that a candidate complete satisfactorily the courses below. Candidates for this M.Sc. are also required to present and defend a thesis, which shall embody the results of original research.

- [MED PHYS 6R03 / Radiation and Radioisotope Methodology](#)
- [MED PHYS 775 / Advanced Radiation Physics](#)
- MED PHYS 6U03 Radiation Biology
- one other half course
- Students who have not satisfactorily completed [MED PHYS 6R03](#) or MED PHYS 4RA3 plus MED PHYS 4RB3 must also complete this course satisfactorily.
- Students who have not satisfactorily completed [MED PHYS 4U03](#) must complete MED PHYS 6U03 satisfactorily.
- 

### M.Sc. in Radiation Sciences (Radiation Biology)

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The M.Sc. in Radiation Sciences (Radiation Biology) requires that a candidate complete satisfactorily the courses below. Candidates for this M.Sc. are also required to present and defend a thesis, which shall embody the results of original research.

Candidates in the Medical Radiation Sciences stream are required to complete the course noted below ([MED PHYS 6B03](#) and [MED PHYS 6U03](#).) as well as [MED PHYS 781](#).. Candidates for this M.Sc. are also required to present and defend a thesis, which shall embody the results of original research.

- [MED PHYS 6B03 / Radioactivity and Radiation Interactions](#)
- MED PHYS 6U03 Radiation Biology
- Students who have not satisfactorily completed [MED PHYS 4U03](#) must complete MED PHYS 6U03 satisfactorily.
- Students who have not satisfactorily completed [MED PHYS 4B03](#) must complete MED PHYS 6B03 satisfactorily.

One other half course at the 700 level which can be

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- [MED PHYS 779 / Radiation Health Risks and Benefits](#) or
- [MED PHYS 780 / Radiation Effects in Plants and Animals](#) or
- [MED PHYS 781 / Advanced Clinical Practicum in Medical Radiation Sciences](#) or

MED PHYS 782 / Modern Radiation Biology and Implications for the Certainty with which Scientific Positions are Held



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS /PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		Physics & Astronomy			
<b>NAME OF PROGRAM and PLAN</b>		Radiation Sciences			
<b>DEGREE</b>	PhD				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<input checked="" type="checkbox"/>	<b>EXPLAIN:</b> Inform potential applicants that this degree can be pursued part time		
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

Students have pursued this degree part time. However, there is no explicit statement to that effect in the calendar.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

Insert the following statement:

This program may be pursued part time. Applicants who are interested in this option should contact the program administration at an early stage of their application.

**RATIONALE FOR THE RECOMMENDED CHANGE(How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Since it has been possible to pursue this degree part time, it may encourage some potential applicants if this is made explicit

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

With effect from September 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

No

**PROVIDE A DESCRIPTION OF THE RECOMMENDED CHANGE TO BE INCLUDED IN THE CALENDAR (please include a tracked changes version of the calendar section affected if applicable):**

Insert a statement that this degree may be pursued part time. Please see attached document with tracked changes.

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: David Chettle      Email: chettle@mcmaster.ca      Extension: 27340      Date submitted: 20-02-2020

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,  
cbryce@mcmaster.ca

SGS/2013

# Radiation Sciences (Medical Physics/Radiation Biology), Ph.D.

← Return to: [Faculty of Science](#)

[These programs may be pursued part time. Applicants who are interested in this option should contact the program administrator at the early stage of their application.](#)

## Ph.D. Degree

### Course Requirements

The minimum course requirement for the Ph.D. degree in Radiation Sciences in both fields of Medical Physics and Radiation Biology is the completion of at least one full course at the 700-level beyond the courses required for the M.Sc. degree.

#### Medical Physics field

Candidates in the Medical Physics field must complete the following:

[MED PHYS 6U03 Radiation Biology](#)

[MED PHYS 6R03 / Radiation and Radioisotope Methodology](#)

[MED PHYS 775 / Advanced Radiation Physics](#)

one other half course at the 700-level

#### Radiation Biology field

Candidates in the Radiation Biology field must complete the following:

[MED PHYS 6B03 / Radioactivity and Radiation Interactions](#)

[MED PHYS 6U03 Radiation Biology](#)

[Med Phys 782 Modern Radiation Biology and Implications for the Certainty with which Scientific Positions are Held](#)

- Students who have not satisfactorily completed [MED PHYS 4U03](#) must complete MED PHYS 6U03

two half courses at the 700 level

### Comprehensive Examination



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Every candidate for the Ph.D. must pass a Comprehensive Examination concerned with Radiation Sciences and their own immediate area of research.

## Thesis

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A thesis must be presented embodying the results of original research, and this thesis will be defended in a public examination.



**RECOMMENDATION FOR CHANGE IN GRADUATE CURRICULUM - FOR CHANGE(S) INVOLVING DEGREE PROGRAM REQUIREMENTS / PROCEDURES / MILESTONES**

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

1. This form must be completed for **ALL** changes involving degree program requirements/procedures. **All** sections of this form **must** be completed.
2. An electronic version of this form (must be in MS WORD **not** PDF) should be emailed to the Assistant Secretary, School of Graduate Studies (cbryce@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</b>		Kinesiology			
<b>NAME OF PROGRAM and PLAN</b>		Masters of Applied Science (GSC-MS); KINESMSC			
<b>DEGREE</b>	Master of Science				
<b>NATURE OF RECOMMENDATION (PLEASE CHECK APPROPRIATE BOX)</b>					
Is this change a result of an IQAP review? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
CREATION OF NEW MILESTONE <input type="checkbox"/>					
<b>CHANGE IN ADMISSION REQUIREMENTS</b>		<input type="checkbox"/>	<b>CHANGE IN COMPREHENSIVE EXAMINATION PROCEDURE</b>		<input type="checkbox"/>
<b>CHANGE IN THE DESCRIPTION OF A SECTION IN THE GRADUATE CALENDAR</b>		<input type="checkbox"/>	<b>EXPLAIN:</b>		
		Yes	To align with the departmental branding and changes in <b>faculty membership due to retirements and new hires</b>		
<b>OTHER CHANGES</b>	<b>EXPLAIN:</b>				

**DESCRIBE THE EXISTING REQUIREMENT/PROCEDURE:**

**M.Sc. Degree**

The Department of Kinesiology offers a program leading to an M.Sc. degree. The program is primarily research oriented and offers opportunities for focused study in the areas of biomechanics and ergonomics, exercise rehabilitation, exercise and health psychology, exercise physiology, motor control and learning, and neuroscience. One emphasis of the program is research related to the problems encountered by a variety of populations including those with chronic disease or disability. There is the opportunity for collaboration with faculty members in other Departments in the Faculty of Science as well as other Faculties including Engineering, Health Sciences and Rehabilitation.

**PROVIDE A DETAILED DESCRIPTION OF THE RECOMMENDED CHANGE (*Attach additional pages if space is not sufficient.*)**

The Department of Kinesiology offers research-based M.Sc. and Ph.D. degrees linked to our three primary areas of focus: integrative physiology, the mechanics and control of movement, and neuroscience and behaviour. Our students pursue a fundamental exploration of human movement through integrative research with direct application to human performance, health, and rehabilitation. There is opportunity for collaboration with faculty members in other Departments in the Faculty of Science as well as other Faculties including Engineering, Health Sciences and Rehabilitation.

**RATIONALE FOR THE RECOMMENDED CHANGE (How does the requirement fit into the department's program and/or tie to existing Program Learning Outcomes from the program's IQAP cyclical review?):**

Faculty retirements and subsequent new hires have necessitated a reconsideration of how we define our primary foci of research. To that end, the department has adopted three general research focus areas (rather than continuing to refer to specific areas that may change from year to year) that capture the core scientific research and teaching interests of our faculty. In the event of future retirements and/or hires, these areas of focus as described in the preceding section will not have to change.

**PROVIDE IMPLEMENTATION DATE: (*Implementation date should be at the beginning of the academic year*)**

September 1, 2020

**ARE THERE ANY OTHER DETAILS OF THE RECOMMENDED CHANGE THAT THE CURRICULUM AND POLICY COMMITTEE SHOULD BE AWARE OF? IF YES, EXPLAIN.**

**CONTACT INFORMATION FOR THE RECOMMENDED CHANGE:**

Name: Dr. Jim Lyons      Email: lyonsjl@mcmaster.ca      Extension: 27899      Date submitted: Nov. 22, 2019

If you have any questions regarding this form, please contact the Assistant Secretary, School of Graduate Studies,  
cbryce@mcmaster.ca

## Sessional Dates 2020-2021

DEADLINE DATES FOR GRADUATE PROGRAMS	FALL TERM	WINTER TERM	SUMMER TERM
	September- December, <del>2019</del> 2020 September- October, 2019-2020 (1HF) November- - December, <del>2019</del> -2020 (2HF)	January. - April, 20202021 January- - February-, 2020-2021 (1HF) March - April, 20202021(2HF)	May - August, <del>2020</del> 2021 May - June 2021 (1HF) July-August 2021 (2HF)
On-Time Registration	Tuesday, July 23-7th to Tuesday, August 274th	Thursday, November 28-26 to Thursday, December 1210	Thursday, April 2-1 to Thursday, April 1615
Class Start Dates *	Classes begin on or after September 32, 2019-2020 - check with program for details	Classes begin on or after January 24, 2020 2021 - check with program for details	Class start dates vary - check with program for details
Late Registration (late fees apply)	Wednesday-August 28 5th to Monday, September 9	Friday, December 13 11th to Thursday, January 2 January 4th	Friday, April 17-16 to Tuesday, April 28th30th
Final Dates to Add Courses:			
6-Unit Multi-term Courses	Friday, September 27September 54th		
Single term or 3-Unit Courses or 1.5-Unit 1HF Courses Courses (1HF)	Friday, September 2725	Friday, January 2422	Friday, May 1514
1.5-Unit Courses (2HF Course)	Friday, October 2523	Friday, February 28th26	Friday, June 2625
Final Dates to Drop Courses: **			
6-Unit Courses Multi-term Courses	Friday, January 3February 24th	Friday, May 1 July 26th	
3-Unit Courses Single Term Courses	Friday, October 4November 13th	March 19th Friday, February 7	Friday, June 5July 176th
1.5-Unit Courses (1HF) courses	Friday, September 27October 7th	Friday, January 24February 10th	Friday, June 5June 9th

Commented [CB(S1)]: Extension to Drop period

1.5 Unit Courses (2HF courses)	Friday, November 4 <sup>th</sup> December 9 <sup>th</sup>	Friday, March 6 <sup>th</sup> April 7 <sup>th</sup>	Friday, July 10 <sup>th</sup> August 5 <sup>th</sup>
Final Dates to Submit Grades:			
6 Unit Two-term Courses		Friday, May 1 <sup>st</sup> May 3 <sup>rd</sup>	Friday, August 21 <sup>st</sup> September 4 <sup>th</sup> 3 <sup>rd</sup>
3 Unit One-term Courses	Thursday, January 2 <sup>nd</sup> January 4 <sup>th</sup>	Friday, May 1 <sup>st</sup> May 3 <sup>rd</sup>	Friday, August 21 <sup>st</sup> September 4 <sup>th</sup>
1.5 Unit 1HF Courses (1HF)	Friday, October 25 <sup>th</sup> October 23	Friday, February 28 <sup>th</sup> 26 <sup>th</sup>	Friday, August 21 <sup>st</sup> September 4 <sup>th</sup>
1.5 2HF Unit Courses (2HF)	Thursday, January 2 <sup>nd</sup> January 4 <sup>th</sup>	Friday, May 1 <sup>st</sup> May 3 <sup>rd</sup>	Friday, August 21 <sup>st</sup> September 4 <sup>th</sup>
Final Date to Submit Results of Incomplete (INC) Grades for Previous Term with Permission of Associate Dean	Friday, March 6 <sup>th</sup> 5 <sup>th</sup>	Friday, July 10 <sup>th</sup> 9 <sup>th</sup>	Friday, November 5 <sup>th</sup> 6 <sup>th</sup>

## Thesis

	<b>FALL 2019/2020</b>	<b>SPRING 2020/2021</b>	<b>FALL 2020/2021</b>
Final Date to Initiate Thesis Defence in Mosaic***	Friday, June 28 <sup>th</sup> 26 <sup>th</sup> _	Wednesday-January 22 <sup>nd</sup> 20 <sup>th</sup> (Health Sci.) Wednesday-February 5 <sup>th</sup> 3 <sup>rd</sup> (All others)	Friday, June 26 <sup>th</sup> June 25 <sup>th</sup> _
Final Date to Submit Master's Theses to Departments (Prior to Defense)	Friday, August 9 <sup>th</sup> 7 <sup>th</sup>	Friday, March 6 <sup>th</sup> March 5 <sup>th</sup>	Friday, August 7 <sup>th</sup> August 6 <sup>th</sup>
Final Date to File Theses with Graduate Studies and Complete Degree Requirements****			
- Faculty of Health Sciences	Friday, September 27 <sup>th</sup> September 28 <sup>th</sup> _	Friday, April 3 <sup>rd</sup> April 2 <sup>nd</sup> _ 1 <sup>st</sup>	Monday, September 28 <sup>th</sup> September 27 <sup>th</sup>
- All Other Faculties	Friday, September 27 <sup>th</sup> September 28 <sup>th</sup> _	Friday, April 24 <sup>th</sup> April 23 <sup>rd</sup>	Monday, September 28 <sup>th</sup> September 27 <sup>th</sup>

The University welcomes and includes students, staff, and faculty from a wide range of cultural, traditional, and spiritual beliefs. As per the Policy on Academic Accommodation for Religious, Indigenous and Spiritual Observances, the University will arrange reasonable accommodation of the needs of students who observe religious holy days other than those already accommodated by ordinary scheduling and statutory holidays. For more information, please refer to <https://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-Observances.pdf>

Graduate students may only enroll in undergraduate courses with the approval of their supervisor or graduate program. Students are responsible for meeting the deadlines and requirements of the undergraduate course as presented in class and in the undergraduate calendar. Graduate students will be graded under the graduate grading scale.

Programs may establish earlier deadlines to add/drop courses but these dates must clearly be communicated to students. Please note that the last date to cancel a course or registration with no academic penalty is not the same as the last date to be eligible for a refund.

\*The precise dates of commencement of courses are determined by the program; students are urged to contact their program for details. SGS maintains the 13-week graduate instruction period; however, if a course does not fall into the traditional 13-week period, the graduate program will inform students of important dates and deadlines in the course syllabus. There is no official fall break or reading week for graduate students (except MBA). Students should check with their program and their course instructor(s) as to whether classes will be held during these periods. Please see sections 1.3 (Responsibilities of Graduate Students to the University) and 2.5.6 (Vacations) of the calendar for more information.

\*\*All courses on a student's record after these dates will require a grade. Exceptions require submission of a [Petition for Special Consideration-an In-Program Request Form](#). Graduate programs may establish earlier deadlines for completion of course work and may prescribe penalties for late completion of work and for failure to complete work, provided that these penalties are announced at the time the instructor makes known to the class the methods by which student performance shall be evaluated.

\*\*\*Please note the following black-out periods in which [standard](#) Ph.D. defences cannot be scheduled: December 14<sup>th</sup> to January 10<sup>th</sup>-8<sup>th</sup> inclusive and August 17<sup>th</sup>-16<sup>th</sup> to 20<sup>th</sup>-21<sup>st</sup> inclusive. Please refer to the SGS website for information about the timeline for scheduling your defence with these dates in mind.

\*\*\*\*A final thesis is the corrected, approved version of the thesis which is [submitted to SGS following upload to MacSphere](#) the Final Oral Examination. Note there is no grace period at the end of December or April for final thesis submission and completion of degree requirements.

## Convocation Dates

Please consult the link below for convocation dates:

<https://registrar.mcmaster.ca/grad/dates/>

## Graduate Study at McMaster University

When McMaster moved to its current graduate organization, the aims of graduate work were described as "the highest development of the powers of reasoning, judgment, and evaluation in intellectual concerns; specialized training in professional skills; initiation into research or scholarly work and development of a capacity for its successful and independent pursuit; the fruitful pursuit of research and scholarly work". This description remains as valid today as it was then.

Research is central to graduate work, and McMaster's strong research orientation has a pronounced effect on the character of its graduate programs. The numerous research achievements of McMaster faculty members have been recognized by grants, prizes, medals, and fellowships in academic societies. Such distinctions attest to the qualifications and dedication of faculty members in developing and disseminating knowledge. The education that McMaster faculty provide is valuable not only for the graduate student's career but also for the student's development as a person.

## 1.1 Programs of Study

McMaster University offers graduate programs that lead to one of the following degrees or diplomas:

Graduate Diplomas in Advanced Neonatal Nursing, Critical Leadership, Clinical Behavioural Sciences, Clinical Epidemiology, Community Engaged Research, Gender Studies and Feminist Research, Nuclear Engineering, Primary Health Care Nurse Practitioner (PHCNP), Professional Accountancy, Water Without Borders

Master of Arts in Anthropology, Classics, Communication and New Media, Cultural Studies and Critical Theory, Economics, Economic Policy, English, French, Gender Studies and Feminist Research, Geography, Globalization, Health and Aging, History, Global Politics, Philosophy, Political Science, Religious Studies, Sociology, and Work and Society;

Master of Biomedical Discovery and Commercialization

Master of Business Administration

Master of Applied Science in Biomedical Engineering, Chemical Engineering, Civil Engineering, Computational Science and Engineering, Electrical and Computer Engineering, Engineering Physics, Materials Engineering, Mechanical Engineering, Software Engineering

Master of Communications Management

Master of Engineering in Civil Engineering, Computational Science and Engineering, Computing and Software, Electrical and Biomedical Engineering, Electrical and Computer Engineering, Engineering Physics, ~~Manufacturing Engineering, Mechatronics,~~ Nuclear Engineering (UNENE), ~~Systems & Technology~~

Master of Engineering in Manufacturing Engineering

Master of Engineering Design

Master of Engineering Entrepreneurship and Innovation

Master of Engineering and Public Policy

Master of Finance

Master of Financial Math

Master of Health Management

Master of Public Health

Master of Science in Biochemistry, Biology, Chemical Biology, Chemistry, Child Life and Pediatric Psychosocial Care, Cognitive Science of Language, Computational Science and Engineering, Computer Science, Earth and Environmental Sciences, eHealth, Geography, Global Health, Health and Radiation Physics, Health Research Methodology, Health Science Education, Kinesiology, Materials Science, Mathematics, Medical Sciences, Neuroscience, Nursing, Occupational Therapy, Physics and Astronomy, Physiotherapy, Psychology, ~~Psychotherapy~~, Radiation Sciences (Radiation Biology), Radiation Sciences (Medical Physics), Rehabilitation Science, Speech Language Pathology, and Statistics.

Master of Social Work

Master of Technology Entrepreneurship and Innovation

MD/Ph.D. in Medicine and Biochemistry, Medicine and Biomedical Engineering, ~~Medicine and Health Policy~~, Medicine and Health Research Methodology, Medicine and Medical Sciences, and Medicine and Neuroscience.

Doctor of Philosophy in Anthropology, Biochemistry, Biology, Biomedical Engineering, Business Administration (Accounting; Finance; Health Management; Information Systems; Management of Organizational Behaviour and Human Resources; Management Science; Marketing), Chemical Biology, Chemical Engineering, Chemistry, Civil Engineering, Classics, Cognitive



Science of Language, Computational Science and Engineering, Computer Science, Earth and Environmental Sciences, Economics, Electrical and Computer Engineering, Engineering Physics, English, French, Geography, [Global Health](#), Health Policy, Health Research Methodology, Health Studies, History, Kinesiology, Labour Studies, Materials Science and Engineering, Mathematics, Mechanical Engineering, Medical Sciences, Neuroscience, Nursing, Philosophy, Physics and Astronomy, Political Science, Psychology, Radiation Sciences (Radiation Biology), Radiation Sciences (Medical Physics), Rehabilitation Science, Religious Studies, Social Gerontology, Social Work, Sociology, ~~and~~ Software Engineering [and Statistics](#).

## 1.2 Responsibilities to Graduate Students

The principal responsibilities that McMaster University has for the academic endeavours of its graduate students are shared by the School of Graduate Studies, the Faculty, the Department, the Supervisory Committee, and the Faculty Advisor. The following summarizes the responsibilities of each of these bodies.

### 1.2.1 The School of Graduate Studies

The name "School of Graduate Studies" refers to the Vice-Provost & Dean and Associate Deans of Graduate Studies, the Graduate Council, and the registrarial duties associated with graduate administration.

The Vice-Provost & Dean of Graduate Studies provides leadership in maintaining and improving the standards of graduate scholarship in the University. The responsibilities include: being the School's voice in graduate matters concerning research and its funding, scholarships and assistantships, the development of graduate programs and policy statements affecting graduate work; being the designated chair of Ph.D. dissertation oral examinations; approving the nomination of external examiners for Ph.D. theses and receiving the examiners' reports. The Associate Deans of Graduate Studies routinely act as the Dean's delegates. They recommend revision or development of regulations or policies affecting graduate work, refer matters of policy and curriculum to the Graduate Curriculum and Policy Committees, and deal with student appeals. In addition to acting on behalf of the Graduate Admissions and Study Committees as described below, the responsibilities of the Associate Deans include the awarding of McMaster Graduate Scholarships by acting on recommendations received from departments offering graduate work.

The Associate Graduate Registrar and Secretary of the School administers the academic affairs of students enrolled in the School of Graduate Studies. This responsibility includes: registering graduate students; assessing tuition fees; maintaining records and files for applicants and new or in-course students and arranging Ph.D. oral examinations.

### 1.2.2 The Faculty

For each Faculty there is a Graduate Admissions and Study Committee, which is chaired by an Associate Dean of the School of Graduate Studies. This committee, or the Associate Dean on its behalf, is responsible for matters concerning both incoming and in-course graduate students. More specifically, these responsibilities include:

- determining the admissibility of applicants;
- receiving reports on the progress of students and making decisions thereon, including recommendations to require a student to withdraw;
- ensuring that program requirements have been met prior to the awarding of degrees; approving off-campus courses and leaves of absence; and
- deciding on applications from students for special consideration with respect to academic regulations.

In all of these matters, the Committee or the Associate Dean acts on recommendations made by departments.

### 1.2.3 The Department (or Graduate Program)

Typically, many of the duties of the Department in regard to graduate students are carried out by the Department Chair and the Graduate Advisor (in some programs these are referred to as Graduate Coordinators or Area Coordinators) for the Department. For some programs (e.g. interdisciplinary graduate programs), these duties are carried out by the Program Director, Co-Director or Associate Director and for some Health Science programs, the Assistant Dean. For purposes of graduate studies policies stated in sections 1 through 6 of the Graduate Calendar, all reference to Department Chair shall mean, in the graduate programs of the Faculty of Health Sciences, the Program Director, Co-Director, Associate Director or appropriate Assistant Dean. The departmental duties include making recommendations to the Graduate Admissions and Study Committee of the Faculty as noted above. The Department is responsible for matters such as:

- ensuring that every student has, at all times, a faculty advisor or a properly constituted supervisory committee;
- reviewing annually each student's academic progress and reporting thereon;
- conducting comprehensive examinations and language examinations, when these are required;
- preparing and distributing guidelines and departmental regulations for supervisors and students;
- ensuring that each student is properly trained in all safety practices, guidelines, and policies for the use of any resources required in carrying out their work, where appropriate.

In performing those duties that relate to individual students, the Department relies on advice from the Supervisory Committee or the faculty advisor.

In those cases in which a Supervisory Committee or faculty advisor determines that a student's progress is unsatisfactory, and recommends that the student be required to withdraw, the Department is expected to verify the reasons for the recommendation. If the recommendation is confirmed, the Department will forward the recommendation to the Associate Dean of Graduate Studies, who will receive it and act on behalf of the Faculty Admissions and Study Committee.

If the Department is not convinced that the recommendation is appropriate, the Department may attempt to mediate between the supervisor and student, or may attempt to find an alternate Supervisory Committee or faculty advisor. If that is not possible because all members with expertise in the student's topic are already on the Supervisory Committee, then the Department may find it best to encourage the student to transfer elsewhere. If the student is very close to completion, the Department may advise the student to continue in the program despite the lack of Supervisory Committee support.

## 1.2.4 The Supervisory Committee

The Supervisory Committee, or the faculty advisor when no such committee is required, provides advice to the Department as noted above. Additional responsibilities include, where applicable:

- planning and approving the student's program of courses and research;
- approving thesis proposals;
- deciding, within departmental regulations, on the timing of the comprehensive examination and, language and other examinations;
- maintaining knowledge of the student's research activities and progress;
- giving advice on research;
- providing the student with regular appraisals of progress or lack of it;
- initiating appropriate action if the student's progress is unsatisfactory, including any recommendation that the student withdraw;
- deciding when the student is to write the thesis and giving advice during this process; and
- acting as internal examiners for the thesis.

## 1.2.5 The Faculty Advisor

When a supervisory committee is not required, a faculty advisor will be assigned by the Department. Like the supervisory committee, the advisor will provide advice to the Department as noted in Section 1.2.3 above. Their responsibilities will include:

planning and approving the student's program of courses and research; deciding within departmental regulations, on the timing of the comprehensive examination, and language and other examinations; maintaining knowledge of the student's research activities and progress; giving advice on research; providing the student with regular appraisals of progress or lack of it (i.e., the student and student advisor have a mutual obligation to meet on a regular basis); initiating appropriate action if the student's progress is unsatisfactory, including any recommendation that the student withdraw. In course-based, professional or clinical programs, a program committee or the department chair for the program acts as the faculty advisor. The faculty advisor is expected to respond in a timely fashion to requests for clarification by the student on elements of academic and research progress.

## 1.2.6 Guidelines for Graduate Course Instructors

For most faculty members and graduate students alike, the graduate classroom offers a unique site of intellectual development, exploration, and exchange. The following guidelines are intended to highlight best practices to help instructors plan and run successful graduate courses, and to optimize the learning experience for graduate students. These guidelines supplement the official *Policy on Graduate Course Outlines*, to which all graduate courses must adhere.

In fields that include diverse knowledge bases or skill sets, the instructor may wish to meet with prospective students before the course starts, particularly with students who are from outside the home program or department. Such a meeting might include a discussion of the overall objectives and content of the course, an explanation of the methods of assessment, and a description of the expertise and skill level expected of the student.

The graduate course instructor may decide to recruit one or more faculty members or field experts to give special lectures during the course. Such an invitation should be made well in advance of the lecture date. Invited instructors usually are not expected to evaluate the students. However, there may be rare cases in which an invited instructor contributes some aspect of course evaluation. In that event, the official course instructor still bears ultimate responsibility for overall evaluation and course outcome. Accordingly, best practice would be for the invited instructor to receive information, preferably in writing, about evaluation criteria and expectations that are consistent with the course outline. Students also should be informed of the mechanism and mode of evaluation.

To receive credit for a course, each student is responsible for confirming in the Mosaic Student Center that their enrollment status is appropriate for that course. Students are responsible for ensuring that they have formally enrolled for the course through their department or graduate program. Best practice suggests that the instructor should remind students of their responsibilities at the first meeting of the course. If the instructor becomes aware that a student is not listed on the class list/grade roster, or that the class list/grade roster includes the name of a student who has not been attending the class, the instructor should inform the department/graduate program.

As noted in the *Policy on Graduate Course Outlines*, the course instructor is responsible for providing each student with evaluations of the student's academic performance at various stages during the course, and, whenever possible, a list of due dates. It is best practice in graduate courses for each student to receive at least one written evaluation prior to the 'drop' date so that students can have the chance to withdraw from the course without academic penalty. Such an evaluation could take any of a number of forms (e.g., evaluations of a seminar presentation, a written assignment, or a collaborative work).

At the graduate level, students normally are expected to actively participate in courses (i.e., contribute to discussion, be encouraged to ask questions), and instructors often award marks for participation. Some students, particularly those whose first language is not English, may be reluctant to participate in a discussion in class. Best practice suggests that these students should be recognized early and, whenever possible, tactfully drawn into the discussion by the instructor. The ultimate aim of any graduate course is not only to convey information to and exchange information with students, but also to equip students with the confidence and ability to exchange information with others, both in the spoken word and in writing.

Although instructors are required to provide written course outlines at the beginning of courses, the *Policy on Graduate Course Outlines* also provides instructors with the opportunity to alter a course's content to reflect shifting research interests as long as the students are informed of such changes promptly and *in writing*. Even in the case of changing content, best practice is for instructors to adhere to the original course outline in terms of the amount of work expected from the students, the schedule of assignments, due dates, and the evaluation scheme.

Best practice suggests that instructors should calculate and provide final grades to the School of Graduate Studies for *all students* by the date stipulated in the Graduate Calendar. Final marks also should be provided to the students in a timely manner. Although there may be rare instances in which the instructor may need to report grades before all work is complete for a student, instructors should be aware that a grade of "incomplete" will be converted to an "F" and recorded on the student's transcript.

## 1.3 Responsibilities of Graduate Students to the University

Just as the University has responsibilities to graduate students, they have responsibilities to the University.

The student's responsibilities include, but are not limited to:

- enrolling annually until they graduate, withdraw, or are withdrawn in good standing due to time limit, except when a student is on a leave of absence;
- paying fees as required;
- complying with the regulations of the School of Graduate Studies as set out in this Calendar;
- ~~make~~ make satisfactory progress toward the completion of the degree as outlined in Section 2.6.

Where applicable, students are responsible for complying with such conditions as ~~may be laid out~~ indicated in an ~~accepted letter of offer~~ the offer of admission. Students are also responsible for complying with the regulations governing graduate students at McMaster University with respect to full- and part-time status (see sections 2.5.2 and 2.5.3). Students are further responsible for informing the School of Graduate Studies within two weeks, which acts as the official keeper of student records, of any change in personal information such as address, name, telephone number, etc. Students are also responsible for reporting through the department any change in student status, course registration, or withdrawal.

### Research-Based Programs

With regard to research and study, students are responsible for maintaining contact and meeting regularly with the faculty advisor, thesis/project supervisor or supervisory committee, for observing departmental guidelines, and for meeting the deadlines of the department and the School of Graduate Studies. If there is a problem with supervision, it is the student's responsibility to contact the Department Chair or Graduate Advisor. It is also the expectation that students will seek clarification when necessary on questions regarding elements of academic and research progress. The provisions for changing a supervisor are outlined in Section 2.7.

Students who undertake to write a master's or doctoral thesis assume responsibility both for creating drafts of the thesis and for responding to direction from the Supervisory Committee. The student shall have the responsibility to write and ultimately to defend the thesis, and the Supervisory Committee has the responsibility to offer guidance in the course of the endeavour, and to recommend or not recommend the completed thesis for defence.

Since enrollment permits access to libraries and certain other academic facilities (including off-campus facilities), it also implies a commitment on the part of each graduate student to use such facilities in accordance with applicable rules, including all safety practices, guidelines and policies. Inappropriate behaviour that is deemed to be in violation of such practices and/or policies may lead to denial of access to the facility. If such a denial of access to facilities means that a student can no longer fulfill their academic obligations, the student will be required to withdraw involuntarily from their academic program. (see also Section 6.2)

Full-time students are obliged to be on campus, except for vacation periods or authorized off-campus status, for all three terms of the university year. Vacation entitlement is discussed in 2.5.8. Any student who is away from campus for longer than one week, which is not part of the student's vacation entitlement, requires their supervisor's approval in writing. If this period of time exceeds two weeks, the approval of the department chair is also required. In accordance with government regulations (see Section 2.5.2) students who will be away from campus for more than four weeks require not only permission from the Department but also that of the appropriate Associate Dean of Graduate Studies and must submit a Request to be Full Time Off Campus. Note

that this permission is needed for conferences, field work or studies elsewhere in the world, in order to allow the University to comply with the regulation requiring that a written explanation for such absences be lodged in the Graduate School office. Students may arrange, through the Department and the Associate Dean of Graduate Studies, to be "full-time off-campus" for periods of up to a year. Students will also be required to complete the Risk Management Manual (RMM) 801 forms and gain approval through EOHSS. In cases of unauthorized absence the student will be deemed to have withdrawn voluntarily from graduate study and will have to petition for readmission. No guarantee of readmission or of renewal of financial arrangements can be made. An exception to this policy would be programs that deliver their curriculum either partially or fully in on-line formats. Please refer to details in individual program descriptions.

In order to receive a degree, the student must fulfill all departmental or program requirements and all University regulations, including those of the School of Graduate Studies. Students who have outstanding financial accounts at the end of the academic year will not receive their academic results, diplomas, or transcripts.

## General Regulations of the Graduate School

- 2.1 Admission Requirements
  - 2.1.1 Admission Requirements - Master's
  - 2.1.2 Admission Requirements - Ph.D.
  - 2.1.3 Transfer to Ph.D.
  - 2.1.4 Admission Requirements - Part-time Ph.D.
  - 2.1.5 Admission of Students - Cotutelle Ph.D.
  - 2.1.6 Admission of Students with Related Work Experience or Course Work Beyond the Bachelor's Degree
  - 2.1.7 Admission Requirements for Graduate Diploma Programs
  - 2.1.8 Admission Requirements for Post Degree Students
  - 2.1.9 Non-Credit Participants in Graduate Courses
  - 2.1.10\_Visiting\_Students
  - 2.1.11 Incoming Exchange Students
  - 2.1.12 English Language Requirements
- 2.2 Application for Admission
- 2.3 Transfer/Advance Credit and Course Equivalency
- 2.4 Acceptance
- 2.5 Enrollment
  - 2.5 Enrollment (continued)
    - 2.5.6 Full-Time on Campus
    - 2.5.7 Leaves of Absence
    - 2.5.8 Vacations
    - 2.5.9 Appeals and Petitions for Special Consideration
  - 2.6 Graduate Curriculum and Academic Progression
    - 2.6.1 Averaging of Letter Grades
    - 2.6.2 Course Levels and Types
    - 2.6.3 Course Categories
    - 2.6.4 Milestones
    - 2.6.5 Required Course and Training for All Graduate Students
    - 2.6.6 Audited Courses
    - 2.6.7 Repeated Courses
    - 2.6.8 Failing Grades and Incomplete Grades
    - 2.6.9 Placeholder Courses
    - 2.6.10 Outgoing Exchange Students
  - 2.7 Supervision
    - 2.7.1 Graduate Work Supervision Guidelines
  - 2.8 Theses
    - 2.8.1 General
    - 2.8.2 Response Times for Theses
    - 2.8.3 Publication of Electronic Theses

- 2.5.1 Continuity of Registration
- 2.5.2 Definition - Full- and Part-time Status
- 2.5.3 McMaster University's Regulations for Full- and Part-time Status
- 2.5.4 Employment Regulations
- 2.5.5 Enrolment - International Students on Study Permits

Please note: if there is any discrepancy between a department or program handbook and the School of Graduate Studies Calendar, then the School of Graduate Studies Calendar shall prevail.

It is the student's responsibility to:

- Maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- Use the University provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their @mcmaster.ca alias.
- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent to the student's @mcmaster.ca account.

#### Collection of Personal Information

Under the authority of the McMaster University Act, 1976, and by applying to McMaster or by enrolling in a program at the University, students expressly acknowledge and agree that the collection, retention, use and disclosure of relevant personal information is necessary for McMaster University to:

- establish a record of the student's performance in programs and courses;
- to assist the University in the academic and financial administration of its affairs;
- to provide the basis for awards and government funding; and
- to establish the student's status as a member of relevant student governmental organization.

Similarly, and in compliance with McMaster University's access to information and protection of privacy policies and Canadian and Ontario privacy laws, the University provides personal information to:

- the Canadian and Ontario government for the purposes of reporting purposes; and
- to appropriate student government organizations for the purposes of allowing such organizations to communicate with its membership and providing student government-related services consistent with the enrolment by a student at the University.

By applying and/or enrolling at McMaster University the student expressly consents to this collection, retention, use and disclosure of such personal information in this manner. Questions regarding the collection or use of personal information should be directed to the University Secretary, Gilmour Hall, Room 210, McMaster University.

#### Retention of Documents

All documentation submitted in support of an application for admission becomes the property of the University and is not returnable.

If an applicant is not accepted, or fails to enroll following acceptance, their documentation will be destroyed at the end of the admissions cycle. ~~If the applicant reapplies, they must submit any new academic information in addition to the documentation submitted previously.~~

## 2.1 Admission Requirements

McMaster University seeks candidates for graduate study who show high scholarly promise. Admission to a graduate program is based on a judgement by the University that the applicant can successfully complete the graduate degree program. The University's minimum requirements are identified in this section. Degrees and grades from foreign universities are evaluated for their equivalency to McMaster's. Departments or programs may establish additional requirements, such as scores on the Graduate Record Examination (GRE). Applicants should read the admission statement for the program or department, as well as the section here. Admission is competitive: meeting the minimum requirements does not guarantee admission. Final decisions on matters of admission rest with the Graduate Admissions and Studies Committee for each Faculty. The admission decision is not subject to appeal.

### 2.1.1 Admission Requirements for Master's Degree

The majority of graduate programs at McMaster University require the holding of an Honours bachelor's degree from a recognized university with at least a B+ average (equivalent to a McMaster 8.5 GPA out of 12) in the final year in all courses in the discipline, or relating to the discipline, in which the applicant proposes to do graduate work. Programs which consider applications with a mid-B average identify this in the relevant section of the calendar. In a Master's program in the Faculty of Engineering the requirement is at least a B- average (equivalent to a McMaster 7.0 GPA). Strong letters of recommendation are also required. Some programs may have different admission requirements, for example, some programs may consider professional practice or experience within the application process so please consult the program section of the calendar for details.

In recognition of the changes taking place in the structure of university education as a consequence of the Bologna Accord, three-year, first-cycle degrees that meet the criteria of the "Framework for Qualifications of the European Higher Education Area" will be accepted in place of a four-year Honours degree. Standard admission requirements will still apply. A Diploma Supplement should accompany the official transcript [item (a) under Section 2.2].

Prospective applicants who lack some background in the discipline they wish to enter should consult the Undergraduate Calendar with regard to Continuing Student status. A continuing student is a university graduate who is not currently enrolled in a degree program, but who wishes to take one or more undergraduate classes.

Prospective applicants who did not attain the required standing in their undergraduate degree, but who have five years of work experience that is relevant to the program they wish to undertake, may be admitted to a Master's program as mature students provided they are recommended by their program. Submission of a complete resume is required to determine eligibility as a mature student. Such recommendations must be approved by the Graduate Associate Dean of the Faculty in question and evidence of ability to do graduate work will still be required.

### 2.1.2 Admission Requirements for Ph.D. Degree

Applicants may be admitted to a regular Ph.D. program at one of three stages in their academic work: (1) after completion of a Master's program; (2) Directly from a Master's program at McMaster without completing the Master's degree; (3) in exceptional cases, directly from a Bachelor's program. Students still enrolled in a Master's with thesis program beyond 22 months must complete the degree requirements including the thesis prior to admission to the Ph.D. program.

1. For applicants who hold a Master's degree, the primary requirements are distinction in their previous graduate work (equivalent to at least a McMaster B+), and strong letters of reference.
2. Students enrolled in a Master's program at McMaster University may be transferred to the Ph.D. program prior to completion of the Master's degree. Not sooner than two terms and no later than 22 months after initial registration in the Master's program here, students may request to be reclassified as Ph.D. students. After proper review, the department will recommend one of the following:
  - a. admission to Ph.D. studies following completion of the requirements for the Master's degree;
  - b. admission to Ph.D. studies without completion of a Master's program;
  - c. admission to Ph.D. studies but with concurrent completion of all requirements for a Master's degree within one term from the date of reclassification;
  - d. refusal of admission to Ph.D. studies.

In no case does successful completion of a Master's degree guarantee admission to Ph.D. studies.

For students in (b), the recommendation for admission to Ph.D. must identify which if any courses taken as a Master's student can be credited toward the requirements for the Doctoral program.

A student in (b) may re-register as a candidate for the Master's degree, provided that work to date has met the standards for the Master's program.

Students in (c) who do not complete the requirements for the Master's degree within the one term will lose their status as a Ph.D. candidate and be returned to Master's status.

3. In certain programs, applicants with a first degree only, may be admitted directly to Ph.D. studies. Such students must show sufficient promise, including at least an A average. Within one calendar year the progress of students admitted to Ph.D. studies directly from a Bachelor's degree will be reviewed by their supervisory committee and the program. The program then will recommend one of the following:
  - a. proceed with Ph.D. studies;
  - b. not proceed with Ph.D. studies but re-register as a Master's candidate;
  - c. withdraw from the University.

A student admitted to a Ph.D. program who re-registers as a candidate for a Master's degree must meet all of the requirements for the Master's degree in order for it to be awarded.

~~Transfers to a Ph.D. program take effect at the start of the next term, or are retroactive to September 1st for students whose request to transfer is received by the School of Graduate Studies by the end of the second week of October. Students are encouraged to transfer prior to the start of the next term.~~

**Commented [CB(S2)]:** Repeated below – requested change from Deb

### 2.1.3 Transfer to Ph.D.

Transfers to a Ph.D. program take effect at the start of the next term, or are retroactive to September 1st for students whose request to transfer is received by the School of Graduate Studies by the end of the second week of October. Students are encouraged to transfer early (i.e., well before the end of the 5th term of their Masters) given that the time-limit on transfers described in 2.1.2.

### 2.1.4 Admission Requirements for Part-Time Ph.D. Degree

Admission to a part-time Ph.D. program is possible only for an individual holding a Master's degree whose circumstances preclude uninterrupted full-time doctoral studies. Because of the divergent nature of academic disciplines, part-time doctoral work is not feasible in some areas. Accordingly, no Department or Program is obligated to offer part-time doctoral work. As part of their applications prospective part-time students are required to provide a plan of study, including a clear account of when and where the thesis research is to be conducted. If facilities at the place of employment are to be used for the research, the signed agreement of the employer, recognizing the conditions surrounding graduate work, is also required. In addition, departments may



have other requirements for admission to a part-time doctoral program. A part-time doctoral student must be geographically available on a regular basis, and must be able to participate regularly in departmental seminars and colloquia.

## **2.1.5 Admission of Students to a Cotutelle Ph.D. Degree**

A cotutelle is a single Ph.D. awarded by two post-secondary institutions, typically from different countries. A cotutelle degree promotes and structures research collaborations in a way that allows students access to a broader range of research experience than would be available at a single institution.

Partner university arrangements may vary and students must investigate what is required to fulfill that institution's cotutelle requirements. For information on how to apply please view the Cotutelle Policy.

## **2.1.6 Admission of Students with Related Work Experience or Course Work Beyond the Bachelor's Degree**

As noted in Section 2.1 of the Graduate Calendar, "Admission to a graduate program is based on a judgement by the University that the applicant can successfully complete the graduate degree program". Some potential applicants may not satisfy our admission requirement for a 4-year honours degree with a B+ average in the final year. However, work experience and/or completed course work beyond the Bachelor's degree, may have some bearing on the applicant's ability to complete a graduate program. The admissions process will recognize these accomplishments as follows.

Admission to graduate studies for a student with related work experience and/or course work beyond the Bachelor's degree will be based on the following criteria:

1. References from reliable sources, which specifically identify the applicant's aptitude for research and graduate education.
2. University 4-year undergraduate degree or equivalent, completed more than 4 years ago, together with additional course work taken since that time.
3. Significant record of workplace experience, the relevance of which will be assessed by the graduate program of choice.

## **2.1.7 Admission Requirements for Graduate Diploma Programs**

The admission requirements for a graduate diploma are the same as are identified in Section 2.1.1 for admission to a Master's program.

Graduate Diploma students with at least a B+ average in their diploma course work may be eligible to transfer to a Master's degree in a related program, subject to the recommendation of the department or program to the relevant Faculty Graduate Admissions and Study Committee. If the diploma has not been completed, transfer credit may be given toward the degree requirements for all graduate courses completed successfully. Approval of the department is required for any such credit to be applied toward a degree; it is not automatic. Departmental or program approval is normally based on an assessment of the amount of additional coursework that will be required for the degree.

If a student wishes to enter a related Master's program after the diploma has been completed, credit may be granted towards the subsequent degree program for those courses completed successfully, with a limit of one full course or half of the course requirements for the degree, whichever is less.

## **2.1.8 Admission Requirements for Post-Degree Students**

A Post-degree Student is one who has not been admitted to a graduate degree or diploma program but who holds a university degree and has been given permission to take a specific graduate course. Permission to take a course as a post-degree student requires the approval of the course instructor, the Department Chair, and the School of Graduate Studies. An application is required for each course. Students are allowed to take up to three courses as post-degree.

Although acceptance as a post-degree student carries no implications with respect to acceptance for a degree program in the School of Graduate Studies, the level of academic achievement expected for admission under this category is the same as that required of students admitted to a Master's program (Section 2.1.1). Courses taken as a post-degree student may be eligible for credit toward a Master's degree in a related program, to a maximum of one-half of the degree's course requirement, subject to the recommendation of the department or program to the relevant Faculty Graduate Admissions and Study Committee.

A student who has completed a relevant undergraduate degree and is not admissible to a program under current standards, may be admitted as a post-degree student with the approval of the Associate Dean to demonstrate admissibility. In such cases, any courses taken as a post-degree student will not be available for credit in a subsequent graduate program, should they be eventually considered to be admissible.

The deadline for registration is the same as for graduate degree programs (see Sessional Dates, Registration ).

Post-degree students are not allowed to take graduate courses for Audit.

(Note: A Graduate Diploma is distinct from a baccalaureate, undergraduate diploma, Master's or Ph.D. degree, or diplomas and certificates awarded by the Centre for Continuing Education at McMaster University).

## 2.1.9 Non-Credit Participants in Graduate Courses

Graduate courses are not normally open to "auditors" who attend a course without the usual qualifications and without seeking academic credit. Under some circumstances, however, people who are not registered graduate students and who do not meet the requirements for admission as Post-degree (see Section 2.1.8) may attend a graduate course. This requires the written permission of the course instructor, the Department Chair, and the School of Graduate Studies.

A fee is charged for each course taken as a non-credit participant (by persons who are not registered graduate students). See Section 5.1, Fees for Graduate Students, for the fee schedule.

## 2.1.10 Visiting Students

**Visiting Students** are individuals who are currently registered in a graduate degree program in another university, and who have made arrangements through both their home university and a graduate program at McMaster to spend some time at McMaster as part of their degree program at the home university. While they are visiting students, they will not be enrolled in a degree program at McMaster. They are not part of any official exchange agreement including Ontario Visiting Graduate Student (OVGS) arrangement, although there may be an agreement between the McMaster program and their home institution. For more information on Ontario Visiting Graduate Student arrangements please consult Section 6.10. McMaster currently allows out-of-province and international students to visit in one of three ways: to take course work in a specific program; to conduct research in a specific lab; or to participate in an internship with a specific program or faculty member. In any case, students will be enrolled as full-time students for a maximum of one year. Acceptance is on the recommendation of the department or program at McMaster. For every term that the student is here in residence they must register in SGS 302. [Visiting students are not permitted to audit courses.](#)

The student is expected to pay the supplementary fees (see Section 5.1, Fees for Graduate Students) and the appropriate Canadian or international equivalent per course fee for the time that they are registered here. It is necessary for [them-international visiting students](#) to enroll in the UHIP program to ensure adequate health insurance coverage during their stay.

## 2.1.11 Incoming Exchange Students

**Exchange students** are individuals who much like visiting students, are enrolled in a graduate degree program in another university and are paying fees to that university. The difference between a visiting student and an exchange student is that the exchange student participates in a formal exchange program between McMaster University and their home institution. A complete list of exchange agreements that McMaster participate in can be found on the Office of International Students Affairs webpage (<https://oia.mcmaster.ca>~~http://oia.mcmaster.ca~~). For every term that the student is here in residence the must register in SGS 702.

Students participating in a formal exchange program are not assessed supplementary, or course fees, and are entitled to take a full course load (assuming they are registered for a full course load at their home institution). It is necessary for them to enroll in the UHIP program to ensure adequate health insurance coverage during their stay.

~~For a list of types of exchanges please visit the School of Graduate Studies website.~~

## 2.1.12 English Language Requirements

English is the language of instruction and evaluation at McMaster, except in the M.A. and Ph.D. programs in French. Hence it is essential that all students (except in the French program) be able to communicate effectively in English.

Applicants whose **native-primary** language is not English will be required to furnish evidence of their proficiency in the use of the English language. Such applicants are required to supply this evidence as part of their application. At the discretion of the graduate program, applicants may be exempted from this requirement if they have completed a university degree at which English is the language of instruction.

The most common evidence is a score on the International English Language Testing System (IELTS) or the Test of English as a Foreign Language (TOEFL). Equivalent scores on other recognized tests may also be considered.

Students taking the IELTS are required to achieve a minimum score of 6.5 with a minimum score of 5.5 in each category.

TOEFL requirements may vary across programs.

- In most Faculties a minimum of 92 IBT (internet-based test) is required.
- In Business, Ph.D. and MBA programs require a minimum score of 100 with 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 IBT. The Master of Finance Program Requires a minimum score of 92.
- In Engineering the faculty requires a minimum score of 88 TOEFL (internet-based) or 6.5 IELTS. Please check with the program to see specific requirements, which may be higher.

Students who have completed an Academic ESL program through Canadian academic institutions may petition to have this considered in lieu of TOEFL.

~~For a list of acceptable English-language tests, please visit the School of Graduate Studies website.~~

## 2.2 Application for Admission

Enquiries about graduate work should be made directly to the department of interest. Our online application system is located at

<https://gs.mcmaster.ca/academic-services/how-apply>

Applications may be submitted at any time but applicants should refer to the department or program to which they are applying for department specific deadlines. However, most University scholarships and awards are adjudicated in late March or early April, so students applying later than March cannot be considered for these awards.

Applications from outside Canada should be completed at least five months before the desired date of entry in order to allow for any delays and for obtaining the necessary visa.

#### Application Fee

Applications must be accompanied by the required application fee. This fee is non-refundable and must be paid in Canadian dollars by means of a credit card payment or electronic transfer. The fee is assessed for each program requested to review the application.

The following items are required before your online application will be considered complete.

- a. One official transcript of academic work completed to date, sent directly from the issuing institution. If the final transcript does not show that a completed degree has been conferred, an official copy of your diploma is also required.
- b. Two confidential letters of recommendation from instructors most familiar with your academic work or appropriate relevant experience. Please note that McMaster University uses the Electronic Referencing System. By entering the email address of your referee through the online application, the system will automatically send an eReference request on your behalf.
- c. see Section 2.1.12 - *English Language Requirements*
- d. Statement of interest in pursuing graduate studies.

Programs may have additional admission requirements including, but not limited to, interviews. Please consult your program for details.

A graduate of a university outside Canada may also be required to submit a description of undergraduate and graduate courses taken in the field of specialization and in similar fields.

## 2.3 Transfer/Advance Credit and Determination of Course Equivalency

#### Transfer Credit

Application for transfer credit is normally done through the admissions process or as a petition for special consideration before taking the course for in course students and in both cases requires an Associate Dean's approval. Credits from other institutions must have been received in the last 5 years with a minimum grade of B-. In general, no credits used towards a previous degree or used as a basis of admission will be approved as credit toward a McMaster graduate degree. Normally, a maximum of 50% of the course degree requirements only will be approved for transfer credit. Approved transfer credit appears as a course with a grade notation of T on the student's transcript.

Credits from other institutions can be used to substitute a specific McMaster University course requirement; however, the student may be required to take additional courses. Students wishing to apply for advance credit or course requirement equivalency should normally inquire when they apply or accept an offer of admission. Requests after admission should be submitted to the program office for consideration using a petition for special consideration.

#### Advance Credit

Eligible students enrolled in a program with an advanced credit option ~~in Engineering~~ may request advance credit for up to two courses based on courses taken in their undergraduate degree at McMaster. For full details, please refer to descriptions of the

individual programs. Requests for advance credit are done by petition to the Associate Dean of the Faculty once enrolled in the graduate program.

In some cases, course taken for credit as part of a diploma program may be ~~considered~~ considered for advanced standing credit in subsequent master's programs.

Courses taken at the 500-level in a student's undergraduate career at McMaster may be considered for advanced credit.

## 2.4 Acceptance

~~Graduate programs perform the initial assessment of completed applications, is the responsibility of departments. If that assessment is favourable, the department will recommend to the School of Graduate Studies Office of a favourable decision, or by the department of a negative decision.~~ Applicants may be accepted conditionally before completing their present degree programs. ~~Such e~~Conditions must be cleared ~~at the time of registration by the deadline date specified in the offer letter.~~

Official ~~letters of admission~~ offer letters are sent only by the School of Graduate Studies, and are valid only for the program and term stated in the admission letter. Successful applicants are required to respond ~~in writing through the Applicant Portal~~ to the offer of admission ~~prior to the response deadline within the interval identified in the offer letter.~~ Some programs require a deposit fee. The value of the deposit fee will be deducted from the student's tuition fees. If circumstances develop making it impossible for a student to begin graduate work in the specified term, the department and the School reserve the right to revoke the offer of admission, and any financial aid offered.

The graduate program and the University reserve the right to revoke an offer of admission if any submitted materials are falsified, if a final transcript does not meet admission requirements or if it contains an annotation about an academic integrity or code of conduct matter.

## 2.5 Enrollment

### 2.5.1 Continuity of Registration

All graduate students, in both the regular and part-time programs, are required to enroll and pay supplementary fees annually and tuition fees term by term (within the first month of the term) until they graduate or withdraw. If they fail to do so they do not retain the status of graduate student, will be withdrawn in good standing, and must apply for re-admission if they wish at a later date to continue their studies. If the department approves re-admission, a student may be allowed to begin graduate work in the winter or summer term (January or May), in which case they will first register at the start of that term, but in any following years will enroll in September for all three terms. A student can either be:

- readmitted to defend if all that remains is the thesis defence and student is readmitted for one term only
- if a student needs more than one term to complete - they should be readmitted to program and maintain continuous enrollment until they complete their studies

A student who doesn't enroll for each term will be withdrawn in good standing unless there is a scheduled break in the program.

See also section 3.6 or 4.6 for more information on program progression.

### 2.5.2 Definition of Full- and Part-time Status

#### Full-Time Status

A full-time graduate student must:

- a. have been admitted to a graduate program as a full-time student;
- b. be pursuing ~~his or her~~their studies as a full-time occupation;
- c. identify ~~himself or herself~~themselves as a full-time graduate student;
- d. be designated by the university as a full-time graduate student;
- e. for most programs (and all research-based programs) ~~student~~ be geographically available and visit the campus regularly. Other programs may have different requirements and may be conducted fully on-line. Without forfeiting full-time status, a graduate student, while still under supervision, may be away from the university (e.g. visiting libraries, doing field work, attending a graduate course at another institution, etc.) provided that, if any such period exceeds four weeks in any one term, written evidence shall be available in the Graduate Studies Office to the effect that this request has the approval of the department or program Chair and Graduate Associate Dean. For information on full time off campus please consult section 2.5.6.
- f. be considered to be a full-time graduate student by their supervisor or equivalent (designated by the program office)
- g. students who change status from full to part-time, do not receive any more time to complete their program and will continue to be charged tuition fees at the full-time level.
- h. students who change part to full-time will have their term count re-set on a ratio of 2:1

All active graduate students other than full-time graduate students as defined above are part-time graduate students. See also section 3.6 or 4.6 for more information on program progression.

## 2.5.3 McMaster University's Regulations for Full- and Part-time Status

In accordance with the above provincial regulations, McMaster requires students to register annually, and to confirm their status as a full-time graduate student. Only full-time graduate students are eligible for scholarship support.

McMaster University complies with the OCGS document "Principles for Graduate Study at Ontario's Universities" (March 2017) which, in Resolution 5, states the following:

"Full-time graduate students are expected to pursue their graduate degree on a full-time basis and make satisfactory progress toward timely completion of all program requirements. It is not possible, or desirable, for the university to monitor and enforce the employment activities of its graduate students outside the university. However, it is both possible and desirable for the university to ensure that it does not itself create a structural situation that jeopardizes the ability of the graduate student to make full-time progress towards the completion of graduate program requirements. Accordingly, OCGS is committed to the principle that full-time graduate students are employed no more than an average of 10 hours per week on campus."

Full-time students who are participating in McMaster-based paid employment should work no more than an average of 10 hours a week to a maximum of 505 hours in the academic year. Normally students who exceed this limit are asked to drop down to part-time status, to stop working or reduce their hours of work. Changing student status from full-time to part-time will affect a student's scholarship funding, OSAP, and student visa [status](#).

The University considers full-time students to be those that have their studies as their priority. All full-time students must be available to conduct research (as appropriate), participate in courses and the other activities required by their program. In some cases award holders may face employment restrictions, but it is the responsibility of the student to ensure their work arrangements are compliant with the terms of their awards.

All active graduate students other than full-time graduate students as defined above are part-time graduate students.

## 2.5.4 Employment Regulations

In the McMaster context, there are three terms in the School of Graduate Studies for purposes of interpreting the rule in Section 2.5.3 limiting employment with the University to ten hours per week on average: Fall (September through December); Winter (January through April); and Summer (May through August). These are deemed to have 17, 17, and 18 weeks respectively. The ten-hour limit includes but is not limited to work as a Teaching Assistant at McMaster.

## 2.5.5 Enrolment - International Students on Study Permits

International students admitted to graduate studies degree programs must have a valid Study Permit issued by Citizenship and Immigration Canada (CIC), provided that their program of study is longer than six months. A copy of the Study Permit must be submitted to the School of Graduate Studies (SGS) upon arrival at the University. International graduate students without valid Study Permits will not be allowed to enroll.

If a Study Permit expires prior to program completion, students must apply to CIC for renewal and submit a copy of the renewed Study Permit to the School of Graduate Studies (check the 'valid until' date on the Study Permit). Make sure you apply at least 30 days before your current permit expires. If your Study Permit expires and you have made an application to renew it, but have not had a decision yet, you can continue studying until you receive a decision. Proof of application for renewal must be submitted to the School of Graduate Studies to permit continuing enrolment.

There are additional rules for students whose program is delivered either partially or wholly on-line. Students whose program is delivered entirely on-line do not need a study permit. Students whose program is delivered partially on-line and is longer than six months will need a study permit for the period of time when they are required to be on campus - for example to attend a residency week.

For information on status change to permanent resident status during the course of your study, please see section 5.1.4.

## 2.5.6 Full Time Off-Campus

On admission to a full-time program, the assumption is that a student will be full-time on-campus. This is known as being "in residence". If a student wants to spend a period of time away from the university in order to complete their research, they must apply to be full-time off campus and complete the form RMM 801.

Students admitted to a degree program on a part-time basis are responsible for maintaining close contact with faculty members and students in their field of study.

## 2.5.7 Leaves of Absence

Graduate students are required to be continuously registered to support the timely completion of their degree. Students may apply for a Leave of Absence in one of four categories (see below for the specifics for each type of leave):

1. Medical or disability leave;
2. Parenting leave;
3. Compassionate or personal leave; or,
4. No course available leave

### General Notes for Leaves of Absence

Leaves of Absence ("LOA") are normally granted on a term-by-term basis. Whenever possible the LOA should start and end at the beginning of a term (i.e., January 1, May 1, or September 1). During an LOA the student will not receive supervision or be entitled to use the University's academic facilities for the purposes of academic progression. No tuition will be charged, nor will the student be eligible for any scholarship support. Please note students on an LOA have to pay applicable supplemental fees and will be able to use the services associated with those fees (please direct questions to Student Accounts). The length of time for completing the degree, and for scholarship support eligibility (see qualifier below), will be extended by the duration of the LOA on the resumption of studies. If an LOA begins or ends in the middle of a term, term count will be determined upon return in consultation with the Associate Dean.

It is understood that when a student takes a LOA, the duration of the leave will not be counted as time towards the time limits in which the student is required to complete or make progress in his or her graduate studies program. On occasion a student may take a leave of absence starting mid-term. This may have impacts on tuition, pay and term count, students should contact their program office or the School of Graduate Studies for more information.

Students should be aware that in the event of an LOA, continuation of the same research project and/or supervisor cannot be guaranteed. In order that the student's supervisor and/or program can make suitable arrangements to cover ongoing responsibilities during the student's LOA, students are expected to provide as much notice as possible of the intention to take a LOA.

Note: Students who hold fellowships, scholarships or grants from NSERC, SSHRC, CIHR, or OGS should be aware that these agencies or any other external funding source may have policies governing the interruption and continuation of awards that may differ from the University's policy on LOA. Students holding such awards and who intend to keep them are responsible for ensuring that any LOA taken does not conflict with the granting agency's regulations. The appropriate agency should be contacted for details.

Students returning earlier than planned from an LOA must provide written notice to the School of Graduate Studies a minimum of four weeks in advance of the new return date.

LOA affecting Teaching Assistantship duties are covered by the Collective Agreement with Local 3906 (Unit 1) of the Canadian Union of Public Employees. Please refer to the collective agreement for additional information:  
<http://www.workingatmcmaster.ca/elr/collective-agreements/cupe-unit1/>

Alternatively, the student may request to withdraw (Withdrawal at the Request of the Student). Should the student opt to withdraw, they may be eligible for reinstatement at the University's discretion upon reapplication.

Please note in all cases leaves of absence have the potential to impact term counts. Students on a leave will have their term counts adjusted – if they are off for one or two months out of a term, the term is counted, in cases where they are off three or four month the term is not counted toward their overall term count.

**Commented [C3]:** Additional clarity around term counts as it relates to LOA

### **1. Medical or disability leave:**

A medical or disability LOA is permitted for reasons of illness or disability, provided that the request is supported by adequate medical documentation. Absences are approved for up to 12 months at a time.

Students wishing to return from a medical LOA must provide a medical note indicating they are fit to continue with their studies.

### **2. Parenting leave:**

A parenting LOA is intended to assist parents in successfully combining their graduate studies and family responsibilities with minimum financial and/or academic impact. The University will provide the following arrangement for parents requiring parenting leave from their studies at the time of pregnancy, birth or adoption and/or to provide care during the child's first year.

According to the Employment Standards Act 200 - May 7, 2018 version Part XIV, a "parent" includes: "a person with whom a child is placed for adoption and a person who is in a relationship of some permanence with a parent of a child and who intends to treat the child as his or her own".

While students are not covered by the Employment Standards Act, McMaster grants students a Parenting Leave for a maximum of four consecutive terms. A student electing not to take the maximum amount of time available for Parenting Leave will not have the option of taking any unused portion at a later date. Students returning from a leave should consult with their programs and should note that course availability may be affected by the timing of their return.

Eligible students can also apply for a Parenting Grant. More information on this is available on the School of Graduate Studies Website at the following link: <https://gs.mcmaster.ca/awards-funding/parenting-grant>.



A parenting LOA or a portion thereof may be taken concurrently with a Pregnancy and/or Parental Leave from employment, in accordance with the Employment Standards Act, 2000, should the student also be an employee of the University.

### **3. Compassionate or personal leave:**

Students who have successfully completed at least one full year in a graduate program may apply for an LOA once for up to one year for personal circumstances, or work experience provided that the student's supervisor and the department support the request.

An LOA will not be granted to pursue another program of study.

Under certain circumstances the Vice-Provost and Dean of Graduate Studies may allow for a special leave of absence. In this case, application should be made directly to the Vice-Provost and Dean of Graduate Studies.

### **4. No course available leave:**

This leave is available only for graduate programs that have indicated on their website that the 'no course available leave' is an option. This leave is available to students who have yet to complete course work and no suitable course is offered in a given term; the student may petition for a 'no course available leave' for that term. This leave is not available if the student is registered in a program that requires a thesis/dissertation or a major research paper.

## **2.5.8 Vacations**

Full-time graduate students are expected to be on campus for all three terms of the university year, as specified in Section 1.3. In addition to statutory holidays (see Sessional Dates) and the closure of the University normally late December until early January, normal vacation entitlement for a graduate student is two weeks of vacation during the year, to be scheduled by mutual agreement with the research supervisor. An exception to this allotment requires approval from the supervisor or in the supervisor's absence a member of the supervisory committee.

Students who are also employees of the University must seek vacation approval from their employment supervisor and are entitled to vacation time pursuant to the terms of their employment contract.

## **2.5.9 Appeals and Petitions for Special Consideration**

The University wishes to assist students with legitimate difficulties. It also has the responsibility to ensure that degree, program and course requirements are met in a manner that is equitable to all students. Please note that academic accommodation requests related to a disability are processed under the Academic Accommodation of Students with Disabilities policy. This includes accommodation requests for Permanent Disability, Temporary Disability, and Retroactive Accommodation.

In those instances where a student acknowledges that the rules and regulations of the University have been applied fairly, but is requesting that an exception be made because of special circumstances (compelling medical, personal, or family reasons) the student may submit, in a prompt and timely manner, a Petition for Special Consideration. The appropriate form is available on the School of Graduate Studies website. The student's supervisor and Associate Chair are normally required to provide their independent assessments of the student's statement in the petition. Supporting documentation will be required but will not ensure approval of the petition. The authority to grant petitions lies with the School of Graduate Studies and is discretionary. It is imperative that students make every effort to meet the originally-scheduled course requirements and it is a student's responsibility to write examinations as scheduled.

In accordance with the Student Appeal Procedures, decisions made on Petitions for Special Consideration cannot be appealed to the Senate Board for Student appeals. Where any student feels there may have been discrimination on grounds in a protected social area as outlined in the Ontario Human Rights Code, they may contact the Equity and Inclusion Office to discuss initiating a complaint (Room 212 of the McMaster University Student Centre). In Health Sciences, Graduate Students should also consult the Advisor on Professionalism in Clinically-Based Education.

## 2.5.10 Withdrawal from a Graduate Program

Commented [CB(S4)]: Addition to add clarity, moved to 2.6

~~Students who elect to withdraw from a program and would not otherwise have been withdrawn by the program due to failing its academic requirements, may be considered to have 'withdrawn in good standing'. Students with this standing may re-apply for admissions to the same program at a later date to continue their studies.~~

~~Students who were required to withdraw by its Faculty Committee on Graduate Admissions and Study shall not be permitted to enroll at any later time into the same program. This policy does not apply to students who have withdrawn in good standing, overturned the failure through the Student Appeal process, or are seeking re-admission due to retroactive accommodation granted by Student Accessibility Services. A student withdrawn from any program will normally not be allowed to apply for a different program for a period of three years to give the student time to better prepare for graduate studies.~~

## 2.6 Academic Progression and Graduate Curriculum

To be considered to be in good academic standing a student must do the following as outlined in section 1.3:

- enroll annually (excluding leaves of absence) until graduation, withdraw, or be withdrawn in good standing due to time limit;
- pay fees as required;
- comply with the regulations of the School of Graduate Studies as set out in this calendar and;
- make satisfactory progress toward the completion of the degree as outlined in section 2.6 Academic Progression.

All degree students are admitted under the General Regulations of the School of Graduate Studies, described in the calendar. Respective degree regulations for the various degrees offered at McMaster University are specified in the program-specific sections of the calendar.

Each student is required to satisfy the program requirements of the academic year in which the student first registered in the graduate program. Failure to maintain good academic standing may impact the students' ability to continue in the program.

Students may be required to withdraw or may be prevented from registering for the subsequent academic year if they do not comply with the regulations outlined in this calendar, including failure to maintain satisfactory academic progress.

~~Students in this situation who elect to withdraw from a program and would not otherwise have been withdrawn by the program due to failing its academic requirements, may be considered to have 'withdrawn in good standing'. Students with this standing may re-apply for admissions to the same program at a later date to continue their studies.~~

~~Students who were required to withdraw by its Faculty Committee on Graduate Admissions and Study, represented by the Associate Dean for the Faculty, shall not be permitted to enroll at any later time into the same program. This policy does not apply to students who have withdrawn in good standing, overturned the failure through the Student Appeal process, or are seeking re-admission due to retroactive accommodation granted by Student Accessibility Services. A student withdrawn from any program will normally not be allowed to apply for a different program for a period of three years to give the student time to better prepare for graduate studies.~~

## 2.6.1 Averaging of Letter Grades

Grades in graduate courses are reported as letter grades. However, instructors may record grades for individual components of the course either as letter or numerical grades. The averaging of letter grades assigned to individual components of a course must be done by using the McMaster 12-point scale, as follows: A+ = 12, A = 11, A- = 10, B+ = 9, B = 8, B- = 7, C+ = 6, C = 5, C- = 4, D+ = 3, D = 2, D- = 1, F = 0. Further, all .5 marks should be rounded up. The passing grades for courses at the graduate level are A+, A, A-, B+, B, and B-. Graduate students enrolled in undergraduate courses will be subject to the grading scale as courses in the graduate level. The minimum passing grade is a B-. Final grades are normally converted to letter grades after the numerical grade is determined.

Graduate Student Grading Scale:

Grade	Points	Equivalent Percentages	Pass/Fail
A+	12	90-100	P+
A	11	85-89	P
A-	10	80-84	
B+	9	77-79	
B	8	73-76	
B-	7	70-72	
F	0	69 and under	F

Note: Grades in graduate courses are reported as letter grades. Averaging of letter grades must be done using the McMaster 12-point scale.

Graduate Diploma in Professional Accountancy, MBA and Master of Finance Grading Scale:

Grade	Points	Equivalent Percentages	Pass/Fail
A+	12	90-100	P+
A	11	85-89	P
A-	10	80-84	
B+	9	75-79	
B	8	70-74	
B-	7	60-69	
F	0	59 and under	F

Example of Weighted Average Calculation, using the grade points and units for courses completed:

Course Grade	Grade Points		Course Units		

A-	10	x	6	=	60
B	8	x	6	=	48
B+	9	x	3	=	27
F	0	x	3	=	0
			Total	18	
					135
					5
To calculate Average:					135 ÷ 18
					=7.5

**Note:** Students are graded according to the type of course they are taking, for example non-MBA students who enlist in MBA courses are graded based on the MBA grading scale.

**Commented [CB(S5):** Clarity added based on current practice

McMaster University's Policy on Graduate Course Outlines is available at:

<http://www.mcmaster.ca/policy/faculty/Conduct/GraduateCourseOutlines.pdf>

## 2.6.2 Course Levels and Types

A McMaster course is a body of work which is graded using the graduate student grading scale and consists attending lectures, seminars or other of organized activities (e.g. online discussions, experiential learning, etc.). Normally the beginning and end dates for courses should coincide with the beginning and end dates of University sessions. All Graduate courses have a unit value, with the standard examples being 1.5 units (normally 12 to 19 hours of organized activity) for a course usually lasting for half a term, 3 units for a course usually lasting one term (normally 24 to 39 hours of organized activity), 6 units for a course usually lasting two terms (normally 48 to 78 hours of organized activity).

Graduate students are normally required to complete their course degree requirements by taking courses from within their program. As a minimum, at least 50% of courses taken must be listed or cross-listed by the program in order to be counted towards the degree. Courses taken outside of the program and not listed as part of the degree requirements, require the permission of the Associate Dean of the faculty or their delegate to be counted towards the degree.

Courses available for graduate credit are numbered either at the 700- or 600-level (e.g. 771 or 6D06). Courses are restricted in enrolment to graduate students, with the exception of undergraduate students enrolled in 500-level courses equivalent to graduate courses and those students registered for approved, accelerated Masters programs and with written permission of their department (or program) chair, director, or designate. (Programs may have additional restrictions on the number of 600-level courses allowed for graduate credit, though no program may allow more than one-third of their course requirements to be filled at the 600 level). Graduate students taking 600-level courses are regularly required to do extra course work beyond that required of undergraduates in the corresponding 400-level course. Each program offers only a selection of its courses in any given year.

**Commented [CB(S6):** Change related to creation of 500 level courses

## 2.6.3 Requirement Designations

The enrollment process will automatically assign a course towards the primary academic program that a student is enrolled in for a particular term. This process does not determine whether the course will exceed the requirements outlined in the curriculum. Where a student wishes to designate a particular course towards a program other than their primary academic program a special request is required during the normal add period outlined in the sessional dates. The requirement designation form is available on the School of Graduate Studies website.

Courses can be designated as being in one of the five categories:

**Master's** (Count towards the primary academic program requirements of a Master's degree)

This category identifies the courses that are to count towards the Master's degree requirements (including any additional graduate requirements or undergraduate courses specified by the supervisory committee or Department Chair). The passing grades for a Master's course are A+, A, A-, B+, B, and B-.

**Doctoral** (Count towards the primary academic program requirements of a Doctoral degree)

This category identifies the courses that are to count towards the Doctoral degree requirements (including any additional graduate requirements or undergraduate courses specified by the supervisory committee or Department Chair). The passing grades for a Doctoral course are A+, A, A-, B+, B, and B-.

**Extra Courses** (Extra Course)

This category identifies courses that the student is taking with the approval of the supervisor but that are not necessary to the student's current degree program. In order to designate a course as extra, a student will have to submit a course designation request during the normal add period of enrollment in a particular term. The form is submitted to the program office and once approved will have the designation added to the enrollment record for that course only. If a failing grade (i.e. less than B-) is received in a course taken as Extra, the courses (and grade) will not appear on the student's transcript unless because of academic dishonesty. Students may petition to change the designation of an Extra Course to a Master's or Doctoral course prior to the deadline to drop a course provided that this change is supported by the supervisor and program. Changes of designation after the drop date will not be approved. Courses designated as Extra Course may subsequently be counted towards graduate degree requirements and the course designation changed to Master's or Doctoral, if approved by the Faculty Admissions and Study Committee or the Associate Dean acting on its behalf. The passing grades for an Extra Course are A+, A, A-, B+, B, and B-.

Courses that are required by the supervisory committee or the Department Chair as additional requirements in excess of the stated minimum for the program must be designated as Master's or Doctoral.

**Diploma Course**

This category identifies courses that are to count towards the requirements for a diploma. The passing grades for a Diploma course are A+, A, A-, B+, B, and B-.

**Certificate Course**

This category identifies courses that the student is taking as individual courses not counting towards the requirements for a diploma. The passing grades for a Certificate course are A+, A, A-, B+, B, and B-.

McMaster students enrolled in a program wishing to take a course at another institution need to apply online in the Student Centre (see section 6.10 - Inter-University Cooperation - Ontario Visiting Graduate Student).

## 2.6.4 Milestones

Milestones are non-course requirements that are part of the curriculum and required in addition to course work (e.g. seminars, workshops and comprehensive examinations etc.) Milestones are considered formal components of a student's academic progress and if not successfully completed will normally prevent a student from graduating.

There are two types of Milestones: graded and non-graded. Both types of Milestones can be viewed on the Mosaic student centre but only graded Milestones must appear on the student's transcript (once completed). If a student receives an F grade in their Milestone they may be required to withdraw.

Please refer to individual program descriptions for further details of non-coursework requirements.

## 2.6.5 Required Course and Training for All Graduate Students

All graduate students, including part-time students, exchange students and visiting students must complete and pass the course *SGS 101 Academic Research Integrity and Ethics* within the first month of their first term after their admission to graduate studies at McMaster. The purpose of this course is to ensure that the standards and expectations of academic integrity and research ethics are communicated early and are understood by incoming students. All students are required to take and pass SGS 101. Students may not graduate or register in subsequent academic terms without having successfully completed this course.

All graduate students are required to complete appropriate training required to complete their research and studies (health and safety training, ethics training, biosafety training, etc.), as determined by their home Department or Program. All graduate students also are required to complete and pass *SGS 201 Accessibility for Ontarians with Disabilities Act (AODA)*, which can be completed on-line (<http://accessibility.mcmaster.ca/>), *Avenue to Learn*. Having an understanding of how we can identify and reduce attitudinal, structural, information, technological, and systemic barriers to persons with disabilities is core to McMaster University's commitment to supporting an inclusive community in which all persons are treated with dignity and equality, and completion of AODA training is critical as McMaster's graduates move forward in their varied, chosen professions.

Students may not graduate or register for subsequent terms in their program until they have completed their required training.

## 2.6.6. Audited Courses

Graduate Students may request to audit Graduate courses only. This requires a completed form, signed by the instructor and student's supervisor. Upon completion of the course, and subject to confirmation from the instructor that their expectations regarding the student's participation were met (i.e. that the student attended at least 80% of the class), a grade of "AUD" will be recorded on the transcript. No other grade will be assigned.

Audited courses have no academic credit and an audited course may not be retaken for credit.

Graduate students are not allowed to audit undergraduate courses.

## 2.6.7 Repeated Courses

Graduate students may not repeat courses for credit. The only exceptions are: when remediating a failing grade (see 2.6.4) and reading/special topics courses (only where each topic taken by the student is distinct from others previously taken).

## 2.6.8 Failing Grades, Failing Milestones and Incomplete Grades

The minimum passing grade in a graduate course is a B-. Failure in either a course or a milestone is reviewed by the appropriate Faculty Committee on Graduate Admissions and Study or the Associate Dean. The Faculty Committee on Graduate Admissions and Study or the Associate Dean acting on its behalf requests a departmental recommendation regarding the student, and this

recommendation is given considerable weight. In the absence of a departmental recommendation to allow the student to continue, the student will be required to withdraw. Those allowed to remain in the program must either repeat or replace the failed course or milestone. A failing grade in a Certificate, Diploma, Master's or Doctoral course remains on the transcript. Students who fail a second course or milestone will not normally be allowed to continue in the program.

Under exceptional circumstances a course instructor may approve an extension for the student for the completion of work in a course and assign an Incomplete grade (INC). The instructor will submit an incomplete grade with a 'Lapse To' grade, which is the grade that will default to at the date to clear incomplete grades. Normally this extension is in the range of a few weeks. A student who receives an incomplete grade must complete the work as soon as possible, and in any case early enough to allow the instructor to report the grade by the 'Final Date to Submit Results of Incomplete Grades'. If the INC grade is not cleared by the deadline, the lapsed grade will ~~automatically~~ be recorded.

## 2.6.9 Placeholder Courses

To complete registration at least one course needs to be added for each term. If the student is not taking an academic course in a term, there are two different placeholder courses.

- SGS 700 - for students who are in programs that are costed on a per term basis
- SGS 711 - for students who are in programs that are costed on a per course basis

If a student does not add a course in each term the student will not have completed their enrollment. This will have impacts on all aspects of student life including scholarships, fee assessment and ordering transcripts.

If a student adds a placeholder course and subsequently adds an academic course the placeholder should be dropped. The placeholder will not be dropped if the only courses remaining include:

- SGS 101, and/or
- SGS 201, and/or
- Courses in the Education series - such as EDUCTN 750

Students who are here as a visiting or exchange student will need to enroll in SGS 302.

## 2.6.10 Outgoing Exchange Students

Students on exchange programs may take graduate courses that with approved transfer credit may count towards completion of course curriculum. Any credit for these courses will depend on the student achieving a passing grade based on the Graduate Grading Scale outlined in Section 2.6.1. [Students are required to maintain enrolment at McMaster by registering for SGS 702.](#)

### [2.6.11 Ontario Visiting Graduate Studies and Canadian University Graduate Transfer Agreement](#)

[The Ontario Visiting Graduate Student Plan \(OVGS\) allows a graduate student of an Ontario university \(Home University\) to take graduate courses at another Ontario University \(Host University\) while remaining enrolled at his/her own university, without applying to the host institution. The student completes an Ontario Visiting Graduate Student form which must be signed off by their graduate program chair and the associate dean and will indicate the course to be taken and the term during the which the course is offered.](#)

[The Canadian University Graduate Transfer Agreement \(CUGTA\) allows registered students enrolled in a graduate program at a Canadian Association for Graduate Studies \(CAGS\) member university to take courses offered at another CAGS member university for transfer credit.](#)

[In both OVGS and CUGTA arrangements the courses must be deemed as integral to the student's degree program and must not be available at McMaster University. There is a two-course maximum per student over the duration of their program.](#)

**Commented [CB(S7)]:** Changed for clarity around how many OVGS/CUGTA courses a student can take

## 2.7 Supervision

It is the responsibility of the department/program to ensure that every graduate student has, at all times, a faculty advisor or a properly constituted supervisory committee. **The supervisor must be declared within the first 5 months of study and the supervisory committee must be declared within the first 12 months of study.**

The department/program should ensure that the members of a supervisory committee are sufficiently competent and experienced to serve at the required level. In identifying a supervisory committee, the department/program should consider the following, among other things: the balance of the committee by rank and experience; publications and other demonstrations of competence in scholarship or research on the part of the supervisor. Supervisory committees for Ph.D. candidates shall be reviewed annually by the department/program. Supervisory committee members are assumed to continue their participation on student committees unless otherwise replaced by the Associate Chair or Graduate Advisor.

From time to time it may be appropriate for non-McMaster faculty of industry experts to be considered for roles on the supervisory committee. In cases such as this approval is required by the Vice-Provost and Dean of Graduate Studies. Please refer to the policy at the following link ([embed https://secretariat.mcmaster.ca/app/uploads/SPS-A11-Supervision-of-Graduate-Work.pdf](https://secretariat.mcmaster.ca/app/uploads/SPS-A11-Supervision-of-Graduate-Work.pdf)).

While the supervisor and student have a mutual obligation to meet on a regular basis, the department/program shall ensure there is a formal regular meeting of each Ph.D. supervisory committee at least once within the reporting year (December 1-November 30), and possibly more often, to discuss the student's progress. Each Ph.D. supervisory committee must report at least annually on the student's progress and the department/program chair must forward such reports to the School of Graduate Studies. For Ph.D. students who have entered or transferred into the Ph.D. effective January 1st or May 1st, they must have a Ph.D. Supervisory committee meeting completed no later than November 30th of that same calendar year; those entering September 1st must have at least one meeting by November 30th of the next year. The report formally documents the supervisory committee's assessment of the progress of the student's program.

The department/program should prepare a set of guidelines for supervisors and students. The guidelines should deal with the selection and functioning of supervisory committees and should cover the joint responsibilities of faculty members and graduate students. The guidelines may be attached to or incorporated in department/program handbooks which give regulations supplementary to those in the Calendar. Items relevant to graduate supervision should be approved by the appropriate Faculty Committee on Graduate Admissions and Study. A copy of the guidelines shall be given to each faculty member and each graduate student.

It is possible to change supervisors or the membership of a supervisory committee, although this is not the norm. If the direction of the research changes, membership can be changed by mutual consent of the parties involved. Supervisors and/or supervisory committee members may not resign without the department's/program's approval. A change in supervisor is at the discretion of the department/program, not the student or supervisor.

If a student feels that they are receiving unsatisfactory supervision, they should consult the Department/Program Chair or Graduate Advisor. If this avenue is not sufficient, the student is encouraged to speak with the appropriate Associate Dean of Graduate Studies about the problem. [A student without supervision may be withdrawn due to the requirement of supervision to complete the degree.](#) (see Section 4.5 - Supervision).

Graduate students and supervisors are encouraged to familiarize themselves with the McMaster University Graduate Work Supervision Guidelines for Faculty and Students, which follow below and to list of policies, policies on accommodations available on the School of Graduate Studies website at <https://graduate.mcmaster.ca/resources>.

### 2.7.1 Graduate Work Supervision Guidelines for Faculty and Students



### Preamble

The relationship between the graduate student and supervisor/advisor is unique and provides a remarkable opportunity to guide and mentor the student engaged in advanced academic learning. What is considered 'good' supervision will vary from discipline to discipline, and it naturally evolves as the student advances through a graduate program. This document provides suggestions to initiate, promote, and sustain successful student-supervisor/advisor relationships.

### Guidelines for the Graduate Student

1. Commitment to scholarly activity is a pre-requisite for graduate success.
2. To support mentorship and guidance, the student must engage in effective, timely and on-going communication with the supervisor/advisor regarding the status of their project.
3. The student should discuss expectations with the supervisor/advisor to ensure that there is a mutual understanding of research goals and related activities, coursework, timelines and deadlines.
4. The student must manage their time, meet deadlines, and prepare for regularly scheduled meetings (e.g., with the supervisor/advisor and supervisory committee). Students should recognize that graduate program academic expectations will not be modified if they choose to engage in other activities, such as working outside of their graduate studies, studying for professional program entrance exams or applying for jobs or postdoctoral fellowships. Student-supervisor meetings for thesis work typically occur at least monthly, although meeting regularity will vary amongst disciplines and at various stages. Students are encouraged to discuss concerns about the type and amount of supervision needed for their work with their supervisor. Students are expected to inform the academic head of the graduate program if they are concerned about inadequate or inappropriate supervision.
5. The student is expected to develop effective communication and collaborative skills and to demonstrate respect for others. The student should carefully and earnestly consider advice, suggestions, comments and criticisms received from the graduate supervisor/advisor. The student should expect timely, but not immediate, responses (regarding meetings, feedback on written work, etc.) from the supervisor/advisor and supervisory committee.
6. The student is obliged to act ethically in conducting graduate work. This includes, but is not limited to, following McMaster University policies on the ethical conduct of research and academic integrity. The student is required to document and honestly report research data, to conscientiously cite information and data sources, and to seek guidance on any data exclusions. He/she must acknowledge contributions of the supervisor/advisor, committee members and others, in accordance with the norms of their academic discipline.
7. It is the student's responsibility to carry out all work safely and in accordance with standard operating procedures. Potentially dangerous tasks should not be done while impaired and should not be done until properly trained. It is the student's duty to learn about safe practices, ask questions, and seek appropriate help and guidance on safety matters.
8. It is the student's responsibility to be aware of all the requirements, regulations, and guidelines outlined in the Graduate Calendar as well as all University policies pertaining to graduate work.  
See [http://graduate.mcmaster.ca/images/files/graduate/forms/Graduate Work Supervision Guidelines.pdf](http://graduate.mcmaster.ca/images/files/graduate/forms/Graduate%20Work%20Supervision%20Guidelines.pdf) (see Appendix).

### Guidelines for Supervisors and Advisors of Graduate Students

1. The supervisor/advisor must be aware of the inherent power imbalance in the relationship with students, behave professionally, and communicate appropriately. He/she must provide a safe, healthy environment that fosters productive scholarly work, curiosity, and freedom of expression. The environment must be free from harassment, discrimination, and intimidation.
2. The supervisor/advisor is expected to have sufficient time and resources (as appropriate for the field) to support the student's work effectively. It is the supervisor's responsibility to ensure that students have appropriate safety training, and that they carry out all work safely, and in accordance with standard operating procedures, once properly trained.
3. The supervisor/advisor should help the student develop a realistic thesis/research plan with reasonable plans, that balance exploration with achievable, manageable and focused goals, and allow completion of scholarly work "in time."
4. The supervisory committee must approve thesis project plans, including those that are part of a larger collaborative project led by others (e.g. research team members or collaborators).
5. The supervisor/advisor may encourage the student to undertake some research that is not formally part of their scholarly paper project or thesis project, provided that it will not negatively impact the student's academic progress. If appropriate, the additional work can be supported by a research assistant stipend.

6. The supervisor/advisor should be aware that a student might experience changes in motivation and productivity. The supervisor/advisor should be prepared to adapt his/her mentorship approach to promote success in a range of different situations.
7. The supervisor/advisor is expected to be aware of accommodation policies, procedures and support services, and to support students with temporary disabilities in designing and organizing accommodations. For students with identified permanent disabilities, the supervisor/advisor is expected to consult with Student Accessibility Services on [accommodations/accommodations](#). They are expected to be respectful of graduate students who are dealing with stressful situations and personal difficulties. When appropriate, the supervisor/advisor should direct the student to campus resources and other supports. The supervisor/advisor is responsible for promoting a culture of respect and collaboration and encouraging timely conflict resolution when disputes arise, which may require consultation with the supervisory committee or others (e.g. head of the graduate program).
8. The supervisor must regularly communicate and have face-to-face meetings with the student to provide feedback on the student's progress, strengths, weaknesses, gaps in knowledge, and how well the student is addressing deficiencies. Written summaries of feedback should be prepared when there are significant deficiencies. When a student is struggling with meeting graduate program/thesis work expectations, a supervisory committee meeting should be scheduled early to assess progress and plans, and to provide a clear statement of requirements to meet expectations.
9. The supervisor/advisor and supervisory committee are required to provide students with timely, but not instantaneous, feedback. As an example, corrections to a thesis chapter, major research project, or a manuscript optimally should occur within a few weeks. Faculty should be aware that they must respond to a draft of the thesis within the timelines outlined in the graduate calendar.
10. Supervisors/advisors who undertake a research leave or other leaves must communicate to their graduate students, and graduate student applicants, the plans to provide supervision during the leave. Supervisors/advisors who will be away from campus for extended periods of time must name an alternate faculty member, with graduate supervisory privileges, who will have day-to-day responsibility and signing-authority for students.
11. The supervisor/advisor is expected to encourage increasing independence as the student progresses through graduate work. Although the supervisor/advisor is not expected to be a copy editor for the student's written work, he/she should review and provide feedback on materials that the student produces prior to external review or defence.
12. Students' contributions to research must be acknowledged in accordance with the University policies and the norms of the academic discipline.
13. When feasible and appropriate, supervisors/advisors are expected to encourage students to submit their graduate work for presentation at conferences and workshops, and for publication.
14. The supervisor/advisor should recognize that there are multiple career paths available to different students, and should be respectful of the student's choice of career path, providing advice, where appropriate, on the best way for the student to reach their career goals. The supervisor also should be aware of professional development opportunities for the student offered through the Department/Program, Faculty, or University, and should encourage the student to take advantage of such opportunities.
15. It is the supervisor/advisor's responsibility to be aware of all the requirements, regulations, and guidelines outlined in the Graduate Calendar and University policies. See [http://graduate.mcmaster.ca/images/files/graduate/forms/Graduate Work Supervision Guidelines.pdf](http://graduate.mcmaster.ca/images/files/graduate/forms/Graduate%20Work%20Supervision%20Guidelines.pdf) (see Appendix).

## 2.8 Theses

### 2.8.1 General

The thesis will be a coherent work prepared as an electronic document (an e-thesis) that provides a complete and systematic account of the research accomplished by the writer. A printed paper version is no longer acceptable for thesis defence or for storage in the university library after a successful defence. A Doctoral student may prepare and defend either a standard e-thesis (see 'GUIDE FOR THE PREPARATION OF MASTER'S AND DOCTORAL THESES') or a "sandwich" e-thesis at oral examination (also known as the 'thesis defence'). Normally, a Master's student may submit only a standard e-thesis (see 'Thesis Guide' section 5.2). Each department or program offering graduate work is wholly responsible for setting up oral examinations

for Master's candidates (see 'Thesis Guide' Sections 6.1 and 6.2). The School of Graduate Studies assists with arranging all Ph.D. oral examinations (see 'Thesis Guide' Sections 6.3, 6.4, and Appendix 1).

Prior to the thesis defence and, in the case of a doctoral thesis, before sending out the draft to the external examiner, the entire document must be reviewed for its originality using the University's paid subscription to Urkund. The program/supervisor will review the originality report generated by Urkund and either recommend changes to the document or approve it for the defence. A thesis may not be seen by the thesis examining committee (including the external reviewer in the case of a doctoral thesis) until the Urkund generated report was reviewed and approved by the supervisor or the program, unless authorized by the Associate Dean of Graduate Studies.

**Commented [C8]:** Addition related to recently-approved research plagiarism checking policy

All candidates for Master's or Doctoral degrees who have successfully completed their oral examinations and who have made all required revisions to the satisfaction of their supervisor must upload an electronic version of their final e-thesis to 'MacSphere' (see section 2.8.3 below). The e-thesis must be presented in a format acceptable to the School of Graduate Studies. Please note that changes to an e-thesis will not be accepted after it has been uploaded to MacSphere and that the document uploaded should be the version approved by the supervisory committee after the defence. Having filed the e-thesis to MacSphere, the student may choose to purchase printed and bound copies for their personal use or for presentation. Details of selected companies who are organized to print and bind the thesis are listed on the School of Graduate Studies website (<http://www.mcmaster.ca/graduate>). The cost of printing and binding will be borne by the student.

No research for the Master's or Ph.D. degrees at McMaster may be secret or classified. All e-theses will be available to readers through MacSphere.

Individual Departments or graduate programs may issue special instructions concerning the expected forms of graphs, tables, maps, diagrams, and sound and video files which may be included within the e-thesis. Accepted forms of bibliographical reference in the particular discipline and other matters of format should be discussed with the thesis supervisor. Students may also refer to the instructions set forth in Kate L. Turabian's *A Manual for Writers of Term Papers, Theses, and Dissertations*. In those instances where an examiner requests a printed copy of the thesis, it is the student's responsibility to produce a print version well before the oral examination. Doctoral students and their supervisors should keep in mind that theses of extraordinary length are to be discouraged. The preparation of a lengthy Ph.D. thesis almost certainly extends the time that the student takes to complete his or her degree. As a general rule, doctoral students are urged to limit their theses to no greater length than three hundred (300) pages of text (Master's thesis to less than 200 pages). In cases where students and their supervisors believe that responsible scholarly treatment of the thesis topic requires substantially greater length than that specified above, a written approval from the appropriate Associate Dean of Graduate Studies must be obtained before the external examiner is contacted.

## 2.8.2 Response Times for Theses

Supervisory committees should respond to the draft of a Ph.D. thesis within 2 months. Providing comments on individual chapters will take proportionately less time. Very long theses or chapters may take more time. There are busy periods within the academic year when the time taken to provide comments might be a bit longer than this norm. However, in no case should the response time exceed 3 months.

For Master's theses the corresponding times are 1 month and 2 months. Master's students are entitled to defend within 2 months of providing the final draft of the thesis to the department/program.

## 2.8.3 Publication of Electronic Theses at McMaster University

Every successfully-defended thesis for a Master's or a Ph.D. degree shall be published substantially as it was approved at the thesis defence, including any changes mandated by the defence committee, through the University Library's MacSphere and the Library and Archives of Canada. To this end, as a final requirement of the degree, each student must sign a license enabling such digital publication, and must upload the thesis to MacSphere in electronic form. Note that the student may request postponement

of digital publication for up to one year at the time of uploading the thesis to MacSphere, and all such requests will be automatically granted. E-publication delays normally would be requested for the shortest amount of time required to facilitate publication with external organizations, to protect any right to immediate commercial gain, or to permit a patent application to be completed. Students wishing extensions of their initial postponement must apply directly to the Vice-Provost & Dean of Graduate Studies, at least 4 weeks before the termination of the initial e-publication postponement, with a full description of why an additional delay is requested and what steps have been taken to address the issues that required the initial delay. The Vice-Provost & Dean of Graduate Studies will determine whether further publication postponement is warranted, and, in no case will a publication delay of more than 2 years be permitted.

## Regulations for Master's Degrees

Master of Applied Science, Master of Arts, Master of Biomedical Discover and Commercialization, Master of Communications Management, Master of Engineering, Master of Engineering in Manufacturing Engineering, Master of Engineering Design, Master of Engineering Entrepreneurship and Innovation, Master of Engineering and Public Policy, Master of Finance, Master of Financial Math, Master of Health Management, Master of Public Health, Master of Science, Master of Social Work, Master of Technology Entrepreneurship and Innovation.

### 3.1 General

Three types of Master's programs are available, although not all departments offer each type. The first is the thesis program, consisting of both course work and a research thesis. The second type entails a project rather than a thesis, as well as course work. Finally, some programs offer a course work-only curriculum. The decision on the choice of curriculum for Masters students can either be determined at the time of application or after the student is admitted, please consult the departmental listings to see which options are available in a specific discipline.

If a department offers more than one of these types, the ability for a student to switch between them is not automatic, but is sometimes permitted. Approval of the supervisor and department chair (or graduate chair/advisor) is required. In many departments, there will be consequences for the level of financial support to the student. As well, there are likely to be consequences for the expected time to completion. Both financial support and expected time to completion should be clarified prior to approval of the change. If such a change is approved, notification should be sent to the School of Graduate Studies by the department or program, along with any change to the payroll authorization. Graduate Studies approval is not required.

The regular Master's programs are designed for those students who can devote their full time to graduate studies. (See Section 2.5.2 for the definitions of a full-time student.) Some departments also offer part-time programs. Consult the departmental listing in this Calendar to see whether or not a part-time program is available in a particular department.

Prior to the 2001-2002 academic year, all Master's degrees awarded within the Faculty of Engineering were designated as Master of Engineering (M. Eng.) degrees. On April 11, 2001, the University Senate approved the use of the Master of Applied Science (M.A.Sc.) designation for thesis-based degrees in the Faculty of Engineering. Non-thesis Master's degrees in the Faculty of Engineering retain the M. Eng. designation.

### 3.2 Program Requirements

A Master's program involving a thesis will normally be somewhat more specialized and will involve fewer courses than is the case in a Master's program without a thesis. A course Master's program is constructed by departments to contain a sufficient number of courses to make possible a diversified experience, for the student.

The student who is presenting a thesis as part of a program is required to complete, with at least B- standing, at least one full graduate course (or equivalent). Certain programs regularly prescribe additional graduate courses. In accordance with OCGS requirements, no more than one-third of the departmental minimum course requirements may be at the 600-level. The student

may be required or permitted by the department to take courses in addition to those prescribed for graduate credit. In consultation with the programs concerned, one or more graduate courses in a related subject may be taken outside of the program.

Students will be required to meet any additional requirements of the program, including special seminars or colloquia. Such requirements are subject to approval by the appropriate Graduate Curriculum and Policy Committee.

Additional requirements for programs are found in program handbooks, please consult your program handbook's specific regulations.

### 3.3 Thesis

A candidate must present a thesis which embodies the results of original research and mature scholarship. In the case of sandwich theses, mature scholarship specifically includes substantial and significant contributions to the composition of text in papers with multiple authors. The student must ~~have approval from their supervisory committee before producing the final version of the thesis for oral defence~~, be authorized by a majority of the supervisory committee before producing the final version of the thesis for oral defence.

A thesis may be submitted at any time but a thesis defence may not be initiated until all other degree requirements are complete. The final date for submitting a thesis to the department for Fall or Spring Convocation is found in the Sessional Dates Section. The thesis will be examined by a committee of not fewer than three members (including the supervisor and an examiner external to the supervisory committee) who will be appointed by the department/program chair; the thesis will be defended by the candidate in an oral examination before this committee. The Vice-Provost & Dean of Graduate Studies may appoint members to these committees. The time of the defence will be set by the department/program chair; normally this will be about two weeks after the completed thesis (as an electronic file; see section 2.8) has been submitted to the department for examination.

After a discussion of the examination, the Chair will ask for a vote on the success or failure of the defence. If the examiners approve the defence, the Chair will ask the examiners to complete the Examination Report by initialing appropriately. The student will be invited back to the examination room for congratulations by the committee. In the event that minor revisions are required to the thesis, the Chair of the examination committee is responsible for ensuring that (1) the candidate is advised of the revisions, (2) the candidate receives and understands the 'Final Thesis Submission form' to be used by the Supervisor to confirm that the revisions have been made, and (3) the supervisor is also aware of the form. The Chair will complete and sign the Examination Report and return it to the School of Graduate Studies.

However, if there are two or more negative or abstaining votes, with at least one of these votes being from a member of the supervisory committee, the candidate will be deemed to have failed the defence, and a reconvened oral defence must be held at a later date. The candidate should be told as clearly as possible by the Chair and the examining committee what he/she must do to improve the defence. The reconvened defence is the candidate's final opportunity to complete the degree. Membership on the reconvened examining committee should be the same as that for the original defence, except that one or two substitutions are permitted in order to expedite scheduling of the reconvened defence. If the defence fails a second time, that decision is final, and is not open to appeal.

After a successful examination and all requested changes have been made, the student will upload the final e-thesis to MacSphere (see section 2.8). Students are normally expected to submit their final thesis within four weeks of a successful defence. The student may wish to have printed copies of the final thesis suitably bound for personal use or for presentation. The student will be responsible for the cost and distribution of any bound copies.

Tuition fees continue to be assessed until all degree requirements are met, including the successful submission of the final approved thesis to MacSphere.

Please note: when a thesis is submitted and published to MacSphere students must be aware that their name will appear as author of the document. In exceptional circumstances a pen name may be used subject to written approval of the Vice-Provost and Dean of Graduate Studies.

## 3.4 Project

In departments where there is the option of submitting a project, the department regulations must be observed. If the project is to be submitted to the University Library, the rules governing Master's theses must be followed.

## 3.5 Supervision

The general regulations regarding supervision, described earlier (Section 2.7, "Supervision"), apply to Master's students. If the student is registered in a thesis degree program, the thesis supervisor will have been identified by mutual consent, based on the nature of the thesis research. If the student is registering in a degree program without a thesis, a faculty advisor will be assigned. In either case, the advisor may be changed with the approval of the Department, as described in Section 2.7.

## 3.6 Program Progression

The amount of work in a regular (full-time) Master's program for a student with good preparation varies across the campus, but generally, programs involving a thesis are designed to take longer than those without a thesis. Programs with a thesis typically take sixteen to twenty months. Twelve-month non-thesis programs occur in Anthropology, Biomedical Discovery and Commercialization, Classics, Cultural Studies and Critical Theory, Economics, Economic Policy, English, Finance, French, Global Health, History, Physics, Political Science, and Sociology.

For students in a regular program, the permissible time for completion of a Master's degree program is limited to three years from their initial registration in the program. For those students admitted to a part-time Master's program, and who complete all degree requirements while registered part-time, the permissible time is limited to five years from their initial registration. Please note, students who start as full-time and move to part-time continue to pay full-time tuition and time to completion does not get extended. Students who start as part-time and move to full-time will then pay full-time tuition and the time to completion will be based on full-time status. The terms students spent as a part-time student will be adjusted for purposes of time to completion. For more information please see Section 2.5.2 Definition of Full/Part-Time Status.

Each student's progress is reviewed annually by the department and on a more frequent basis by the supervisor. A student whose work is felt to be unsatisfactory (e.g., as determined by unsatisfactory or marginal or supervisory committee reports, failed courses, unsuccessful remediation attempts, failure to successfully complete other mandatory components of their program) may at any time be required to withdraw from the University. In those cases in which a student does not manage to complete the degree before the end of the time limit specified above, the University has no further obligation to provide supervision. Upon consultation with the department and on its recommendation, the student will be shown as having been "withdrawn in good standing due to time limit".

In the case of a student in a thesis program, if a completed thesis is submitted, and is acceptable to the department, the student can be readmitted in order to defend the thesis. However, thesis program students who have been withdrawn in good standing should be aware that they may be required to complete additional course work before being permitted to proceed to a defence of the thesis. In all cases, the department must first declare that the submitted thesis is ready for defense before the student will be readmitted. Students can only be readmitted to defend at the beginning of the academic term. If a student needs more than one term to complete they should be readmitted to the program and pay regular fees until all the program requirements are complete.

At the time of readmission to defend, the student will be required to pay a fee (equivalent to one term's tuition at the current part-time level 5 rate - see Section 5.1) to compensate for the costs of the defence and subsequent processing of the thesis

A student enrolled in a course work or project program may also be readmitted if this is deemed acceptable by the student's department. However, course work and project program students who have been withdrawn in good standing should be aware that they may be required to retake courses in which the content is judged by their department to have changed significantly since first completion and/or may be required to take additional courses that are necessary to fulfill current program requirements.

See section 2.5.1 for information on continuity of registration.

## Regulations for the Doctor of Philosophy Degree

### 4.1 General

The regular doctoral programs at McMaster have been designed for students who can devote full time to their studies. Academically, full-time Ph.D. study is the best and most efficient way to undertake the degree. However, some departments at McMaster University will consider individual applicants holding a Master's degree whose circumstances preclude uninterrupted full-time graduate work to undertake Ph.D. studies. Because of the divergent nature of academic disciplines, part-time Ph.D. work is not feasible in some areas.

Accordingly, no Department or Program is obligated to offer part-time Ph.D. work. Consult the department listings for information as to whether a part-time program is available in any particular department, or correspond with the department directly.

### 4.2 Program Expectations and Requirements

McMaster University does not have a minimum course requirement for the Ph.D. Instead, it is left to each graduate program to establish its own minimum requirement, subject to the approval of the appropriate Graduate Curriculum and Policy Committee, and Graduate Council. In accordance with OCGS requirements, no more than one-third of the program's minimum course requirements may be at the 600-level.

Students should consult that section of the Calendar applicable to the graduate program in which they are interested.

The supervisory committee may also require a student to take courses in addition to the minimum prescribed by the program's regulations. These additional courses must be relevant to the student's program. They may be taken in another program and may be at either the undergraduate or the graduate level. The student who is required to take undergraduate courses may register for a maximum of 12 units of such work.

Students will be required to meet any additional requirements of the program, including special seminars or colloquia. Such requirements are subject to approval by the appropriate Committee on Graduate Curriculum and Policy.

All Ph.D. candidates at McMaster are expected to acquire, during the course of their studies, a comprehensive knowledge of the discipline or sub-discipline to which their field of research belongs. The School of Graduate Studies does not prescribe any particular way to assess students for this breadth or depth of knowledge and the ability to integrate ideas. It is left to each program to decide if such knowledge is best determined by a Comprehensive Examination or by some other format instead. All doctoral programs are expected to assess and provide feedback to the Ph.D. candidates, as early as possible and as frequently as possible, on the breadth or depth of their knowledge, critical thinking and independent research skills. This assessment and feedback will normally begin between the 12th and 20th month after the student begins doctoral-level work at McMaster University, with an upper limit of 24 months. The assessment may consist of an examination, but it may also be achieved by other approaches, as appropriate for the field (portfolio, external evaluations such as a co-op work term report, completion of seminars, etc.). The approach taken, composition of faculty members involved in the assessment, and its administration are the responsibility of the program in which the student is registered, not of the student's supervisory committee.

Any assessment practice of comprehensive knowledge, including but not limited to the traditional comprehensive examination, must include a description of a second opportunity for assessment should the student fail the first attempt. This second assessment is given in place of any "re-read" of a comprehensive evaluation, which is explicitly excluded from the Student Appeal Procedures, and in recognition of the fact that the failure may occur on oral or written parts of the assessment. The second opportunity will normally occur between one to six months after the student was notified that they had failed the original assessment. A failure at the second assessment will require the student to withdraw from the program.

Departments may hold transfer, qualifying, or entrance exams at the start of a student's doctoral program, but those exams are distinct from the assessment of comprehensive knowledge

There is no University-wide foreign language requirement for Ph.D. students. Many departments, however, do have such a requirement (see departmental regulations).

All departmental assessment rules and practices are subject to approval by the Faculty Committee on Graduate Curriculum and Policy, which may refer questions to Graduate Council.

Approved assessment procedures must be clearly communicated to graduate students at the earliest opportunity after registration.

## 4.3 Thesis

Please note that thesis defences may not be initiated until all other degree requirements, including comprehensive examinations, have been completed.

A candidate must present a thesis which embodies the results of original research and mature scholarship. In the case of sandwich theses, mature scholarship specifically includes substantial and significant contributions to the composition of text in papers with multiple authors. The student must be authorised by a majority of the supervisory committee before producing the final version of the thesis for oral defence. Normally the thesis will be distributed to committee members and examiners in an electronic format (see Section 2.8 - Theses).

The oral defence will not be arranged until a majority of the supervisory committee has approved the thesis for defence and an agreed date of defense has been received.

### Selection of the Examining Committee

Selection of an external examiner is the responsibility of the Vice-Provost & Dean of Graduate Studies or their delegate. To aid in that selection, the supervisory committee may be required to provide, through the Chair of the Department (or equivalent), the names and contact information for potential examiners. The nominees must not have primary appointments at McMaster University, and they must be at arm's length\* from all members of the supervisory committee and the student. The external examiner will provide a written report to the Vice-Provost & Dean of Graduate Studies judging whether the written thesis is satisfactory for defence.

Normally the examining body will consist of the following members: the student's supervisor, at least two members of the supervisory committee and an external examiner. A Chair will also be present at the defence but is not considered part of the examining body. The examining committee must not exceed five voting members. If there are more than four members on the student's supervisory committee, the additional members are welcome to attend the defence and ask questions in the time allotted for audience members. In unusual situations where the supervisor is not available to participate in the defense for an extended period, the program Chair may designate a different faculty member to serve on the examining committee in place of the supervisor.

An eligible Examining Committee Chair is a tenured faculty member (or Professor Emeritus) who has supervised a doctoral student to completion, and who has also participated previously in the McMaster Ph.D. defence process.

The definition of 'arm's length' is as follows: The nominees should not have been a research supervisor or student of the supervisor or the student within the last 6 years; should not have collaborated with the supervisor or the student within the past 6 years, or have made plans to collaborate with these individuals in the immediate future. There also should be no other potential conflicts of interest (e.g., personal or financial). External examiners should not have been employed by or affiliated with the student's or supervisors' Department within the past 6 years, nor expect to become employed in the Department in the immediate future.

### Scheduling and Conducting the Oral Examination (Oral Defence)



There are two ways that a Ph.D. defence can be coordinated: through SGS or in cooperation with the supervisor via the Accelerated Model. There are blackout periods over the course of an academic year that affect defences ~~coordinated~~ by SGS. *Please refer to the sessional dates in order to prepare your defence appropriately.*

Dates scheduled for doctoral defences assume that the external reviewer will conclude that the written thesis is acceptable and ready for oral examination. When the external reviewer concludes otherwise, the defence date may no longer be held on the date as planned and the situation reviewed in accordance with the process around a negative external report as outlined below. Any travel and/or employment arrangements made by the candidate based on the original defence date are entirely at their own risk.

The external examiner must provide a report to the School of Graduate Studies with a written assessment of the thesis at least one week before the scheduled defence. If the report is not received in time, candidates will be given the option to postpone their defence. Whether the assessment is positive or negative, the School of Graduate Studies will send the report of the external examiner to the supervisory committee. The committee must give a copy of the report to the student. Should the assessment be negative, the appropriate Associate Dean will communicate with the supervisory committee and student to discuss the outcome of the review. This is normally followed by a supervisory committee meeting to specifically discuss the plan if the external examiner indicates that the thesis is not acceptable for defence. The supervisory committee and candidate (in consultation with the Associate Dean) may wish to withdraw the dissertation and defend with the participation of the same external examiner. A second possible outcome of the review is that the associate dean will recommend to the Vice-Provost & Dean of Graduate Studies that the thesis be reviewed by a different external examiner. A candidate may withdraw the thesis only once. In all cases, despite a negative assessment, a candidate has the right to proceed to a defence.

If the external report has not been received five business days before the defence, the candidate and the committee will be notified that the defence is at risk of being cancelled.

*If the external report has not been received two business days before the scheduled examination, SGS will notify the candidate that the defence will be rescheduled.*

Subsequent to the receipt of the external examiner's report, an oral defence will be convened by the Vice-Provost & Dean of Graduate Studies, chaired by themselves or their delegate and conducted by all members of the examining committee. Quorum for the examination will be the Chair of the examining committee and the supervisory committee plus one additional examiner. In the case of the Accelerated Thesis Defence Process the presence of the external is mandatory at the defence, either in person or electronically. The oral defence will be open to members of the university community and the public who wish to attend as observers, unless the student requests a closed defence. The Ph.D. defence presents the culmination of a number of years of scholarly work which are publicly funded. It is important, therefore, that in all but exceptional circumstances the student presents the result of this effort to the public. The examination proper will be conducted only by the members of the examining committee. When they have completed their questions, the Chair may permit a few minutes of questioning by visitors. Normally the student will attempt to answer visitors' questions, but these are not to be considered part of the examination for the degree. Observers will withdraw prior to the committee's deliberations on the student's performance at the defence. Normally, examination of the candidate will not take more than two hours. In no case should it take more than three hours.

After a discussion of the examination, the Chair will ask for a vote on the success or failure of the defence. If the examiners approve the defence, the Chair will ask the examiners to complete the Examination Report by initialing appropriately. The student will be invited back to the examination room for congratulations by the committee. In the event that minor revisions are required to the thesis, the Chair of the examination committee is responsible for ensuring that (1) the candidate is advised of the revisions, if any, (2) the candidate receives and understands the 'Final Thesis Submission form' to be used by the Supervisor to confirm that the revisions have been made, and (3) the supervisor is also aware of the form. The Chair will complete and sign the Examination Report and return it to the School of Graduate Studies.

However, if there are two or more negative or abstaining votes, with at least one of these votes being from a member of the supervisory committee, the candidate will be deemed to have failed the defence, and a reconvened oral defence must be held at a later date. The candidate should be told as clearly as possible by the Chair and the examining committee what he/she must do to improve the defence. The reconvened defence is the candidate's final opportunity to complete the degree. Membership on the reconvened examining committee should be the same as that for the original defence, except that one or two substitutions are permitted in order to expedite scheduling of the reconvened defence. If the defence fails a second time, that decision is final, and is not open to appeal.

After a successful defense, the candidate must correct any errors detected by the readers to the satisfaction of the Supervisor and then submit an electronic copy to the School of Graduate Studies via MacSphere (see Section 2.8.3 - Publication of Electronic Theses at McMaster University). Students are normally expected to submit their final thesis within four weeks of a successful defence.

Tuition fees continue to be assessed until all degree requirements are met, including the successful submission of the final approved thesis to MacSphere.

Please note: when a thesis is submitted and published to MacSphere students must be aware that their name will appear as author of the document. In exceptional circumstances a pen name may be used subject to written approval of the Vice-Provost & Dean of Graduate Studies.

**A final thesis is the corrected, approved version of the thesis which is submitted to SGS following the Final Oral Examination. Note ~~that~~ there is no grace period at the end of December or April for final thesis submission and ~~completion~~ completion of degree requirements.**

## 4.4 Supervision

The general regulations in regard to supervision, described earlier (Section 2.7), apply to doctoral students.

Students will be expected to confer with the Chair of the Department/Program and others in choosing a supervisor for their entire doctoral program, including the proposed research. The supervisor must be declared within the first 5 months of study and the supervisory committee must be declared within the first 12 months of study. The supervisory committee will consist of at least three members. Two, including the supervisor, must be from within the department/program. A third member, whose scholarly interests include the area of the student's main interest, may be from outside the department/program. One member may be appointed from outside the University with the permission of the Vice-Provost & Dean of Graduate Studies. For more information please consult the policy. If the need arises, the membership of a supervisory committee will be subject to change by the same procedures involved in its appointment (see Section 2.7 - Supervision). Supervisory committee members, including supervisors, may not resign without the department's/program's approval. The duties of the Ph.D. supervisory committee will be as follows:

- to assist in planning and to approve the student's program of courses and research;
- to approve the thesis proposal;
- to decide, within departmental regulations, on the timing of the comprehensive examination and, where applicable, of the language and other examinations;
- to maintain knowledge of the student's research activities and progress;
- to give advice on research, usually through the student's supervisor;
- to provide the student with regular appraisals or progress or lack of it;
- to perform such other duties as may be required by the department;
- to report on the above matters annually, in writing, on the approved form to the department, which in turn will report to the Faculty Graduate Committee on Admissions and Study;
- to initiate appropriate action if the student's progress is unsatisfactory, including any recommendation that the student withdraw, for approval by the department and the Faculty Committee on Graduate Admissions and Study;
- to decide when the student is to write the thesis and give advice during this process;
- to act as internal examiners for the student's thesis;
- to act as members of the examination committee for the final oral defence when so appointed.

The supervisory duties of the department/program will be as follows: to provide all Ph.D. students in its doctoral program with copies of the complete departmental regulations of the program (such regulations are subject to approval by the Faculty Committee on Graduate Curriculum and Policy); to approve the membership and work of the supervisory committee; and, when necessary, to make changes in the membership; to report this membership to the Faculty Committee on Graduate Admissions and Study; at least once a year to review each student's course grades and research progress, as reported by the supervisory committee; to conduct comprehensive examinations; to conduct or arrange for language examinations when these are required; to

attest to the Faculty Committee on Graduate Admissions and Study that all departmental and University requirements for the degree have been satisfied; to name any departmental representatives to the examination committee for the final oral defence of the thesis; to replace any members of the supervisory committee, including the supervisor when on leave of absence or, if necessary, when on research leave.

Part-time students must have their course grades and research progress reviewed at least once a year by the supervisory committee.

## 4.5 Program Progression

The minimum time in which to complete a Ph.D. program at McMaster is three calendar years beyond the bachelor's level or two calendar years beyond the master's level. However, the minimum time may be reduced by up to one year for graduate work beyond the Master's level taken in a university or research institution approved by the Faculty Committee on Graduate Admissions and Study.

Completion of the Ph.D. degree is normally limited to six years from initial registration in a regular doctoral program at McMaster. The time for completion of the Ph.D. program for those admitted to a part-time program is normally limited to eight years from initial registration at McMaster as a Ph.D. student.

Each student's progress is reviewed annually by the department and on a more frequent basis by the supervisory committee. The committee will assess the student's progress in their program. Students must receive a grade of at least satisfactory. If the committee reports that progress is marginal one or more times the student may be required to withdraw from the University. A student who encounters difficulties arranging a meeting of this committee should consult the chair, director, or graduate coordinator of the graduate unit in advance of the relevant deadline for doing so.

In those cases in which a student does not manage to complete the degree requirements before the end of the time limit specified above, the University has no further obligation to provide supervision. Upon consultation with the department and on its recommendation, the student will be shown as having been "withdrawn in good standing due to time limit".

Please note, students who choose to move from part-time to full-time or from full-time to part-time will be governed by the time to completion and fees associated with the degree to which they were admitted. For more information please see Section 2.5.2 - Definition of Full/Part-Time Status.

If a completed thesis is submitted, and is acceptable to the department, the student can be readmitted in order to defend the thesis. Students who have been withdrawn in good standing should be aware that they may be required to complete additional course work before being permitted to proceed to a defence of the thesis. In all cases, the department must first declare that the submitted thesis is ready for defence before the student will be readmitted. Students can only be readmitted to defend at the beginning of the academic term.

At the time of readmission to defend, the student will be required to pay a fee (equivalent to one term's tuition at the current part-time level 5 rate - see section 5.1) to compensate for the costs of the defense and subsequent processing of the thesis. If a student needs more than one term to complete they should be readmitted to program and pay regular fees until all the program requirements are complete. All requests for readmission should be directed to the program for approval by the supervisor and program lead. Once approval is received, students are directed to pay the readmission fee and the department should submit the request for approval by the Associate Dean. The readmission decision is not subject to appeal.

**Commented [CB(S9)]:** Additional clarity added around readmissions

## Financial Matters

### 5.1 Fees for Graduate Students

(The Board of Governors reserves the right to amend fees after the printing of this statement.) These regulations apply to tuition and mandatory supplemental fees. They cover the various charges which would be incurred for reasons of late payment or late registration. The 2019-2020 fees schedule is in effect for a period of September 1, ~~2019-2020~~ to August 31, ~~2020-2021~~ and applies to all graduate students whether registered in regular or part-time degree programs. Please consult the Accounts and Cashiers website for the official graduate fees.

#### **Notes:**

Students promoted to a Doctoral program from a Master's program will be considered as new admissions for the purpose of time limits for completion of the degree requirements, eligibility for financial assistance, and fee assessment.

Some international students may be eligible to pay Canadian fees depending on various immigration policies, and the Ministry Funding Manual.

#### Program Fees assessed on a term by term basis

Most students will pay regular tuition fees and these fees are assessed on a term by term basis. Part-time fees apply only to those students originally offered admission to a part-time program. If students change status from full-time to part-time, they will still be required to pay regular (full-time) fees. In most cases part-time fees will allow registration in up to 3 half courses per academic year, in programs where fees are costed on a term by term basis. Students registering in more than 3 half courses will be assessed full-time fees. In situations where a student in a part-time program completes the degree or withdraws from the university, fees for the academic session will be assessed by the number of terms or number of half courses (whichever is the greater). Term count is adjusted if student changes status from part to full time at a ratio of 2:1.

If a full-time student wishes to change their status from full-time to part-time, they will still continue to pay full-time tuition fees for the entire program. The most common occurrence of this situation would be when a student gains full-time employment, changes in status to part-time will be effective at the start of term. Their mandatory supplementary fees however would be reduced to the part-time rate at the start of the next academic year.

#### Program Fees assessed on a course basis

Students enrolled in programs with course costed tuition will be assessed tuition fees for each course that they take. The limit of 3 half courses per year does not affect their status.

Ph.D. students who have been registered as full-time for longer than the normal period of funding eligibility (as defined in Section 5.2.1) will be assessed discounted tuition fees.

A fee is charged for each course taken on the basis of Section 2.1.8 by persons who are not registered graduate students. The tuition fee for certain courses may be higher.

#### Leave of Absence

Students on leave of absence do not pay tuition fees for any complete months that they are on leave but do pay mandatory supplemental fees. Students who are on leave for a complete academic year do not pay mandatory supplemental fees.

#### Readmission

Students who have "withdrawn in good standing due to time limit" do not pay fees until readmission. Readmission will only take place at the start of a term for students being readmitted to program. Students readmitted to defend will be readmitted at the point that they are ready to defend. See Section 5.1.5 (Readmission Tuition Charges).

### Mid-Year Admissions

Students admitted in January or May, will have a slightly different schedule of fees for tuition and mandatory supplemental fees.

Enquiries should be referred to Student Accounts and Cashiers (<http://www.mcmaster.ca/bms/student/>) 905-525-9140 ext. 24478

## **5.1.1 Payment of Fees**

In order to register a student ~~must pay~~ **must pay** full tuition and all additional fees for the full year. Details for payment methods and due dates can be found on the Students Accounts and Cashiers website.

## **5.1.2 Non-payment of Fees or Charges**

Students with outstanding accounts at the end of the academic year will:

- a. not receive academic results, including but not limited to exams, grades, transcripts, diplomas; and
- b. not be permitted to register for the next academic year until the account is settled.

## **5.1.3 Discounted Fees - Ph.D. Students**

Full-time Ph.D. students (Canadian and international), who have reached term 13 or greater of their Ph.D. studies, will be charged tuition at a discounted fee rate.

## **5.1.4 Change in Residency**

Changes in residency that occur when a student becomes either a permanent resident or Canadian citizen will have an impact on fees. These changes can only be accepted at the start of term and cannot be applied retroactively.

## **5.1.5 Readmission Tuition Charges**

Students who do not register and pay tuition fees for any academic session are deemed to have withdrawn. These students and those who have been withdrawn in good standing due to time limit are required to apply for readmission. Master's or Ph.D. students withdrawn in good standing who are being readmitted to defend their thesis pay fees at the "Readmission to Defend" rate and are not eligible for a refund.

Students who withdrew voluntarily or did not register for an academic session and wish to apply for readmission to their academic program are readmitted at the registration status they were at the time of withdrawal and charged the current calendar rate of tuition and supplemental fees accordingly. Readmissions in this category are not eligible for the part-time rate unless the student was registered in a part-time program at the time of withdrawal.

## **5.1.6 Refund of Tuition Fees**

A student, who completes the degree requirements, withdraws from the program, or takes a leave of absence prior to the end of the academic year will be entitled to a refund, based on the method of payment per section 5.1.1. The refund is based on the schedule set out by Student Accounts and Cashiering (<http://www.mcmaster.ca/bms/student/>). (Note: a refund does not apply to students who are readmitted to defend.) Mandatory supplemental fees are not refundable.

## **5.2 Financial Assistance**

### **5.2.1 Financial Support for Graduate Students**

McMaster University aims to provide competitive funding offers to highly qualified candidates recommended for admission to our research-based graduate programs. Each program is responsible for determining the level of funding in their offers, although the School of Graduate Studies (SGS) sets a minimum level of funding for full-time doctoral studies for the first four years of full-time enrolment.

Financial support for Doctoral studies will normally be provided for the first four years of full-time enrolment, and will be comprised of funds from the admitting Faculty or graduate program, including departmental scholarships/awards, research scholarship support, and possibly employment (e.g. teaching assistant). The annual level of financial support will meet or exceed the minimum level of support set by SGS, provided all conditions stated in the Financial Support subsections below are satisfied.

Funding for students enrolled in most research-based Master's programs will normally be provided for the nominal duration of the program. There is no minimum level of funding stipulated by SGS for Master's programs.

Teaching Assistantships (TA) (or Research Assistantship-in-lieu under the collective agreement between Canadian Union of Public Employees, Local 3906, Unit 1 and McMaster University) and contract employment income are offered to many graduate students registered in full-time programs. TA duties vary according to department but will normally consist of performance in connection with undergraduate teaching, such as leading tutorials, demonstrating labs, and marking assignments. The award of a TA may vary but should not exceed 10 hours per week, plus three hours of training per term. TA funding is contingent on fulfillment of the employment obligations and maintaining satisfactory work performance, as stated in the letter of offer or employment contract. No exceptions of more than 505 hours in a single academic year will be approved (see section 2.5.3). Employment is paid as earned over the period in which the work is performed.

#### **5.2.1.1 Minimum Academic Requirement for Financial Support**

Only registered full-time students who maintain regular attendance on campus and meet program conditions for progression towards their degree shall continue to receive the funding outlined in their offer of admissions.

#### **5.2.1.2 Duration of Financial Support**

Normal duration for financial support in a research-based Master's programs varies from two to six terms of full-time registration, depending on the program.

Normal duration for financial support in a Doctoral program is the first twelve terms of full-time registration.

Full-time students transferring from a Master's program to a Doctoral program are eligible for financial support at the level of their original offer or at the minimum funding level set by SGS, whichever is higher, for an additional twelve consecutive terms from the time of their transfer to PhD.

There is no obligation for continued financial support exists for full-time students transferring from a Doctoral program to a Master's program.

#### **5.2.1.3 Minimum Level of Financial Support for Doctoral Students**

All full-time Doctoral students who meet the stated criteria under Section 5 shall receive financial support corresponding to their offer for the stated financial support duration of the degree which meets or exceeds an annual minimum value equal to full-time

tuition plus \$13,500. OSAP is excluded in the calculation of the financial support package. Examples of situations where the minimum financial support does not apply or ceases to apply are:

A student may decline all or part of the funding offer without prejudice to their admission. Where a newly enrolling student declines part of the funding package, the program must retain a copy of the written statement (either hardcopy or electronic) sent to the student acknowledging the change in financial support, which remains in effect for the length of the program. The program is not obligated to provide additional funding in compensation for the declined part(s) of the funding package.

In rare cases where a student is terminated from their employment duties (e.g. teaching assistantship), the program bears no obligation to compensate for the lost funding.

Where a successful applicant has been made an offer based on funding external to the university, the support committed to the student (by the university) for the nominal duration of their degree will be the difference between the funding minimum and the external scholarship value. In cases where an external scholarship ceases to be paid out in whole or in part, the university is not obliged to increase its financial support package.

## 5.2.2 Financial Payments to Graduate Students

International students must provide a clear demonstration of their means of financial support in order to obtain a student visa.

The University is required by law to deduct Canada Pension Plan and Employment Insurance premiums on all employment income and any appropriate union dues and deductions. Income Tax will be assessed on employment income only. Net earnings will be deposited bi-weekly, directly into a Canadian Bank account. A statement of your earnings is available online after each pay. The direct deposit method of payment is mandatory.

Enquiries about employment should be referred to Human Resource Services (<http://www.workingatmcmaster.ca/>) 905-525-9140 ext. 22247.

If the student withdraws or graduates from the program part way through an academic year, the student is not entitled to any further portion of the award. Note that funding monies owing to McMaster, such as award/scholarship/bursary repayments, will show as an outstanding balance on their student account.

## Additional University Regulations Affecting Graduate Students

### 6.1 Academic and Research Integrity

The following brief statements are excerpted in part from the McMaster University Academic Integrity and Research Integrity Policies. For guidance on how to proceed in the case of suspected academic dishonesty or research misconduct, please consult the Office of Academic Integrity and the complete policies at <https://www.mcmaster.ca/academicintegrity/>. The Associate Deans of Graduate Studies are available for confidential consultations on matters related to academic and research integrity.

#### Academic Work

Academic work includes any academic paper, term test, proficiency test, essay, thesis, research report, evaluation, project, assignment or examination, whether oral, in writing, in other media or otherwise and/or registration and participation in any course, program, seminar, workshop, conference or symposium offered by the University.

For graduate students, comprehensive/qualifying exams, any research work, and thesis work (a thesis proposal, or thesis draft, or draft of one or more chapters) also constitute academic work and must adhere to standards of academic integrity.

## Academic Dishonesty

### Definition

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage.

Wherever in this policy an offence is described as depending on "knowingly," the offence is deemed to have been committed if the person ought reasonably to have known.

Students and applicants to graduate programs are responsible for being aware of and demonstrating behaviour that is honest and ethical in their academic work. Such behaviour includes:

- a. adhering to the principles of academic integrity when submitting application materials
- b. following the expectations articulated by instructors for referencing sources of information and for group work;
- c. asking for clarification of expectations as necessary;
- d. identifying testing situations that may allow copying;
- e. preventing their work from being used by others, e.g., protecting access to computer files; and
- f. adhering to the principles of academic integrity when conducting and reporting research.

Students are responsible for their behaviour and may face penalties under the Academic Integrity or Research Integrity policies if they commit academic dishonesty or research misconduct.

Graduate students, having been deemed admissible to higher studies, are expected to be competent in the acknowledgement of other people's work, whether that work is in print or electronic media.

Graduate students are expected to understand the demands of ethical conduct of research and reporting research results and behave ethically and responsibly in conducting and reporting research. All graduate students are responsible for familiarizing themselves with the definition of research misconduct in the University's policy, namely, "a researcher must be honest in proposing, seeking support for, conducting, and reporting research; a researcher must respect the rights of others in these activities."

#### Research Integrity

The University states unequivocally that it demands research integrity from all of its members. Research misconduct, in whatever form, is ultimately destructive to the values of the University and society; furthermore, it is unfair and discouraging to those who conduct their research with integrity. This Policy applies to all institutional personnel. The Office of Academic Integrity is the administrative office responsible for the receipt and processing of allegations of misconduct at the investigation stage. A complete list of Policy violations can be found within the Research Integrity Policy.

## 6.2 Code of Conduct

McMaster University is a community dedicated to furthering learning, intellectual inquiry, and personal and professional development. Membership in the community implies acceptance of the principle of mutual respect for the rights, responsibilities, dignity and well-being of others and a readiness to support an environment conducive to the intellectual and personal growth of all who study, work and live within it.



The *Code of Conduct* outlines the limits of conduct considered to be consonant with the goals and the well-being of the University community, and defines the procedures to be followed when students fail to meet the accepted standards.

Copies of the *Code of Conduct* may be obtained from the website at [http://studentconduct.mcmaster.ca/student\\_code\\_of\\_conduct.html](http://studentconduct.mcmaster.ca/student_code_of_conduct.html).

For Health Sciences graduate students, a supplementary guideline, Professional Behaviour Code of Conduct for Learners, applies to learners in health care professions and research. This guideline outlines the professional behaviours in all academic and clinical settings that must be understood and followed.

Copies of the Professional Behaviour Code may be obtained from the website.

## 6.3 Appeal Procedures

The University has a responsibility to provide fair and equitable procedures for the lodging and hearing of student complaints arising out of University regulations, policies and actions that affect students directly. The procedures described in the [Student Appeal Procedures](#) are intended to provide a mechanism to fairly address alleged injustices.

Students who wish to raise questions or who have a concern are strongly encouraged to communicate informally with their instructors, the Chair of their Supervisory Committee (or the Department Graduate Advisor where no committee exists), the Department Chair and/or the Associate Dean of Graduate Studies, the University Ombuds, or the appropriate administrative officer *before* seeking a review under the formal procedures. Experience has shown that many complaints can be resolved satisfactorily through informal communication. Students are requested to speak with the University Secretary regarding a complaint before submitting an application.

Students should seek remedies for their grievances as promptly as possible and must do so within the time limitations set out in the Student Appeal Procedures.

A Master's or Ph.D. thesis, and a Ph.D. comprehensive exam are specifically excluded from the re-read procedures identified in the Student Appeal Procedures. If a student does poorly in any of these examinations, the original examining committee is required to allow the student a second opportunity at the examination after at least a week. If the student fails on that second attempt, no additional examinations are permitted.

The Student Appeal Procedures may be found at:

<http://www.mcmaster.ca/policy/Students-AcademicStudies/StudentAppeal.pdf>

## 6.4 Ownership of Student Work

In Canada, the author is the immediate owner of the copyright in an original work, except when the author is employed to create such material. 'Copyright' is an exclusive property right to publish, produce, reproduce, translate, broadcast, adapt or perform a work, as defined in the Copyright Act ([R.S.C. 1985, c. C-42](#), as amended). For work done by a graduate student, McMaster has the following policies related to the interpretation of copyright and other aspects of intellectual property rights. These policies distinguish in general between items done solely by the student and those undertaken as part of a joint research effort.

In the former case, the intellectual property is primarily the student's, but the University reserves certain rights as detailed in the remainder of this section. In the latter case, the intellectual property rights involve the student, the research supervisor, (and possibly other individuals as well), the University, and on occasion the financial sponsor of the research. If the work is anticipated to have commercial possibilities, it is recommended that the parties involved agree in writing beforehand on the sharing of any financial returns. The Associate Deans of Graduate Studies are available for confidential consultations on matters of ownership of student work involving faculty and/or other individuals.

## 6.4.1 Examinations, Reports and Papers Done as Part of Course Requirements

When work that is eligible for copyright is submitted to meet a requirement of a course, the University acknowledges the student's ownership of the copyright, but places the following conditions on the submission of the work to meet course requirements.

- a. The original physical document becomes the property of the University. This applies particularly to examination answer scripts, and may also be applied to term papers and other course work.
- b. Except for examination scripts, the University receives a royalty-free, non-exclusive licence to make copies of the work for academic purposes within the University, and to circulate the work as part of the University library collection.

## 6.4.2 Theses and Master's Project Reports

As with other papers, the University recognizes that the student holds copyright to the finished thesis. Copies of the thesis shall have on them in a prominent place on the title page the international copyright notice.

The student is required to sign a licence to the University library (and for Ph.D. students an additional licence to the National Library). (See Section 2.8.3) These licences grant the two libraries permission to reproduce the thesis and to circulate it, but do not affect ownership of the copyright.)

However, the University also recognizes that the ideas in the thesis will often arise from interaction with others. In some cases, this interaction will have been solely with the thesis supervisor; in other cases, a larger research team will have been involved. For this reason, it is understood that the copyright refers only to the written document of the thesis. The ideas, or commercial exploitation of the work may or may not be the exclusive property of the student. For the student who has worked closely with a supervisor, or as part of a research group, the rights to publish, the ownership of original and secondary research records, patent, or commercially exploit the results of the research are shared with the supervisor and/or the research group, and with the University. In those cases in which the work has been supported in part by research grants or contracts, there may be other conditions affecting any patent or commercial exploitation. (The student should be made aware of any such conditions before work begins.)

## 6.4.3 Computer Programs

Computer programs written as part of employment duties, as for example by a teaching assistant, are the property of the employer, as specified in the Copyright Act. Computer programs written as part of course work, a project or a thesis may also have value as a potentially marketable intellectual property. The University recognizes that such software may arise in two different ways, and accordingly has two policies. In setting forth these policies, it is understood that in those cases in which software development draws upon other software owned or licensed by the University, the terms and conditions of the licence or purchase must be followed.

- a. Where a student develops such software at the direct request of a supervisor, and under supervision, it is assumed that there is joint ownership of the intellectual property rights. In such cases, it is recommended that the individuals involved co-author a working paper documenting the software, rather than including it as an appendix to a thesis or report. Prior agreement between the student and supervisor that this is to be the case would be helpful, but is not mandatory.
- b. Where a student develops such software on their own, as for example for an independent project in a course, copyright remains with the student. As a condition of using University computing facilities, the student is required to grant the University a royalty-free licence to use the software. This includes the right of the University to distribute copies of the software to McMaster faculty, staff, and students for the University's administration education and research activities.

This licence does not include the right to use the software for commercial purposes or to distribute the software to non-McMaster people.

## 6.4.4 Research Data

As with computer software, the University recognizes that research is conducted and data are acquired in two different fashions. When the data are acquired as part of a joint or collaborative effort, such as one relying on the equipment within a laboratory, they are not solely the property of the student, although some of the data may ultimately appear in tables or appendices in a completed thesis. As a general rule, such data are the joint property of the student and the research supervisor, either of whom has the right to make them available to other individuals as well. Both student and supervisor are responsible for insuring that proper acknowledgement of the contributions of the student, supervisor, and other members of the research team is made when the data are released in any form. Students are responsible for ensuring that there is adequate documentation of their research work and findings and that their records meet granting agency, program and supervisor expectations. While original research records are normally the property of the faculty supervisor overseeing the work, students are expected to generate and properly secure adequate, original documentation, in addition to keeping personal copies, in order to ensure the integrity of their records.

When the data are acquired through the student's individual effort, and without the use of University laboratories or funding, then they are usually the property of the student making that effort. However, exceptions may occur when the student collects data using research instruments, including interview schedules and questionnaires, developed wholly or in part by the research supervisor or by some other person or agency. In such instances the right to ownership and/or use of the data may be shared among the parties involved. Given the range of possible alternatives it is not possible to set absolute guidelines in advance covering all such situations. Consequently, it is recommended that students and supervisors make clear agreements in advance concerning the ownership and use of data collected in this fashion. Ownership of data may also be affected by the terms of a research contract that has supported the work.

## 6.4.5 Equipment

If University resources have been applied to the construction or design of equipment, it is not the property of the student, but of the University. Equipment constructed or designed as part of course or thesis work is the property of the student if the work, materials, and workroom space have been provided by the student or other non-University source. Ownership of newly constructed equipment may also be specified in a research contract that has supported the work.

## 6.5 McMaster University Policy for Academic Accommodation of Students with Disabilities

Below are excerpts from the Academic Accommodation of Student with Disabilities policy.

McMaster University is committed to excellence in teaching and learning. The University strives to ensure every student is afforded an academic environment that is dedicated to the advancement of learning and is based on the principles of equitable access and individual dignity. At McMaster we nurture and support a culture of acceptance, inclusion and the celebration of diversity. Creating a learning environment that is accessible to all students is a value embedded within the University's fabric as well as our policies, services and practices.

Students must meet University and program/degree requirements, including participation in classes, labs, clinical or practicum placements, tutorials, etc. Students seeking an Academic Accommodation are required to participate fully in the Academic Accommodations process. This participation includes: a) when the student is aware of their disability and the need for Academic Accommodation, contacting Student Accessibility Services before classes or academic work begins; b) providing the information required so that Student Accessibility Services can assess the duty to accommodate and develop Accommodation Plans; c) after the approval of the Accommodation Plan, should the student have any questions they may choose to speak with their instructor,

SAS advisor or Faculty Office to review steps for the implementation of the Accommodation Plan; d) notifying Student Accessibility Services of any changes that may impact already established Accommodation Plans in a timely fashion.

Student Accessibility Services requires adequate time to review requests and coordinate needed arrangements. Some accommodations take longer to arrange than others (e.g. sign language interpreters and transcriptions), and students with these types of requests should be particularly cognizant of the timing of their requests. Failure to make a request or supply the required documentation in a timely manner may delay the approval and/or implementation of the requested accommodation.

New students and transfer students are encouraged to contact Student Accessibility Services and submit their accommodation request as soon as possible after they receive their offers of admission, or by August 1st of the academic year, whichever comes first.

The complete Academic Accommodation of Student with Disabilities Policy, which includes Roles & Responsibilities, Guidelines and Procedures, Appeals and related legislation can be found here.

Workplace Accommodations for graduate students who have Teaching Assistantships and other campus employment are processed through Human Resources. For the related policy, requests, and procedures, refer to Human Resources.

## **6.6 Student/Faculty Non-Disclosure Agreements**

The School of Graduate Studies encourages the cooperation of faculty with the private sector. Often cooperation will permit the involvement of graduate students. When this happens, it is not unusual for a company to protect its interests by asking the faculty member and the student to sign a confidential Non-disclosure Agreement. Such agreements are signed by the McMaster Industrial Liaison Office (MILO) and apply to all members of the university including students involved in the work. These agreements can restrict conditions for a number of matters important to students, such as their wish to publish research results, the thesis defence, and the deposit of the thesis with libraries. In all cases, the restrictions are reasonable and do not clash with academic principles that require the presentation of research findings for peer assessment.

Students should be advised to discuss any non-disclosure waivers or comparable agreements with the department chair, graduate advisor, or the School of Graduate Studies, if they are concerned with the conditions.

It has been common practice, in cases where a corporation wishes to protect its interests in a discovery, to delay placing copies of a thesis in libraries for up to twelve months after the oral defence, but not for longer periods.

It has not been common practice in these same cases to limit attendance at oral defences to only examination committee members; nor has it been common practice to have examination committee members agree to non-disclosure agreements. The pertinent guiding principle is that oral defences are public events.

Students in doubt about how these norms of academic activity apply to their circumstances should approach the Vice-Provost & Dean of Graduate Studies.

## **6.7 Conflict of Interest Guidelines, School of Graduate Studies**

### **6.7.1 General**

There shall be no prohibition on the grounds of family relationship against the admission of persons as full- or part-time graduate students or against the eligibility for financial awards of such persons. Faculty members normally shall not take part in any proceedings at any level which affect the graduate standing of a spouse or other relative (including admission, financial

assistance, promotion, courses of instruction, supervisory, thesis and examining committees). It is understood that the merits of each individual shall be the overriding consideration in all such cases.

## **6.7.2 Conflict of Interest in the Evaluation of Graduate Students**

All faculty members responsible for the evaluation of graduate students have a general responsibility to the University to ensure that they are not in a position of conflict of interest (or the appearance of a conflict of interest) in their obligations to the University with regard to the nature of their relationships with graduate students. Specifically, a faculty member may not be involved in the evaluation of a graduate student if the faculty member has a close family relationship with the student (including spouse, parent, child, sibling, niece/nephew or spouses of the foregoing), if the faculty member is, or has been engaged to be married to the student, or if the faculty member has (or has had) an intimate personal relationship with the student. Evaluation includes grading course work or examinations (including the defence of a thesis) and supervision, whether as the principal supervisor or as a member of a supervisory committee.

A faculty member should question the propriety of evaluating a graduate student if there exists a distant family relationship with the student, or if the faculty member and the student maintain or have had a business relationship or any other relationship which should reasonably give cause for concern.

Questionable cases should be referred to the Vice-Provost & Dean of Graduate Studies for a decision.

## **6.8 Student Academic Records**

Student academic records are the property of the University. The University has developed procedures designed to protect the confidentiality of student records. A student may have access to her or his file, but documents received from a third party in confidence will not be disclosed.

Transcripts are issued only with the consent of the student.

## **6.9 McMaster University Workplace and Environmental Health and Safety Policy**

McMaster University is committed to provide and maintain healthy and safe working and learning environments for all employees, students, volunteers and visitors. This is achieved by observing best practices which meet or exceed the standards to comply with legislative requirements as contained in the Ontario Occupational Health and Safety Act, Environmental Protection Act, Nuclear Safety and Control Act and other statutes, their regulations, and the policy and procedures established by the University. To support this commitment both McMaster University and its employees are responsible jointly to implement and maintain an Internal Responsibility System directed at promoting health and safety, preventing incidents involving occupational injuries and illnesses or adverse effects upon the natural environment.

The University is responsible for the provision of information, training, equipment and resources to support the Internal Responsibility System and ensure compliance with all relevant statutes, this policy and internal health and safety programs. Managers and Supervisors are accountable for the safety of workers within their area, for compliance with statutory and University requirements, and are required to support Joint Health and Safety Committees. Employees are required to work in compliance with statutory and University requirements, and to report unsafe conditions to their supervisors.

Contractors and subcontractors undertaking to perform work for McMaster University must, as part of their contract, comply with all relevant workplace and environmental health and safety statutes and to meet or exceed the University's Workplace and Environmental Health and Safety Program requirements.

In addition to the above stated managerial responsibilities, Deans, Directors, Chairs, Research Supervisors and other Managers are also accountable for the safety of students, volunteers and visitors who work and/or study within their area of jurisdiction. Students are required by University policy to comply with all University health, safety and environmental programs.

## Implementation:

The authority and responsibility for the administration of procedures and programs to provide for the implementation of this policy is assigned to the Office of the Vice President, Administration.

The Risk Management Support Group is responsible for facilitating the development, implementation and auditing of the Health and Safety Programs effective under this policy. This is achieved through the implementation of a risk management system that is directed at supporting the Internal Responsibility System through the application of best practices for the management of occupational, environmental, public health and safety related risks.

The Office of the Vice President, Administration will provide reports to the University Board of Governors concerning the status and effectiveness of the Workplace and Environmental Health and Safety System and any notices of violation issued to the University regarding breaches of workplace health and safety or environmental protection statutes.

## 6.10 Inter-University Cooperation - Ontario Visiting Graduate Student

It is possible for a graduate student registered at McMaster University to take a graduate course at another Ontario university for credit toward the McMaster degree. To do so, the student must review the Information Booklet, complete the form for an Ontario Visiting Graduate Student (both available on the Council of Ontario Universities website <http://cou.on.ca/key-issues/education/graduate-education/ontario-visiting-grad-students>) and describe the course to be taken, the term in which it will be taken, and the reasons for taking the course. Approval of the student's Department Chair and Supervisor are required before the form is submitted for approval to the School of Graduate Studies, which will send it to the host university. The course selected must be required for the student's program, must be a graduate level course, and must not be available at McMaster University. Auditing of courses or registration for "extra" courses is not permitted. The student is subject to any regulations of their Home University with respect to the maximum number of courses which may be taken at another Ontario university. At McMaster, there is a two course maximum over the duration of the student's program.

## General Information

### Counselling Services

Equity and Inclusion Office - <http://www.hres.mcmaster.ca>

International Student Services - Tel. 905-525-9140 ext.24700; [iss@mcmaster.ca](mailto:iss@mcmaster.ca) ext.

Ombuds Office - <http://www.mcmaster.ca/ombuds>

Office of Academic Integrity - <http://mcmaster.ca/academicintegrity/index.html>

Student Accessibility Services - <http://sas.mcmaster.ca/>

Student Financial Aid and Scholarships - <http://sfas.mcmaster.ca>

Student Success Centre - <http://studentsuccess.mcmaster.ca/>

### Health Services

Environmental and Occupational Health Support Services - Tel . 905-525-9140 Ext. 24352

Ontario Health Insurance Card - Tel . 905-521-7825 (Service Ontario)  
Student Wellness Centre - <http://wellness.mcmaster.ca>  
University Health Insurance Plan - Tel . 905-525-9140 Ext. 24748; [iss@mcmaster.ca](mailto:iss@mcmaster.ca)  
Workplace Safety and Insurance Board Coverage for Graduate Students - Working at McMaster

#### Housing and Conference Services and Hospital Services

Conference and Event Services - <https://housing.mcmaster.ca/conference-and-events-services>  
Hospitality Services - <http://hospitality.mcmaster.ca>  
McMaster Community Homes Corporation - Tel . 905-578-3833; E-mail: [receptionist@communityhomes.ca](mailto:receptionist@communityhomes.ca)  
Off-Campus Housing - <http://macoffcampus.mcmaster.ca> (Off-Campus Resource Centre)  
On-Campus Housing - <http://housing.mcmaster.ca> (Housing and Conference Services)

#### Student Associations

Graduate Students Association (GSA) - <https://gsamcmaster.org>  
McMaster University Alumni Association - <http://www.mcmaster.ca/ua/alumni>

#### Other University Services/Facilities

Athletics and Recreation - <http://www.marauders.ca>  
Bookstore and Post Office - <http://www.bookstore.mcmaster.ca> (Titles Bookstore)  
Day Care Facilities at McMaster

- McMaster Children's Centre Incorporated - <https://mcmasterchildrenscentre.wordpress.com>
- McMaster Students' Union Child Care Centre - Tel. 905-526-1544 E-mail: [dthomson@msu.mcmaster.ca](mailto:dthomson@msu.mcmaster.ca)

Parking Services - <http://parking.mcmaster.ca>  
Security Services - <http://security.mcmaster.ca>  
University Chaplain Centre - <http://www.mcmaster.ca/chaplain>

#### Special Resource Services/Facilities

Centre for Continuing Education - <http://www.mcmastercce.com>  
MacPherson Institute - <http://mi.mcmaster.ca>  
McMaster Media Production Services - <http://www.media.mcmaster.ca>  
McMaster Museum of Art - <https://museum.mcmaster.ca>  
Office of International Affairs - <http://oia.mcmaster.ca>  
Office of Sustainability - <http://www.mcmaster.ca/sustainability/index.html>  
University Library - <http://library.mcmaster.ca>  
University Technology Services (UTS) - <http://www.mcmaster.ca/uts>

## Graduate Scholarships, Bursaries and Other Awards

(<https://gs.mcmaster.ca/awards-funding/awards-funding>)

Commented [CB(S10)]: Scholarships requested

### 8.1 Overview

The following information is intended to provide details about the various forms of scholarship support available at McMaster. Students with questions regarding financial support should contact their department or graduate program (hereafter referred to as the department) directly for assistance.

All efforts have been made to ensure the accuracy of information of awards on the School of Graduate Studies website. However, it is ultimately the responsibility of fellowship and award applicants themselves to verify program deadlines and/or requirements with external agencies. The School of Graduate Studies cannot be held responsible for any error or omissions, but would appreciate being informed of these, for correction or addition in the next edition.

## 8.1.1 General Regulations

Graduate students at McMaster University are expected to apply annually for external funding opportunities that may be available to them and as directed by the department.

Scholarships (including fellowships, prizes, medals and awards), academic grants and bursaries may be cancelled without notice if the conditions under which they are granted are not upheld. To hold an award at McMaster University, students must:

- Have been unconditionally admitted into the eligible graduate degree program for which funding was granted;
- Be registered full-time and progressing satisfactorily in the eligible graduate degree program; part-time students are normally not eligible to receive scholarship support;
  - A student who withdraws, is on approved leave, changes academic load from full to part-time, reduces course load or units, has approved to graduate status or otherwise alters their program of study may be required to forfeit all or part of their funding.
- Accept the terms and conditions of the award;
- Comply with all academic regulations of McMaster University and the requirements of the scholarship and/or award;
- Not hold or accept full-time employment while holding the award; and
- Agree to have McMaster University administer the award in accordance with its policies and procedures.

In accordance with the *Freedom of Information and Protection of Privacy Act* and McMaster University's Statement on the collection of Personal Information and the Protection of Privacy, where notice is given, the University is permitted to publish an individual's name, Faculty, program and award information. McMaster University reserves the right to publish the names of recipients of most scholarships and awards, ~~in the University's convocation program and other award publications.~~

For the purpose of Aid and Award criteria and eligibility, references to "Woman" or "Female" include all students who identify as Woman/Female and references to "Man" or "Male" include all students who identify as a Man or Male.

## 8.1.2 Value and Duration of Award

The value and duration of scholarships and awards are detailed in the terms of letter of offer or award letter. Should a successful applicant receive an internal scholarship or external award subsequent to the letter of offer, McMaster's normal practice is to adjust the contributions to the applicant's offer in such a way that the applicant benefits from the additional award, but not to the extent that it simply adds the value of the award to the original offer. The fractional financial benefit of an internal scholarship or external award varies by program but is consistent within a given program.

Any approved change in degree, program, registration, supervisor or research area must be reported to the School of Graduate Studies and may result in a change to the value and/or duration of the award. The value of some external awards must be refunded if conditions of the awards are not met.

## 8.2 Graduate Scholarships

Upon admission to McMaster, graduate students are automatically considered for funding by the various departments. Offers that include funding will state the amount and duration of funding, conditions for renewal (if any), terms of continued funding, and other relevant details. Continued funding for graduate students from the University or from individual programs will be based on satisfactory progress of the student in his/her program as determined by academic criteria or as specified in an offer of funding. If the student has been awarded a Graduate or Departmental Scholarship, he/she should be aware that the funds for this scholarship might come from funds awarded by the School of Graduate Studies and/or from the department. The student may also receive a Research Scholarship provided by funds from the supervisor. If the student has been awarded an Entrance Scholarship, he/she should realize that it is for the first term of study only and is not renewable.



## 8.2.1 Internal Awards

The University Senate, acting on behalf of generous benefactors and donors to the University, bestows academic awards, bursaries, academic grants, and travel awards on graduate students. In recognizing financial need and/or academic and/or research merit, the University requires all recipients of awards to fulfill a set of general conditions, in addition to meeting the particular terms attached to individual academic awards. The general conditions and terms have been established to ensure equity in competition and a high academic standing. Any interpretation of the conditions attaching to academic awards is solely the prerogative of the Graduate Council. The University reserves the right not to grant an award in the absence of a suitable candidate, or to limit the number of awards where too few suitable candidates exist. The University also reserves the right to withdraw, or amend the terms of, any award, and/or to suspend granting of an award or to adjust the stated value of an award in years in which insufficient investment income is available due to fluctuations in investment markets. Where the terms of such award become impossible to fulfill through obsolescence, then the University may amend the terms of same to carry out the nearest possible intent of the donor while still ensuring that the benefit of such award continues.

### Bursaries

Bursaries are granted on the basis of demonstrated financial need according to the principles of the Province of Ontario's Student Access Guarantee. They are intended to supplement a student's own financial contribution, parental assistance, government aid and personal loans/lines of credit to help the student to complete the academic year.

In order for students to be considered for any donor bursary, they must apply to the Graduate General Bursary through Mosaic. If you are not eligible to apply for the Graduate General Bursary, you may have the option of submitting a need assessment application through [SFAS the Office of the Registrar, Student Services](#).

### Academic Grants

Academic Grants are granted on the basis of academic excellence and demonstrated financial need as stated above.

In order for students to be considered for an academic grant, they must apply to the Graduate General Bursary through Mosaic. If you are not eligible to apply for the Graduate General Bursary, you may have the option of submitting a need assessment application through [SFAS the Office of the Registrar, Student Services](#).

### Internal Scholarships (including travel awards)

Internal scholarships support students registered in a specific program or Faculty through the generous contributions of our benefactors and donors, and initiatives from the School of Graduate Studies. Selection is based on academic merit and research excellence. Students can apply to most of the internal scholarships through aid by application in Mosaic. A small number of scholarships don't have applications as they are awarded by departmental nomination as per the terms of the award. It is critical that students consult with their departments regarding eligibility, application procedures and deadlines as each department will have its own process for internal review. Departments forward their recommendation to the School of Graduate Studies for final approval or for [considered-consideration](#) in the main competition.

## 8.2.2 External Awards Tenable at the University

External awards tenable at the University are given by federal and provincial government agencies and other private organizations that rely on McMaster University to recommend candidates, facilitate payments, and ensure compliance of terms and conditions of the award. Examples of these agencies include the Canadian Institute of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC), the Social Sciences and Humanities Research Council (SSHRC), and the Ontario Graduate Scholarships (OGS). In most cases applicants must be invited by their department to submit an application to these competitions and verify eligibility requirements with the external agencies.

The application process for the majority of these awards is usually held one year in advance of receipt of the award (for example, competitions are held in October for awards starting in May, September or January of subsequent year). Applications and

eligibility requirements are usually indicated on respective government agency web sites by late August. Deadlines vary by agency but normally occur in the Fall of each academic year.

As the recipient of a CIHR, NSERC, SSHRC, OGS or similar award, the student may be required to complete additional acceptance/refusal forms, and provide copies to their department and the School of Graduate Studies. If the student changes their status, or is granted a leave of absence, the student may be required to notify the external agency as outlined in the guidelines (or terms and conditions) of the award. It may also be the case that the external award is subject to restrictions that require altered terms of the original letter of offer, or forfeit the award.

## 8.3 Funding Application Deadlines

Students interested in applying for scholarships and awards should contact their home departments for specific details on the application process and department internal deadlines. Dates and information from external agencies may be updated periodically and without notice. Changes to internal due dates within departments or programs, and the School of Graduate Studies, will be updated accordingly.

## 8.4 Financial Planning

A financial plan is an essential part of a university career. It can be helpful to consult with family members, a banking representative or financial aid counsellor to research financial options. Graduate students who are eligible are encouraged to apply for OSAP. For more information about OSAP, please visit the following sites: [Office of the Registrar, Aid & Award](https://registrar.mcmaster.ca/aid-awards/) (hyperlink: <https://registrar.mcmaster.ca/aid-awards/> and [Government of Ontario – OSAP](https://www.ontario.ca/page/osap-ontario-student-assistance-program) (hyperlink: <https://www.ontario.ca/page/osap-ontario-student-assistance-program> , <https://sfas.mcmaster.ca/category/government-aid/> and <https://www.ontario.ca/page/osap-ontario-student-assistance-program>).

## Governing Bodies

### 9.1 Senate

The University Senate consists of approximately 65 members, including the Chancellor, the President (Chair), the Vice-Presidents and Vice-Provosts, the Vice-Provost & Dean of Graduate Studies, the Faculty Deans, three members from the Board of Governors, four members from the Alumni Association, and 32 faculty members. In addition, there are 12 student members, one graduate and one undergraduate from each of the six Faculties. The students are elected by and from the students in their respective Faculties.

The Senate has ultimate responsibility for determining academic policy, which includes new academic programs, changes in curriculum, standards for admission to the University, matters arising in connection with the award of scholarships and prizes, examination policy, academic regulations, procedures for student appeals, criteria and procedures for granting tenure and promotion to faculty members, the codes of conduct for students and so on. Website: <http://www.mcmaster.ca/univsec>

### 9.2 Graduate Council

The Graduate Council is a deliberative, administrative, and executive body responsible directly to Senate but otherwise autonomous. Its membership consists of the Chancellor, the President and Vice-Chancellor, the Provost and Vice-President (Academic), the Vice-Provost & Dean of Graduate Studies (Chair), the Associate Deans of Graduate Studies, the Faculty Deans, the University Librarian, the University Registrar, the Secretary of Senate, the Vice-President (Research and International Affairs), the Assistant Dean (Graduate Student Life and Research Training), the Director of Finance of the School of Graduate

Studies, the Associate Graduate Registrar and Secretary of the School of Graduate Studies, eighteen faculty members (three from each faculty), and twelve graduate students (two from each faculty).

The responsibilities of the Graduate Council have been specified in some detail by Senate and are outlined in the By-laws of the Senate of McMaster University and the Senate Resolutions. The more significant ones may be summarized by noting that it regulates matters concerning graduate work of common concern to the entire University, acts upon recommendations concerning graduate work from each Faculty upon matters of particular concern to that Faculty, reports to Senate on graduate matters, recommends candidates for graduate degrees, stipulates conditions for the awarding of graduate scholarships, and stipulates the departments eligible to offer graduate work.

### **9.2.1 Executive Committee of Graduate Council**

The Executive Committee of Graduate Council is composed of the Vice-Provost & Dean of Graduate Studies (who acts as Chair), the Associate Deans of Graduate Studies as Deputy Chairs, the President and Vice-Chancellor, the Provost and Vice-President (Academic), one faculty member from each Faculty, and the Associate Graduate Registrar and Secretary of Graduate Studies.

The Executive acts as nominating committee, academic policy committee, and on any other matters put before it by Graduate Council or the Vice-Provost & Dean. This body acts on behalf of Council in instances where there is some urgency (e.g., during the summer months when there are no regularly scheduled meetings).

### **9.2.2 Scholarships Committee of Graduate Council**

The Scholarships Committee of Graduate Council is composed of the Associate Deans of Graduate Studies (who act as co-chairs) and faculty members (representing all six faculties). This committee is responsible for acting upon all recommendations and applications for internal endowed fellowships and scholarships, and external scholarships.

## **9.3 Standing Committees**

### **9.3.1 Faculty Graduate Curriculum and Policy Committees**

Each of the six Faculties has a Committee on Graduate Curriculum and Policy which is responsible for dealing with matters of policy and curriculum affecting the Faculty, including new developments, course changes, changes in degree requirements, and new programs and fields of study arising from departmental proposals. The Faculty then acts upon the recommendations of this committee.

### **9.3.2 Faculty Graduate Admissions and Study Committees**

For each Faculty, there is also a Committee on Graduate Admissions and Study responsible for determining admissibility of any applicant on the recommendation of the department, approving each student's course program, reviewing annually the progress of each student, making necessary decisions thereon, recommending awarding of degrees, deciding upon applications from students for special consideration, and acts on the final decisions from a hearings committee for student appeals and cases of alleged academic dishonesty and research misconduct. Normally, the Associate Dean of Graduate Studies for the Faculty handles the matters on behalf of the committee. The Secretary of all Committees, to whom business items may be addressed, is the Associate Graduate Registrar and Secretary of Graduate Studies.

## April 2020 Graduate Council –

### Award name correction

The award below had the wrong name in Name of Fund field (MURA Academic Scholarship), it has now been corrected for your approval.

**NAME OF FUND: Liburdi Engineering PhD Scholarship**

**TERMS OF REFERENCE FOR FUND:** Established in 2019 by Joseph Liburdi. To be awarded by the School of Graduate Studies based on the recommendation of the Director of the School of Biomedical Engineering to a doctoral student in the School of Biomedical Engineering who demonstrates academic excellence and mentorship of undergraduate students.

### Awards for Approval

**NAME OF FUND: Eileen Mary Grace Bursary**

**TERMS OF REFERENCE FOR FUND:** Established in 2019 by the Estate of Brendan John Grace in loving memory of his mother, Eileen Mary Grace. To be awarded by the School of Graduate Studies to graduate students in the School of Nursing who demonstrates financial need.

# Microcredentials: Innovation in Teaching and Learning in the Faculty of Engineering

Version of April 14, 2020

## BACKGROUND

The Faculty of Engineering at McMaster University has rapidly assumed leadership in developing earned microcredentials and built a framework for digital credential delivery through its collaboration with the international Digital Credentials Consortium.

Since a clear definition of the microcredential is still evolving at the University level, it is timely for the Faculty to define, develop and lead early implementations that can be global exemplars and adopted worldwide. Although McMaster Engineering faculty and staff members have proposed microcredentials, these do not yet adhere to a clear structure, nor have the fiscal resources to support their propositions been identified.

This white paper describes how McMaster Engineering will enable microcredential innovation for teachers, learners, employers and policymakers. We believe that microcredentials provide a means to improve and verify the learning and skills that we provide to learners, they are of value to employers who can recognize the framework through which they are earned, they enhance engagement with our communities, and add value to the training provided through collaborative research<sup>1</sup>.

Microcredentials also address the Faculty's strategic priorities. They offer the opportunity to reorganize curricular design to enhance learning and learner outcomes. They verify partnerships and the value of engagement with our community by authenticating activities that promote societal wellbeing, social innovation and entrepreneurship. They improve research outcomes, training and innovation through learning. They enhance the professional development of learners by providing them with verifiable co-curricular content that can be learned at a flexible pace.

## DEFINITIONS<sup>2</sup>

A microcredential is an *issuable micro-certificate* that verifies a competency acquired through a single learning experience or a collection of learning experiences and it has an intrinsic value that is readily recognized in the public domain. Whether the learning experience leads to a technical competency or a professional skill, the duration of instruction must be sufficient to allow the learner to acquire the competency or skill and include a robust assessment of that learning.

A microcredential may be issued alone or it can be stacked with other microcredentials in a thematic series. It can also be part of a more complex arrangement that a learner can use for academic credit, where the microcredential is awarded and stacked towards a more substantive

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<sup>1</sup> In the Canadian and Ontario contexts, microcredentials can be embedded to verify learning offered through training grants such as NSERC CREATE, NSERC Alliance, and Ontario Research Fund.

<sup>2</sup> Provided by the Faculty of Engineering for the purpose of focusing the discussion on the need for microcredentials and shall be updated at such time that a Senate-approved definition is available.

credential like an academic certificate, certificate of completion, diploma or degree. There is however an archaic vein of thought, which must be strenuously countered, that an institution may only issue degrees, diplomas or certificates as credentials.

A course taken for academic credit represents a unit of learning that may not be issued as a credential alone. Hence, the first important element of a microcredential is that it should be created only for a *body of learning that has essential value on its own merit and is publicly recognizable*.

As a micro-certificate, a microcredential *represents the smallest unit of learning through which a learner acquires a competency or meets an intended learning objective*. This is the second important element of a micro-credential, i.e., it is narrow in scope.

In contrast, an *academic certificate* or *non-academic certificate of completion* is an issued credential representing a more coherent program of study that provides the learner with multiple competencies and addresses many learning objectives. Such a certificate can be issued alone, or it can be complementary to a degree program.

Similarly, a degree or diploma is a credential issued for a program of study based on a collection of program learning outcomes that can be readily audited and are intended to develop several competencies so that the learner can master a broad subject area. Mastery in this case is identified by the successful accumulation of enough unit credits in the program of study.<sup>3</sup>

Therefore, we contend that a microcredential should not exceed one unit (or its equivalent in content) since it would otherwise cover learning experiences that are too substantive.

A microcredential is further defined as being either academic or non-academic, depending upon whether or not the learning will be denoted on an academic transcript.<sup>4</sup> An academic microcredential may be issued as a credential and also appear on a transcript, whereas a non-academic microcredential may only be issued separate from the transcript.

**An academic microcredential** verifies learning that includes a suitable evaluation of the acquisition of a competency that merits disclosure on a student's transcript. As noted above, a microcredential is equivalent to a one-unit credit earned in recognition of 9-12 hours of learning.<sup>5</sup> While other credit values may be assigned for a microcredential, these should not exceed 1.5-unit credits. Passing or failing the assessment has the same impact on student progression as for

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<sup>3</sup> In North America, the unit credits for academic credit courses in degree or diploma programs are typically provided in blocks of three or six units, though these credits can assume a single unit or any other unit collection. At McMaster University, unit credits can be provided through one, two, three or any other unit level according to the [Senate Policy on Diplomas and Certificates](#).

<sup>4</sup> This definition is consistent with the terminology of North American universities, e.g., see the McMaster University [Senate Policy on Diplomas and Certificates](#).

<sup>5</sup> An example of a single unit of learning is three hours of lectures over 3-4 weeks.

existing courses or milestones. An earned microcredential can be stacked in the same manner as a course taken towards a degree.<sup>6</sup>

**A non-academic microcredential** verifies learning that develops a relevant competency or skill, which merits recognition but is typically not disclosed on a student's transcript.<sup>7</sup> The learning should be consistent with 9-12 hours of classroom learning or equivalent and include an assessment for meeting a learning outcome.<sup>8</sup>

### **STACKABILITY**

While a microcredential has standalone value for the learner, employers, policymakers and the public, there is value in combining multiple microcredentials to represent a program of study not recognized by a degree or diploma. This combination of microcredentials is referred to as 'stacking'.

Example: The *McMaster Graduate Certificate* is offered for learning that is eligible for inclusion on the learner's transcript. This credential, which combines courses and academic microcredentials, is intended for a program of study that is complementary to a degree. The certificate must include three graduate level courses that are eligible for academic credit, where all of these courses may overlap with those taken towards a graduate degree.

Example: The *McMaster Certificate of Completion* is a credential earned for a non-academic program of study. It verifies that the learner has completed a course or a program at McMaster that does not have the status of an academic program. A Certificate of Completion can be issued when a course or program includes the equivalent of a minimum of 30 instructor contact hours and the learning is suitably assessed.

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<sup>6</sup> Typically, these activities must be approved by the appropriate curriculum and policy committee of the Faculty and its corresponding Council or equivalent and are overseen by the Registrar.

<sup>7</sup> At McMaster University, this recognition is provided separately by the Faculty rather than the Office of the Registrar on a students' academic transcript.

<sup>8</sup> At McMaster University, approval for providing credit for such a learning activity is granted by the Dean of the Faculty. Depending on the scope of the learning.

## **GOVERNANCE AND DELIVERY FRAMEWORK**

Administrative oversight for microcredentials, both for their creation and delivery, offered through the McMaster University Faculty of Engineering will be through the *Academy for Microcredentials and External Learning*. This unit will report to the Dean of Engineering who may delegate joint responsibility for oversight, for instance, to the Associate Dean (Academic) and Associate Dean (Graduate Studies).

The Academy will be guided by a Faculty committee that will review and approve new microcredentials, where it has the authority to do so. It will have access to funds, released at the discretion of the Director for Finance and Administration upon approval by the Dean, for assigning sessional instructors, teaching assistants, and faculty members on overload (with proper approvals) to offer and assess learning activities, provide administration, marketing and recruitment services, and issue the microcredentials under its purview.

The Academy is intended to become financially self-sufficient within three years by collecting fees from learners towards non-academic microcredentials and for academic microcredentials that are not yet offered by the University Registrar.

The *Academy for Microcredentials and External Learning* will be governed and function as follows.

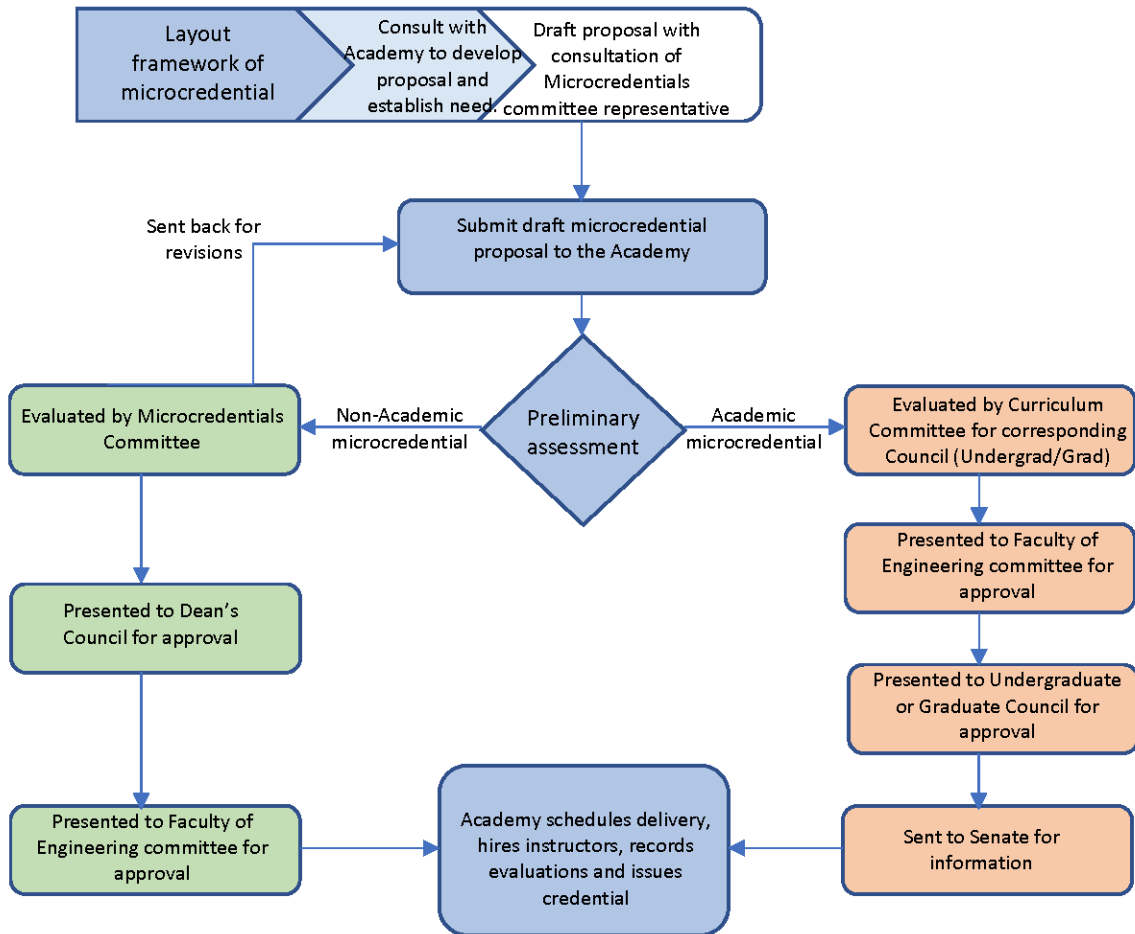
- Governance, microcredit development and approval will be governed through the *Microcredentials Committee* that will function as a Faculty committee and provide an annual report to the Dean. It will consist of five faculty members representing the School of Engineering and Applied Science (SEAS) and Walter G. Booth School of Engineering Practice and Technology (SEPT). One of these five members will serve as an equity champion, as is the norm for all Faculty of Engineering committees. The committee will also include the Director of Finance and Administration, Assistant Dean (studies) and Director of Outreach and Engagement, or their individual delegates, as advisors and observers. The committee will be co-chaired by the Associate Dean (Academic) and the Associate Dean (Graduate Studies) as delegates of the Dean.

The Microcredentials Committee will consider proposals for microcredentials that might be suitable for development and make recommendations to the Dean whether these efforts should be supported. Once the framework for it has been developed, all microcredentials are submitted to the Academy Office. Those identified as academic microcredentials will be forwarded to the Secretariat (for undergraduate level) or the School of Graduate Studies (for graduate level) and seek approval at the appropriate Council. All proposals for non-academic microcredentials will be considered for approval by the Microcredentials Committee which will be reviewing its intended learning outcomes, content, method of assessment, market feasibility and competitor analysis. Forms and procedures for non-academic microcredentials will be developed in a manner similar to those used by Faculty committees to encapsulate necessary information. All non-academic microcredentials approved by the Microcredentials Committee will be forwarded for approval at Dean's Council and finally at a meeting of the



Faculty of Engineering. All approved non-academic microcredentials by this process shall be reported for information to the Undergraduate Council Certificates and Diplomas Committee.

**Flow chart showing the intended progression of a proposal up to the point of approval.**



- *Learning delivery, learner enrollment and tuition* will be based on full cost recovery for non-academic microcredentials. Academic microcredentials will be charged consistent with the appropriate credit unit. The tuition will be approved by the Fees committee, updated by the Director of Finance and Administration who will serve as the Dean's delegate.
- *Program delivery* will be encouraged online, but with instructor-learner and learner-learner contact conducted as appropriate. Secure online evaluations will be explored. The Faculty will consider establishing a Moodle to offer the asynchronous online content, while also using campus resources such as the Echo360 studios for lecture capture and classrooms for engagement with learners. In-class delivery may be appropriate for premium fee events or when there is perceived value outside of a revenue stream.

- *Assessment of learning* is mandatory and will correspond to the intended learning outcomes.
- *Credentials* for academic learning will be submitted by the Office for review and processing by the Assistant Dean (Studies). Non-academic microcredentials and stackable certificates will be issued by the Office, preferably in digital form.
- *Learning* designed for companies will be approved by the Associate Dean (Research and External Affairs) and learning for delivery to traditional students will be approved by the Associate Dean (Academic) or Associate Dean (Graduate Studies) as appropriate.

**POTENTIAL MICROCREDENTIALS TO BE ISSUED BY THE FACULTY (GROUPED BY SPONSOR)**

<b>Sponsor</b>	<b>Type</b>	<b>Title</b>	<b>Description</b>
Associate Dean (GS)	Academic	Graduate Communications	Three 1-unit modules to be developed with SEPT.
Churchill/Grand Challenge Scholars Program	Co-curricular	McMaster Grand Challenge Scholar	Five competencies, three levels, already developed. No tuition, but opportunity through ENGINEER 3CX03
Ansilio and Churchill/MacChangers	Co-curricular community engaged learning	MacChangers	Already developed. No tuition due to intrinsic value for community engagement.
Veldhuis	Non-academic	TBA	
Emadi	Non-academic	TBA	
Knights	Non-academic	TBA	
Novog	Non-academic	TBA	
Leistner/ECCS	Non-academic	Equity, Diversity & Inclusion in the Workplace	Seven 1-unit modules, 4 mandatory, 3 elective modules. To become requirement for each co-op work term.
Lefevre-Schlick/SEPT	Non-academic	Circular economy and carbon mitigation	3 microcredentials (circular economy, carbon mitigation, transitional leadership) which stack up to a single certificate of completion
		Advanced manufacturing and cyber-physical systems	4 micro credentials (two on advanced manufacturing, 2 on cyber-physical systems) which stack up to a single certificate of completion

		Operations leader & management	5 micro credentials (TBD) which stack up to a single certificate of completion
		Smart city	x micro credentials (infrastructure, mobility solutions, TBD) which stack up to a single certificate of completion
		Healthcare	x micro credentials (TBD) which stack up to a single certificate of completion

Project total of early-start tuition-based microcredentials: 10+

## **IMPLEMENTATION PLAN AND REVENUE**

A three-year pilot is planned with a projected cohort of 150 learners who will earn one or more of 5 microcredentials during the first year, growing by Year 3 to 450 learners earning one or more of 15 microcredentials. The revenue provided by these learners will differ depending on whether a microcredential is academic or non-academic.

### **Academic Microcredentials**

The *activity leader* is the person or group proposing the microcredential to the Academy.

Following approval from the Academy to proceed, the activity leader will discuss the activity with academic leader, e.g., chair or director, of the appropriate academic unit that will deliver it. If financial resources are required for development before the proposal is submitted to the university's curriculum committee(s), these may be sought from the academic unit and in some cases from the Faculty.

Microcredentials intended for inclusion on a student's transcript will be organized and delivered by the appropriate academic unit, such as a department, school, or program reporting to the Associate Dean (Academic). Once verified by the unit, the Academy will issue the digital credential but collect no fee from the learner for doing so. An academic unit may however be charged a service fee by the Academy for services required beyond microcredential issuance.

Microcredentials requiring the full services of the Academy shall charge the appropriate Academic Unit at the rate of a non-academic microcredential.

### **Non-Academic Microcredentials**

The activity leader is the person or group proposing the microcredential.

While a microcredential is being considered, the activity leader may request the Microcredential Committee to approve a development loan subject to further approval by the Dean or a delegate. Therefore, the Academy is expected to initiate and grow a development fund. We anticipate a fund value of \$100,000 for the first two years and it is anticipated that should increase in later years with revenue growth to the Academy. Activity leaders will be encouraged to seek external grants or sponsorship by making use of external funding opportunities to develop their microcredentials.

The activity leader is responsible for business development for microcredentials. The Academy may also assist in business development for an additional fee. Business development refers to client discovery, marketing, and possible content revision according to market and learner needs.

A preliminary estimate of reasonable tuition for a non-academic microcredential provides a value between \$1,000-\$2,000 based on the scope of the activity. This tuition is equivalent to the fees for many professional development workshops and training events.

The Academy will handle the scheduling, admissions, learner-related inquiries and those from potential partner organizations and institutions, record-keeping, hosting of website content, and issuing of microcredentials. The activity leader will be charged a flat delivery fee of \$20,000 per microcredential each time the learning activity is delivered. Costs for delivering a microcredential off-campus and remuneration for instructors or guest lecturers will be the responsibility of the activity leader and not the Academy.

**3-YEAR OPERATING BUDGET**

Year 1 Expense

Program Administrator, Grade 8	\$85,000
Office space, 120 sq ft	\$5,000
Centre costs (Est. at 10% of revenue)	\$10,000
Office furniture, phone, computer	\$10,000
<i>Development fund</i>	\$100,000
Website development/licenses	\$30,000
Operating supplies	<u>\$5,000</u>
Total	\$245,000

**Year 1 Revenue \$100,000**

Year 2 Expense

Program Administrator, Grade 8	\$85,000
Office space, 120 sq ft	\$5,000
Centre costs (Est. at 10% of revenue)	\$20,000
Office furniture, phone, computer	\$1,000
<i>Development fund</i>	\$100,000
Website development/licenses	\$13,000
Operating supplies	<u>\$5,000</u>
Total	\$229,000

**Year 2 Revenue \$200,000**

Year 3 Expense

Program Administrator, Grade 8	\$85,000
Office space, 120 sq ft	\$5,000
Centre costs (Est. at 10% of revenue)	\$30,000
Office furniture, phone, computer	\$1,000
<i>Development fund</i>	\$100,000
Website development/licenses	\$16,000
Operating supplies	<u>\$5,000</u>
Total	\$243,000

**Year 3 Revenue \$300,000**

(If the applications are successful, \$100K from the Skills Catalyst grant and \$50K from the RapidSkills grant will be applied as start-up revenue.)

**IMPLEMENTATION PLAN – ACTIVITES PRIOR TO FIRST YEAR**

