

April 13, 2018

TO: Members of Undergraduate Council

FROM: Christi Garneau  
University Secretary and Privacy Officer

RE: **Notice of Meeting**

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The next meeting of Undergraduate Council will be held on **Tuesday, April 17, 2018 at 2:30 p.m., in the Council Room, Gilmour Hall (GH 111)**. The items of business to be discussed are outlined on the agenda provided with this meeting notice.

Should you be unable to attend the meeting, please notify the University Secretariat at extension 24337 or e-mail [univsec@mcmaster.ca](mailto:univsec@mcmaster.ca)

**McMaster University**  
**UNDERGRADUATE COUNCIL**  
**Tuesday, April 17, 2018 at 2:30 p.m.**  
**in the Council Room (GH 111)**

**A G E N D A**

- I MINUTES of the meeting of November 14, 2017, December 5, 2017 and March 27, 2018 (attached – for approval) *pg. 3*
  
- II BUSINESS ARISING
  
- III CHAIR’S REMARKS
  
- IV REPORT FROM THE CERTIFICATES AND DIPLOMAS COMMITTEE *pg. 16*  
(attached – for approval/information)  
For Approval
  - i. Proposed Revisions to the Certificates and Diplomas Policy
  - ii. Establishment of New Certificate and Diploma Programs
    - a. Health and Social Services Certificate
    - b. Health Information Management Diploma and Health Information Management Plus Diploma
    - c. Certificate/Diploma in Advanced Accounting and Finance
    - d. Certificate in Foundations of Analytics: Business Intelligence, Data Analytics, and Data Science
  - iii. Revisions to Certificate and Diploma Programs
    - a. Applied Clinical Research
    - b. Big Data Analytics Certificate
  - iv. Establishment of New Certificate of Completion Programs
    - a. Carbon Mitigation Certificate of CompletionFor Information
  - v. Establishment of New Certificate of Completion Programs
    - a. Cybersecurity Certificate of Completion
    - b. Family Engagement in Research Certificate of Completion
    - c. Fundamentals of Addiction for Allied Health Professionals Certificate of Completion
    - d. Principles of Health Information Certificate of Completion
    - e. Evaluation and Data Analytics for the Health Sector Certificate of Completion
    - f. Workplace Wellness Management Certificate of Completion
    - g. Health and Social Services Certificate of Completion
    - h. Certificate of Completion: Foundations of Analytics: Business Intelligence
    - i. Certificate of Completion: Foundations of Analytics: Data Analytics
    - j. Certificate of Completion: Foundations of Analytics: Data Science

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| V    | REPORT FROM THE AWARDS COMMITTEE (attached – for approval/<br>information) For Approval                             | <i>pg. 90</i>  |
|      | i. Proposed New Awards  |                |
|      | ii. Changes to Terms of Awards  |                |
|      | iii. Proposed New Bursaries   |                |
|      | iv. Awards and Bursaries Removed from the Undergraduate Calendar  |                |
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|      | v. Award Name Changes   |                |
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| VI   | 2016-17 IQAP Cyclical Program Reviews (attached – for information)  | <i>pg. 94</i>  |
|      | vii. Anthropology   |                |
|      | viii. Physics and Astronomy   |                |
| VII  | QUALITY ASSURANCE COMMITTEE PROPOSED REVISED TERMS OF<br>REFERENCE AND MEETING PROCEDURES (attached – for approval) | <i>pg. 110</i> |
| VIII | OTHER BUSINESS  |                |

**REPORT TO UNDERGRADUATE COUNCIL  
FROM THE  
UNDERGRADUATE COUNCIL  
CERTIFICATES AND DIPLOMAS COMMITTEE**

Report from the Committee's meeting of April 6, 2018.

**FOR APPROVAL**

**I Proposed Revisions to the Certificates and Diplomas Policy**

The Undergraduate Council Certificates and Diplomas Committee now recommends,

**that Undergraduate Council approve, for recommendation to Senate, the proposed revisions to the Certificates and Diplomas Policy.**

**II Establishment of New Certificate and Diploma Programs**

**a. Health and Social Services Certificate**

The Undergraduate Council Certificates and Diplomas Committee now recommends,

**that Undergraduate Council approve, for recommendation to Senate, the establishment of a *Health and Social Services Certificate* program, as recommended by the Centre for Continuing Education.**

**b. Health Information Management Diploma and Health Information Management Plus Diploma**

The Undergraduate Council Certificates and Diplomas Committee now recommends,

**that Undergraduate Council approve, for recommendation to Senate, the establishment of *Health Information Management Diploma and Health Information Management Plus Diploma* programs, as recommended by the Centre for Continuing Education.**

**c. Certificate/Diploma in Advanced Accounting and Finance**

The Undergraduate Council Certificates and Diplomas Committee now recommends,

**that Undergraduate Council approve, for recommendation to Senate, the establishment of *Certificate/Diploma in Advanced Accounting and Finance* programs, as recommended by the Centre for Continuing Education.**

**d. Certificate in Foundations of Analytics: Business Intelligence, Data Analytics, and Data Science**

The Undergraduate Council Certificates and Diplomas Committee now recommends

**that Undergraduate Council approve, for recommendation to Senate, the establishment of a *Certificate in Foundations of Analytics: Business Intelligence, Data Analytics, and Data Science* program, as recommended by the Centre for Continuing Education.**

**III Revisions to Certificate and Diploma Programs**

**i. Applied Clinical Research**

The Certificates and Diplomas Committee now recommends,

**that Undergraduate Council approve the proposed revisions to the *Applied Clinical Research* program, as recommended by the Centre for Continuing Education.**

**ii. Big Data Analytics Certificate**

The Certificates and Diplomas Committee now recommends,

**that Undergraduate Council approve the proposed revisions to the *Big Data Analytics Certificate* program, as recommended by the Centre for Continuing Education.**

**IV Establishment of New Certificate of Completion Programs**

**i. Carbon Mitigation Certificate of Completion**

The Certificate and Diplomas Committee now recommends,

**that the Undergraduate Council approve, for recommendation to the University Planning Committee, the establishment of a *Carbon Mitigation Certificate of Completion*, as recommended by the Centre for Continuing Education.**

**ii. For Information:**

- a. Cybersecurity Certificate of Completion
- b. Family Engagement in Research Certificate of Completion

- c. Fundamentals of Addiction for Allied Health Professionals Certificate of Completion
- d. Principles of Health Information Certificate of Completion
- e. Evaluation and Data Analytics for the Health Sector Certificate of Completion
- f. Workplace Wellness Management Certificate of Completion
- g. Health and Social Services Certificate of Completion
- h. Certificate of Completion: Foundations of Analytics: Business Intelligence
- i. Certificate of Completion: Foundations of Analytics: Data Analytics
- j. Certificate of Completion: Foundations of Analytics: Data Science

**To:** Members of the Certificates and Diplomas Committee of Undergraduate Council

**From:** Dr. Lorraine Carter, Director, Centre for Continuing Education

**Re:** Proposed amendments to the policy for Certificates and Diplomas (May 2017) involving recognition of credits earned through courses and programs offered by the Centre for Continuing Education

**Date:** April 3, 2018

Please accept this request to amend the revised Policy on Certificates and Diplomas (May 17, 2017) and to move this amendment forward immediately to Undergraduate Council and Senate. The request pertains to recognition of credits earned through courses and programs offered by McMaster University Centre for Continuing Education.

As discussed by the Certificates and Diplomas Committee and based on meetings including Dr. David Farrar (Provost); Dr. Susan Giroux (Vice-Provost, Faculty); Christi Garneau (University Secretary and Freedom of Information & Protection of Privacy Officer); Tamara Bates (Governance Advisor and Assistant University Secretary); and Linda Coslovi (Associate Vice-President, Finance and Planning, Academic), the language in the revised policy (May 2017) does not reflect what has been accepted practice for over a decade and what has been described in the University calendar during the same time period with regards to the recognition of credits earned through courses and programs offered by the Centre for Continuing Education (CCE).

Over the last number of years, the leadership and staff in the CCE have endeavoured to ensure that all courses and programs meet superior standards. As well, all courses, certificates, and diplomas offered by CCE have been assessed by a McMaster University faculty member and an Associate Dean and approved by the Certificates and Diplomas Committee, Undergraduate Council, and Senate. Accordingly, these courses are held to the same standards as others approved through governance. Approving this amendment will advance the mission of the CCE and contribute to the University's support of part-time and adult learners.

Below are the items requiring correction, with bolding used to indicate where a change is urgently needed:

4.1 Academic Program Requirements All McMaster Undergraduate Diplomas must include academic credit courses equivalent to at least 24 units of undergraduate study at McMaster. In addition to their academic content, Undergraduate Diploma programs may include courses and

other forms of learning which are not suitable for academic credit. **The maximum overlap with degree courses is 70% of the requirement for the diploma. For example, the maximum overlap for a diploma program consisting of 24 units is 15 units.**

6.1 Academic Course Requirements All McMaster Stand-Alone Undergraduate Certificates must include academic credit courses equivalent to at least 15 units (half a year) of undergraduate study at McMaster. In addition to their academic content, Stand-Alone Certificate programs may include courses and other forms of learning which are not suitable for academic credit. **The maximum overlap with degree courses is 60% of the requirement for the Stand-Alone Certificate. For example, the maximum overlap for a Stand-Alone Certificate program consisting of 15 units is 9 units.**

In order to amend the above two items, the bolded passage in each needs to be deleted and the following statement (already used in the policy at 3.1 Transfer between Credentials) needs to be inserted in its place. I would like to underscore that this “correction” reflects what has been actual practice for over a decade:

Up to 100% of the academic credit courses completed toward undergraduate diploma and certificate programs may be used for credit toward another credential at the discretion of and in accordance with the normal academic rules specified by academic unit offering the subsequent credential.

With the amendments, items 4.1 and 6.1 would read as follows:

Amended 4.1 (Spring 2018) Academic Program Requirements All McMaster Undergraduate Diplomas must include academic credit courses equivalent to at least 24 units of undergraduate study at McMaster. In addition to their academic content, Undergraduate Diploma programs may include courses and other forms of learning which are not suitable for academic credit. **Up to 100% of the academic credit courses completed toward undergraduate diploma and certificate programs may be used for credit toward another credential at the discretion of and in accordance with the normal academic rules specified by academic unit offering the subsequent credential.**

Amended 6.1 (Spring 2018) Academic Course Requirements All McMaster Stand-Alone Undergraduate Certificates must include academic credit courses equivalent to at least 15 units (half a year) of undergraduate study at McMaster. In addition to their academic content, Stand-Alone Certificate programs may include courses and other forms of learning which are not suitable for academic credit. **Up to 100% of the academic credit courses completed toward undergraduate diploma and certificate programs may be used for credit toward another credential at the discretion of and in accordance with the normal academic rules specified by academic unit offering the subsequent credential.**



Based on the above, I put forward the following motion for the Certificates and Diplomas Committee's consideration. If approved by Undergraduate Council, the amendments will be forwarded to Senate for final approval.

**That the Certificates and Diplomas Committee recommend to Undergraduate Council the revisions to sections 4.1 and 6.1 of the Policy on Certificates and Diplomas (revised May 2017) as described above.**

A handwritten signature in cursive script, reading "Lorraine Carter". The ink is dark and the signature is fluid, with a large initial 'L' and a distinct 'C'.

## Centre for Continuing Education Program Approval

| <b>A. Department &amp; Program Information (Complete all fields):</b>             |  |
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| Academic Designation:   | Certificate, Certificate of Completion   |
| Program Name:   | Health & Social Services Programming <ul style="list-style-type: none"> <li>• Fundamentals of Addiction for Allied Health Professionals Certificate of Completion</li> <li>• Principles of Health Information Certificate of Completion</li> <li>• Evaluation and Data Analytics for the Health Sector Certificate of Completion</li> <li>• Workplace Wellness Management Certificate of Completion</li> <li>• Health &amp; Social Services Certificate of Completion</li> <li>• Health &amp; Social Services Certificate</li> </ul>   |
| Name of Representative:   | Nancy McQuigge, Program Manager  |
| Proposed Date/Term of Program Start:  | Fall 2018  |
| Date of Submission:   | April 3, 2018  |
| <b>B. Faculty Statement (Required):</b>   |  |
| Refer to attached letters   |  |
| <b>C. Academic Merit (Complete all fields; write “not applicable” as needed):</b> |  |
| i. Program Overview:  | <p>Under the category of Health and Social Services, the Centre for Continuing Education proposes the creation of 6 new programs. The proposed offerings are designed to offer students a variety of short, timely programs within a specialized topic, such as Addiction, Health Information, and Workplace Health and Wellness. Upon successful completion of the selected course packages, the student will be awarded a McMaster Certificate of Completion or Certificate.</p> <p>Students may select courses based on their academic and professional backgrounds and future learning needs. In addition, students enrolled in health, social service or other post-secondary academic programs may be interested to add/apply these credentials to their current program of study.</p> |

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|                          | <p>Program courses bridge theory and practical experience through a combination of experiential learning (i.e. case studies, projects, discussions, and presentations) and traditional teaching and learning methods. Emerging trends, theories and practices will be incorporated to coursework to ensure that program content is current and relevant.</p> <p>Development subject matter experts and program instructors will be practitioners in the fields of addictions, health care, health information management, health informatics, human resources management. Instructors are capable of emphasizing the knowledge and skills required for employment in a variety of health and social service sectors.</p> <p>The majority of courses will be offered online, while a few specific courses will be offered in both an online and in-class format. Any in-class courses will be delivered at the Centre for Continuing Education's (CCE) location in Hamilton, with the option to schedule courses at a suitable satellite location (s) as deemed appropriate.</p> <p>An open enrolment format is recommended for the program, as students will select courses specific to their individual needs. Required and/or suggested pre-requisites will be posted to the course descriptions on CCE's website, and it is the responsibility of the student to ensure his/her ability to meet course pre-requisites.</p> <p>The Health and Social Service proposed program credential options are (see Section F for course information):</p> <ul style="list-style-type: none"> <li>• Fundamentals of Addiction for Allied Health Professionals Certificate of Completion (9 units)</li> <li>• Principles of Health Information Certificate of Completion (9 units)</li> <li>• Evaluation and Data Analytics for the Health Sector Certificate of Completion (9 units)</li> <li>• Workplace Wellness Management Certificate of Completion (9 units)</li> <li>• Health &amp; Social Services Certificate of Completion (9 units)</li> <li>• Health &amp; Social Services Certificate (15 units)</li> </ul> |
| ii. Learning Objectives: | Each program within the Health and Social Service category will have  |

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|                                   | <p>its own unique learning objectives to which courses will align with one, or multiple, objectives listed below.</p> <p>Upon completion of a specific program(s) within the Health and Social Service category, students may achieve the following outcomes:</p> <ul style="list-style-type: none"> <li>• Assess a broad spectrum of variables that lead to and influence addiction in order to support those living with and those affected by addiction from a strength-based perspective;</li> <li>• Recognize knowledge limitations and scope of professional practice, including awareness of when referrals to other professionals are required and the role of multidisciplinary care in relation to addiction;</li> <li>• Identify types of health information and analyze the information systems used to collect, store, assess, distribute, and protect health records and information;</li> <li>• Integrate policies, procedures and professional standards with the management of health information;</li> <li>• Analyze the relationships (interprofessional roles and responsibilities) between healthcare systems, health information management, and health informatics and their respective impacts on decision making</li> <li>• Apply data analytics strategies to different set of health care data</li> <li>• Plan the design, delivery, management, and evaluation of a workplace health promotion program utilizing models of best practice</li> <li>• Assess how future changes within the socio-economic environment might have an influence on workplace health promotion programs</li> </ul> <p>The following objectives will be threaded within each course:<br/>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate an awareness of ethical practices and professional standards applicable to the fields of health and social service;</li> <li>• Exemplify the skills, attitudes, and behaviours required to work and collaborate with people and develop personal management skills;</li> <li>• Employ effective communication practices</li> </ul> |
| iii. Meeting Learning Objectives: | <p>All programs in the Health and Social Service program category will use a series of courses to achieve specific program objectives. Individual course objectives are mapped to the overall program</p>  |

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|  | objectives. The delivery format and teaching methods are structured to have a maximum effect on achieving the learning objectives.  |
| iv. Program Admission Requirements:        | <p>In compliance with the Certificates and Diploma, admission policy from Undergraduate Council, students who wish to enter the programs should meet the following requirements based on their education and work experience:</p> <ol style="list-style-type: none"> <li>1. Be a mature student as defined in the Undergraduate Calendar of McMaster University; or be deemed an exceptional case by the Centre for Continuing Education</li> <li>2. English Language Proficiency requirements: Completion of TOEFL exam with minimum acceptable score of IBT: 86 overall with a minimum score of 20 on each of the four components (Reading, Writing, Speaking, Listening), valid for 2 years</li> </ol> |
| v. Program Pre-requisites (if applicable): | <p>There are no specific program pre-requisites; programs are open enrolment; however, it is recommended students have the following knowledge and skills:</p> <ul style="list-style-type: none"> <li>• Experience with using word processing programs and tools</li> <li>• Basic computer skills such as using a web browser (search and navigation), send and receive emails, locate and upload files</li> </ul> <p>Some courses require pre-requisites for enrolment. This information will be posted to the course description and CCE's website.</p>   |
| vi. Program Completion Requirements:       | <p>To qualify for a Certificate of Completion, students must complete a minimum of 9 units of study.</p> <p>To qualify for a Certificate, students must complete a minimum of 15 units of study.</p>  |
| viii. Program Delivery Format:             | Program courses will be delivered in-class and online. Delivery formats will include instructor lectures and/or presentations, group discussions, and individual and/or small group practical application activities and assignments.   |
| ix. Student Evaluations (Grading Process): | Each course will include several evaluation components. The evaluation will consist of assignments, case studies, presentations, application activities, individual or group projects, class participation, or a combination thereof. Where appropriate, evaluations will be structured to evaluate participants' level of  |

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|   | competency in achieving overall learning objectives.   |
| x. Course Evaluation:   | For each course, students will complete an evaluation to assess content, delivery, materials, method of evaluation and instruction.  |
| xi. Course Instruction:   | Instructors for courses will be selected from a pool of qualified external professionals. In compliance with <i>McMaster's Senate and Undergraduate Council Guidelines for Certificates and Diplomas</i> , selection will be based on academic background and/or experience within the field. Instructors must have a Master's Degree (or equivalent) and significant professional experience and teaching within the field.   |
| xii. Credit Towards Degree Programme Studies:   | The academic credit courses included in the program may be used for credit towards undergraduate degree studies in accordance with the normal academic rules specified by the Faculty offering the degree.   |
| xiii. Program Advanced Standing:  | <p>Upon enrolment in the program, a student may receive up to a maximum of 6 units of advanced credit for the Certificate option. No transfer credits will be granted for the Certificate of Completion programs.</p> <p>The courses used for such credit must be equivalent to the McMaster courses that they replace; specifically,</p> <ul style="list-style-type: none"> <li>• Courses must have an 80% content/curricula overlap and a similar number of equivalent to classroom hours;</li> <li>• Courses must be listed on an official transcript from an accredited academic institution with a minimum grade of C- ; and,</li> <li>• Courses must be taken within the last 5 years</li> </ul> |
| <b>D. Statement of Financial Viability:</b>   |  |
| <p>I have reviewed the business case and financial projections which includes enrolment projections and costs. Sources of revenue for this program include tuition and supplementary fees (MAPS). Expenses are typical and include significant up front development and marketing costs, as well as typical ongoing delivery costs (such as payment of facilitators, honoraria for other guest facilitators, materials, advertising and administration).</p> <p><i>Lorraine Carter, Director, Centre for Continuing Education, March 2018</i></p> |  |

#### **E. Statement of Administrative Responsibilities:**

The human and systems infrastructure to support the following functions exists within CCE. Costs will be fully covered by tuition, with the exception of the first year of the program, when the start-up will be subsidized by CCE.

Responsibilities for the programs are as follows:

- Budget development and monetary responsibilities
- Program and Course Development
- Course Registrations/Administration
- Supervision of Instructors to ensure University policies and practices are adhered to
- Courses taught according to program requirements and standards
- Marketing and Promotions

#### *McMaster Faculty of Health Sciences*

The Faculty of Health Sciences will act as academic liaison and is charged with the responsibility of on-going academic review and assessment of curriculum. In return for services rendered, the Faculty of Health Sciences will receive an annual stipend at the end of each fiscal year during which the program records a surplus.

#### **F. Listing of Courses by Program**

##### **Fundamentals of Addiction for Allied Health Professionals**

Certificate of Completion (3 courses; 9 units)

##### **Courses:**

Note: Course codes are pending from the Office of the Registrar.

- Introduction to Addiction
  - And two of the following courses:
- Assessment and Treatment Planning
- Human Development in Context: Understanding the Person with Addiction Issues
- Concurrent Disorders

##### **Principles of Health Information**

Certificate of Completion (3 courses; 9 units)

##### **Courses:**

- HTH 101 Health Information Management I
- HTH 104 Privacy, Confidentiality & Security
- HTH 115 Records Management
- HTH 106 Managing Health Privacy & Security
- HTH 108 Information Analysis & Data Analytics

##### **Evaluation and Data Analytics for the Health Sector**

Certificate of Completion (3 courses; 9 units)

##### **Courses:**

- HTH 108 Information Analysis & Data Analytics
- HTH 110 Health Informatics & Data Analysis
- HTH 122 Quality and Performance Evaluation

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|  | <ul style="list-style-type: none"> <li>• Data Analytics for Health Care (pending course approval as part of the Health Information Management program)</li> </ul>   |
| <b>Workplace Wellness Management</b><br>Certificate of Completion (3 courses; 9 units)   | <b>Courses:</b> <ul style="list-style-type: none"> <li>• HRM 941 Wellness in the Workplace</li> <li>• HRM 901 Human Resources Management</li> <li>• HTH 107 Organizational Behaviour for the Health Sector, or HRM Organizational Behaviour</li> <li>• HRM 921 Occupational Health &amp; Safety</li> <li>• BUS 847 Principles &amp; Practices of Supervision</li> <li>• HRM 902 Training &amp; Development</li> </ul> |
| <b>Health &amp; Social Services</b><br>Certificate of Completion (3 courses; 9 units)  | Complete any 9 units (3 courses) of study from the list of individual courses listed above  |
| <b>Health &amp; Social Services</b><br>Certificate (5 courses; 15 units)   | Complete any 15 units (5 courses) of study from the list of individual courses listed above.  |
| <b>Course Descriptions (listed in alphabetical order):</b> All courses are 3 units of study.   |   |
| <p><i>1. Assessment and Treatment Planning</i></p> <p>Using a bio-psycho-social-spiritual framework, this course provides students with the foundational skills needed to accurately screen and assess addiction and compulsive behavior issues. Students will develop an individualized treatment plan that considers a client's strengths and unique needs. Students will learn to develop effective clinical documentation and report writing skills.</p>   |   |
| <p><i>2. Concurrent Disorders</i></p> <p>This course prepares students to understand the complexity of mental health disorders and substance use and the interactional relationships between them. Students will learn the prevalence of concurrent disorders, the importance of screening for both mental health and substance use, and the benefits of treating both concurrently.</p>   |   |
| <p><i>3. Data Analytics for Health Care</i></p> <p>The application of data analysis methods and tools can provide an organization with meaningful insights for improvement and strategic planning. This course will examine different types of health information data - how the data is collected, mined, analyzed and interpreted – for the purposes of quality, performance and utilization management. The use of data analysis tools and practices provides a practical approach for understanding the impact data analytics has within the health care system.</p> |   |
| <p><i>4. Health Informatics Data Analysis</i></p> <p>The focus of this course involves the study of health data retrieval, analysis and presentation by the Health Informatics professional. Learners will critically examine the role of the Health Informatician to develop, maintain, and retrieve critical data from the information systems</p>   |   |



commonly found in health care. Issues of the presentation of data, quality assurance, and research will be explored as the Health Informatics professional contributes to, and aids in the facilitation of, the decision-making process.

#### *5. Health Information Management I*

The course covers fundamental theories and principles of health information management including data types, data acquisition, data standards, data quality and data uses and users. Learners will develop an appreciation of how data is collected, processed and used in healthcare settings and the role that data plays in decision-making (including an understanding of the complexities involved in transforming data into information and knowledge). The course will introduce learners to the roles and responsibilities of the HIM professional in the storage, use, retention and destruction of health records in both paper and electronic record systems and the central role of health information management in quality assurance and performance improvement, planning and management of resources, risk management, research and education.

#### *6. Human Development in Context: Understanding the Person with Addiction Issues*

This course examines the developmental changes across the human lifespan and the reciprocal relationships they have with addiction. There will be a review of personality theories and how the integration of these theoretical perspectives can provide a more holistic understanding of the person with addiction issues. Students will learn about treatment interventions specific to each theory. The assessment and treatment process is explored from a bio-psycho-social-spiritual lens.

#### *7. Human Resources Management*

Human Resources Management provides an overview of the fundamentals of HR Management and the importance and impact it has to an organization. The course will focus primarily on seven major areas: strategic human resource management, planning human resources, attracting and selecting human resources, placing, developing and evaluating human resources, rewarding and maintaining high performance and evaluating human resource strategies.

#### *8. Information Analysis & Data Analytics*

This course incorporates the analysis of information and the extraction of data within the health information sector. Examine the processes for the selection and presentation of data by health information management professionals based on the needs of various stakeholders. The course will present information for the selection and organization of data in terms of supporting decisions made at different levels of the healthcare sector, and how HIM and HI professionals assess and meet stakeholder demands. Apply statistical knowledge and applications to the analysis and reporting of health information. Finally, the role of the health information professional within research studies, and in support of research, will be discussed.

#### *9. Introduction to Addiction*

This course provides an overview of addiction from a holistic standpoint through the

examination of both theory and the continuum of helping interventions currently used in Canada. The course also explores the prevention and treatment continuum in Canada along with providing an introduction to ethical and legal issues an addiction professional will face.

#### *10. Managing Health Privacy & Security*

This course is a continuation of the Privacy, Confidentiality and Security course. Explore the various aspects of managing health privacy issues, confidentiality and access to health information. In particular, the course will examine the tools used to manage, control and disclose health information within organizations, taught within the framework of risk management. Engage in activities to highlight the collaborative nature of the roles, responsibilities and professional standards between Health Information Managers and Health Informaticians. Emphasis will be placed on the learner's ability to evaluate, analyze and apply concepts from this course, and the Privacy, Confidentiality and Security course, in order to promote their knowledge and skills at the local, organizational level as well as the overall health care system.

#### *11. Occupational Health & Safety*

The major objective of this course is to introduce Human Resources professionals to the broad and ever changing field of Occupational and Safety, an inherently technical subject area far broader than legislation only. The multiple dimensions of the various issues technical, legislative, political and personal safety at work or in your home are a required part of the training for a professional in this field or for someone who is involved with this kind of operation? How to deal with consultants in the workplace. Occupational Health (or Hygiene) cannot be separated from Occupational Safety because of the many overlapping requirements and because the well-being of the worker must be first and foremost. The course is designed to be very informative and fun with full class involvement.

#### *12. Organizational Behaviour*

This course provides an overview of the structure and function of human behaviour in organizations. Students will study the behavioural influences that affect productivity, organizational effectiveness, and efficiency. Topics to be discussed include personality, perception, motivation, decision-making, team dynamics, communication, organizational politics, conflict, leadership, organizational design, and change. Individual exercises, the analysis of case material, and the opportunity to share experiences through discussion with students from different backgrounds will enhance a practical understanding of theoretical concepts. Anti-requisite: Organizational Behaviour for the Health Sector

#### *13. Organizational Behaviour for the Health Sector*

This course provides an overview of the theories, structures and functions found within the various components of a healthcare organization. The course will examine the how business characteristics apply to the healthcare setting, specifically, the management functions of planning, leading, organizing and controlling. Topics to be discussed include planning and decision-making, strategic planning, developing high performance teams, managing operations, leadership, managing innovation and change, organization culture, motivating

and rewarding employees, and effective communication. Individual and group exercises and the analysis of case material relevant to the healthcare setting, and specific issues for HIM and HI professionals, will be used to enhance a practical understanding of theoretical concepts. Anti-requisite: Organizational Behaviour

#### *14. Principles & Practices of Supervision*

This course has been designed to develop and improve the supervisory skills necessary for achieving increased productivity by effectively managing allocated human resources. Topics include motivation, delegation, leadership style, implementing change, setting and achieving standards and performance management. The emphasis of this course is on practical skills – supported by academic theory and research. The assignments and exercises will also support the development of, monitoring, controlling and staff development skills.

#### *15. Privacy, Confidentiality & Security*

Examine the "concepts, principles and applications of the rights and obligations related to individual access, privacy and confidentiality of personal health information" (CHIMA, 2010, 21). This examination will involve health information data and records in both paper and electronic formats. The course will review legal regulations and legislations currently in place for the collection, use, storing and sharing of personal health information. Learners will study privacy requirements, responsibilities and risks associated with the life cycle of personal health information as Health Information Managers, Health Informaticians, and members of a health care organization. Various legal, ethical and professional standards as they relate to privacy and access will be presented, discussed and critically analyzed from the perspective of the consumer, organization and Health Information professional.

#### *16. Quality and Performance Evaluation*

This course will explore how the principles and practices of health informatics is an integral component of the healthcare system's quality improvement and performance management. An examination of tools and methodologies will be presented in terms of how to use health technologies to meet organizational goals.

#### *17. Records Management*

The course will examine the principles and practices of health records management as it pertains to the collection, maintenance, storage, retrieval, retention and destruction of records. Records management practices are presented in relation to the legal and regulatory requirements. Policy development processes for various technological systems are explored and analyzed as a function of the HIM professional.

#### *18. Training & Development*

The primary objective of this course is to examine the functional roles of training and development within the organization as well as analyzing and understanding the critical importance of planning within an ISD (instructional systems design) model. Topics to be discussed include: the training and development process, the psychology of learning and motivation, needs assessment and analysis; training design; cost and benefits of training;

transfer of training and evaluation; training trends and best practices.

*19. Wellness in the Workplace*

This course will focus on health promotion concepts, program management strategies, interventions and perspectives of health promotions in the workplace. We will examine why health promotions make sense as a return on investment for employers and provide insight into the process of designing, managing, and evaluating a program. We will explore strategies that impact health promotions and identify the types of programs used to operationalize a health promotions program.

DATE: March 14, 2018  
TO: Dr Alan Neville, Associate Dean, Health Professional Education, Faculty of Health Sciences  
FROM: Dr Lynn Martin, Assistant Professor & Teaching Professor, School of Nursing  
SUBJECT: Recommendation for the Health & Social Services Programs Proposed by the Centre for Continuing Education

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I have reviewed the proposal for the following programs to be offered through the Centre for Continuing Education (CCE):

1. Fundamentals of Addiction for Allied Health Professionals Certificate of Completion
2. Principles of Health Information Certificate of Completion
3. Evaluation and Data Analytics for the Health Sector Certificate of Completion
4. Workplace Wellness Management Certificate of Completion
5. Health & Social Services Certificate of Completion
6. Health & Social Services Certificate

I have examined the programs' structure and the course descriptions. It is my finding that the programs' requirements meet the standards necessary to be an academic program with courses of 3 units of advanced credit value as indicated in the academic submission document.

My examination of the overall Health and Social Services learning outcomes, course descriptions, and the teaching and testing methods, corresponds with the intellectual rigor and standards comparable to that found in undergraduate degree courses. The academic submission indicates that the courses will be taught by qualified individuals (possessing a master's degree or equivalency), as defined by Undergraduate Council Certificate and Diploma requirements. The students taking the program will meet the minimum requirements set out in the Policy on Certificates and Diplomas for Undergraduate Council.

Since the program meets all these criteria as set out in the Policy on Certificates and Diplomas for Undergraduate Council, I have arrived at the conclusion stated above.

Sincerely,



Lynn Martin, BScN, MScN, EdD

To: Certificate and Diploma Committee, Undergraduate Council and Senate  
From: Dr Alan Neville, Associate Dean,  
Health Professional Education, Faculty of Health Sciences  
Date: March 27, 2018  
RE: Proposal for Health & Social Services Programs Proposed by the Centre  
for Continuing Education

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I have reviewed the Health & Social Service program submission document presented by the Centre for Continuing Education. I have determined that it meets all the criteria set out by the Undergraduate Council in its guidelines for certificates and certificates of completion and we, therefore, endorse this submission with the support of the Faculty of Health Sciences.

I have had the proposal reviewed by Dr Lynn Martin, Assistant Professor & Teaching Professor, School of Nursing. Her conclusion is that the objectives of the proposed program are viable, that the courses included in it will fulfill the stated objectives and meet Undergraduate Council's criteria for the designation of "Certificate" and "Certificate of Completion". I concur with this assessment.

The Faculty of Health Sciences is pleased to have a quality program options as included in the Health & Social Service submission document to meet the needs of potential students. We support this CCE program as their academic affiliates, providing both the initial submission review and overview of ongoing curriculum issues. Additionally, we have provided CCE with the guidelines needed by their students for possible use of the advanced standing rules for students entering our degree programs using credit from completion of this program.

Sincerely,



Dr Alan Neville, BMedBiol, MBChB, Med, FRCP, FRCPC  
Associate Dean, Health Professional Education, Faculty of Health Sciences

Cc: Lorraine Carter, Director, CCE  
Dan Piedra, Assistant Director, CCE

## Undergraduate Certificate & Diploma Committee Course Submission

| <b>A. Department &amp; Program Information (Complete all fields):</b>  |   |
|--|---|
| Department:  | Centre for Continuing Education   |
| Program Name:  | Health Information Management Diploma<br>Health Information Management Plus Diploma |
| Name of Representative:  | Nancy McQuigge  |
| Nature of Submission:  | New course  |
| Effective Date:  | September 1, 2018   |
| Submission Date:   | April 3, 2018   |
| <b>B. Course Details (Complete all fields):</b>  |   |
| Course Title:  | Data Analytics in Health Care   |
| Is this course currently offered? No   |   |
| Course Unit Value:   | 3 units   |
| List Course Pre-requisites (if applicable):  |   |
| <ul style="list-style-type: none"> <li>• HTH 101 Health Information Management I</li> <li>• HTH 102 Health Information Management II</li> <li>• HTH 108 Information Analysis &amp; Data Analytics</li> </ul>   |   |
| <b>C. New Course Information (Complete all fields):</b>  |   |
| <p><b>Course Description:</b><br/>The application of data analysis methods and tools can provide an organization with meaningful insights for improvement and strategic planning. This course will examine different types of health information data - how the data is collected, mined, analyzed and interpreted – for the purposes of quality, performance and utilization management. The use of data analysis tools and practices provides a practical approach for understanding the impact data analytics has within the health care system.</p> <p><b>Course Outcomes:</b><br/>Upon completion of the course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Define data analytics</li> <li>• Identify types of health care data and collection processes</li> </ul> |   |

## Undergraduate Certificate & Diploma Committee Course Submission

- Describe the role of data analysis for planning and decision making processes
- Apply the tools and techniques used for data analytics in health care organizations
- Analyze patterns and trends in data sets/systems
- Create data reporting and visualization objects (effectively communicate data analysis insights)
- Develop an analytic strategy to frame a health care issue and solution
- Apply analytics to various contexts of quality and performance improvement

### Course Content/Rationale:

This course is required for the program in order to meet professional association learning outcomes for a health information management program. Course topics by module are listed below.

- Module One: Introduction to Data Analysis
- Module Two: Health Information Data
  - Part A: Sources of Data
  - Part B: Decision Support & Analysis
- Module Three: Data Organization, Analysis and Visualization
- Module Four: Analytical Variables
  - Part A: Analyzing Categorical Variables
  - Part 2: Analyzing Continuous Variables
  - Part 3: Analyzing the Relationship between Two Variables
- Module Five: Data Analytics in Research
- Module Six: Data Analytics and Quality Improvement
- Module Seven: Data Analytics and Performance Management
- Module Eight: Data Analytics - Trends, Predictive Analytics and Big Data

### Statement of Purpose:

The course aligns with the programs courses on types of health information, data collection, storage and analysis. The HTH 108 Information Analysis & Data Analytics focuses on specific data analytics related to health care and hospital statistics. This course is a progression from this in terms of using data analytics to health system and organizational questions, problems and issues.

### Course Delivery:

This course will be delivered online in a similar format as existing courses in the program. Material will be presented in McMaster's Learning Management System and course activities will be based on instructor presentation of material, required and supplemental readings, videos, web-based resources, practical application of analytical tools and software, group discussions, and individual and group based projects.



**Method of Evaluation:**

Evaluation methods will include the following items:

- Online discussion/participation
- Quizzes
- Lab activities
- Projects based on case study

The subject matter expert will identify specific case studies and practical lab applications during the course development period.

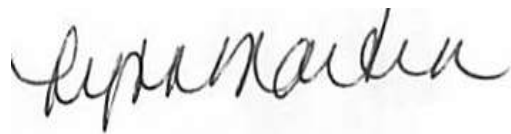
**F. Statement from Faculty**

I have reviewed the proposal for the addition of the new course, *Data Analytics in Health Care*, for the specified programs offered through the Centre for Continuing Education (CCE). I have examined the submission document and it is my finding that the course addition is appropriate for the programs, and the changes meet the standards necessary for an academic program with courses of 3 units.

My examination of content covered in the new course, as well as the teaching and testing methods, concurs that the proposed course is of the intellectual rigor comparable to that found in undergraduate degree courses. The academic submission indicates that the course will be taught by qualified individuals (possessing a master's degree or equivalency), as defined by Undergraduate Council Certificate and Diploma requirements. The students taking the course will meet the minimum requirements set out in the Policy on Certificates and Diplomas for Undergraduate Council.

In conclusion, I support the proposed changes to the diploma programs of Health Information Management, Health Information Management Plus as well as the Evaluation and Data Analytics for the Health Sector, Certificate of Completion.

Sincerely,



Dr Lynn Martin, BScN, MScN, EdD  
Assistant Professor & Teaching Professor, School of Nursing  
McMaster University

## Centre for Continuing Education Program Approval

| A. Department & Program Information (Complete all fields):                 |   |
|--|---|
| Program Name:  | Certificate/Diploma in Advanced Accounting & Finance  |
| Name of Representative:  | Anne Dwyer  |
| Effective Date:  | February 15, 2018   |
| Date of Submission:  | Tuesday, April 3, 2018 (Cert/Diploma)   |
| B. Faculty Statement (Required):   |   |
| Refer to attached letters  |   |
| C. Academic Merit (Complete all fields; write “not applicable” as needed): |   |
| i. Program Overview:   | <p>Developed to align with the Chartered Professional Accountants' (CPA) Advanced Certificate in Accounting and Finance program, The Certificate/Diploma in Advanced Accounting and Finance (CPA ACAF Equivalents) program enhances your technical and applied skills, while helping you develop professional competencies and soft skills required for mid-level positions in accounting and finance.</p> <p>The Certificate/Diploma in Advanced Accounting and Finance, designed in consultation with the Chartered Professional Accountants Ontario, will prepare you to write the CPA ACAF Final National Exam.</p> <p>Learners will have the option of completing either a Diploma in Advanced Accounting and Finance or a Certificate in Advanced Accounting and Finance.</p> |
| ii. Learning Objectives:   | <p>Graduates will be able to:</p> <ul style="list-style-type: none"> <li>• Prepare financial information to support management decision-making</li> <li>• Prepare financial statements and related disclosures for organizations with low to medium levels of complexity and a low level of uncertainty</li> </ul>  |

|                                     |   |
|-------------------------------------|---|
|                                     | <ul style="list-style-type: none"> <li>• Help prepare more complex financial statements</li> <li>• Support the development and maintenance of the organization's management control and risk management systems</li> <li>• Calculate and report on financial and non-financial performance measures</li> <li>• Monitor and recommend improvements to accounting procedures, accounting information systems and internal controls</li> <li>• Monitor cash flow and cash flow requirements</li> <li>• Prepare budgets and forecasts for review by senior management</li> <li>• Prepare information for external auditors</li> <li>• Support auditors in planning and executing audits</li> <li>• Help prepare tax filings, provisions, reports and disclosures, and comply with remittance requirements</li> <li>• Write the CPA ACAF Final National Exam.</li> </ul> |
| iii. Meeting Learning Objectives:   | <p>The Certificate/Diploma in Advanced Accounting &amp; Finance uses a series of academic courses to achieve the stated program objectives. Individual course objectives are mapped to the overall program objectives. The delivery format and teaching methods are structured to have a maximum effect on achieving the learning objectives.</p>   |
| iv. Program Admission Requirements: | <p>The Certificate/Diploma in Advanced Accounting &amp; Finance will be an open enrolment program. Potential learners will not be required to apply to the program for admission; however, the program will be open only to those learners with post-secondary education, who have satisfied the program prerequisites (refer to program prerequisites below).</p> <p>In addition, in order to ensure that students have the basic capabilities necessary to be successful in the program's academic</p>  |

|  |   |
|--|---|
|  | <p>courses, learners are required to have the following prerequisite knowledge and/or skills:</p> <ul style="list-style-type: none"> <li>• Able to use Microsoft Excel to: <ul style="list-style-type: none"> <li>○ format spreadsheets and blocks of cells</li> <li>○ enter and edit formulas, values and text using relative and absolute referencing</li> <li>○ copy, move and protect cells</li> <li>○ insert and delete columns and rows</li> <li>○ use basic financial, statistical and mathematical functions</li> <li>○ create and print charts and graphs, and create data tables</li> </ul> </li> </ul> <p>All students, whose first language is not English, must meet McMaster University's English Language Proficiency requirements: Completion of TOEFL exam with minimum acceptable score of <b>IBT: 86 overall</b> with a minimum score of 20 on each of the four components (Reading, Writing, Speaking, Listening), valid for 2 years.</p> |
| v. Program Pre-requisites (if applicable): | <p>The direct pre-requisites for those entering either the Certificate or the Diploma in Advanced Accounting and Finance are as follows:</p> <p>All five core courses offered under CCE's Diploma in Accounting, ACC 925, 926, 927, 928 &amp; 929 or equivalents, plus BUS 436 Business Law or equivalent. NOTE: In some instances, students who have not yet completed intermediate management accounting or business law, may be admitted to the program but will be required to complete ACC 929 and BUS 436 before taking any applied courses.</p> <p>In addition to the core course program prerequisites, students entering the Certificate in Advanced Accounting and Finance must also have completed all seven specialist courses offered under CCE's Diploma in Accounting as follows: ACC 930, ACC 931, ACC 932, ACC 933, ACC 934, ACC 937 &amp; ACC 938 or equivalents prior to starting the Certificate.</p>                                     |
| vi. Program Completion Requirements:       | <p>Students pursuing the Diploma in Advanced Accounting and Finance must complete 12 courses (7 specialist and 5 applied courses - 36 units) in order to qualify for the Diploma in Advanced Accounting and Finance.</p> <p>Students pursuing the Certificate in Advanced Accounting and Finance must complete 5 applied courses (3 required and 2 electives - 15 units) in order to qualify for the Certificate in Advanced Accounting and Finance.</p>  |

|   |   |
|---|---|
| viii. Program Delivery Format:                | <p>All program courses will be available in both in-class and online self-study formats. The exception being Accounting Software Application which is completed directly through Sage University and may be applied into the program as a transfer credit.</p> <p>In-class offerings will include a mixture of lecture and experiential learning activities, such as case studies, presentations, individual and group work.</p> <p>Online self-study delivery will use primarily asynchronous activities designed to present the fundamental concepts and theories in accounting and promote the application to the workplace and professional practice. Course activities will include instructor video lecture/presentations, discussion board topics, web-based learning activities, as well as, experiential learning activities (i.e. case studies, group discussions, projects).</p> |
| ix. Student Evaluations (Grading Process):    | Each course will include an evaluation component. The evaluation will consist of assignments, case studies, presentations, individual or group projects, participation, mid-term and a final examination or a combination thereof. Where appropriate, evaluations will be structured to evaluate students' level of competency in achieving overall learning objectives.  |
| x. Course Evaluation:                         | For each course, students will complete an evaluation that explores content, delivery, materials, method of evaluation and instruction.   |
| xi. Course Instruction:                       | Instructors for courses will be selected from a pool of qualified applicants. In compliance with McMaster's Senate and Undergraduate Council Guidelines for Certificates and Diplomas, selection will be based on academic background and/or experience within the field. Instructors will have the equivalency of a Master's Degree or significant professional and teaching experience within the field. Instructors for specialist and applied courses are required to be CPAs.  |
| xii. Credit Towards Degree Programme Studies: | The academic credit courses included in the diploma program can be used for credit towards degree program studies in accordance with the normal academic rules specified by the Faculty offering the degree.  |
| xiii. Program Advanced Standing:              | Learners pursuing the Diploma in Advanced Accounting and Finance, who have completed equivalent coursework at either university or college (applied degree) may be eligible to apply for a maximum of three (3) transfer credits (9 units).   |

|  |   |
|--|---|
|  | <p>Approved transfer credit will be approved by the Program Manager based on the following criteria:</p> <ul style="list-style-type: none"> <li>• courses must have an 80% overlap in content/curricula and a similar number of classroom or contact hours;</li> <li>• courses must have been taken within the last five years;</li> <li>• courses must have been taken from an accredited academic institution and listed on an official transcript with a grade of “B-”or better.</li> </ul> <p>In addition, all students pursuing the Diploma in Advanced Accounting and Finance may be eligible to apply <i>Accounting Software Application (Sage 50)</i>, completed through Sage University.</p> <p>Learners pursuing the Certificate in Advanced Accounting and Finance, may be eligible to apply <i>Accounting Software Application (Sage 50)</i>, completed through Sage University</p> |
| <b>D. Statement of Financial Viability:</b>  |   |
| <p>I have reviewed the business case and financial projections which includes enrolment projections and costs. Sources of revenue for this program include tuition and supplementary fees (MAPS). Expenses are typical and include significant up front development and marketing costs, as well as typical ongoing delivery costs (such as payment of facilitators, honoraria for other guest facilitators, materials, advertising and administration).</p> <p><i>Lorraine Carter, Director, Centre for Continuing Education, <b>February 15, 2018</b></i></p>  |   |
| <b>E. Statement of Administrative Responsibilities:</b>  |   |
| <p>Statement of Faculty Alignment (if applicable):</p> <p>The human and systems infrastructure to support the following functions already exists within CCE. Costs will be fully covered by tuition, with the exception of the first year of the program, when the start- up will be subsidized by CCE.</p> <p>Responsibilities for the programs are as follows:</p> <ul style="list-style-type: none"> <li>• Budget development and monetary responsibilities</li> <li>• Program and Course Development</li> <li>• Course Registrations/Administration</li> <li>• Supervision of Instructors to ensure University policies and practices are adhered to; course are taught according to program requirements and standards</li> <li>• Marketing and Promotions</li> </ul> <p><i>DeGroote School of Business</i></p> <p>The DeGroote School of Business will act as academic liaison and is charged with the</p> |   |

responsibility of on-going academic review and assessment of curriculum.

F. Listing of Courses (complete the chart to provide suggested course title, required/elective, number of academic units, proposed hours, and estimated term offering):

| <u>Course Name</u>                           | <u>Required/Elective</u> | <u>Academic Units</u> | <u>Scheduled Term</u>                      |
|--|--------------------------|-----------------------|--|
| Ethics & Workplace Skills                    | Required (Dipl & Cert)   | 3.0                   | Fall 2018                                  |
| Business Applications                        | Required (Dipl & Cert)   | 3.0                   | Winter 2019                                |
| Accounting Software Application              | Required (Dipl & Cert)   | 0.0                   | Completed directly through Sage University |
| Applied External Audit                       | Elective (Dipl/Cert)     | 3.0                   | Fall 2019                                  |
| Applied Personal and Corporate Taxation      | Elective (Dipl/Cert)     | 3.0                   | Spring 2019                                |
| Public Sector Financial Management Practices | Elective (Dipl/Cert)     | 3.0                   | Fall 2018                                  |
| Not-for-Profit Accounting and Related Topics | Elective (Dipl/Cert)     | 3.0                   | Winter 2019                                |
| ACC 930 Advanced Management                  | Required (Diploma)       | 3.0 units             | Currently available                        |

|   |                    |           |                     |
|---|--------------------|-----------|---------------------|
| Accounting                                |                    |           |                     |
| ACC 931<br>Auditing                       | Required (Diploma) | 3.0 units | Currently available |
| ACC 932<br>Management Information Systems | Required (Diploma) | 3.0 units | Currently available |
| ACC 933<br>Financial Management           | Required (Diploma) | 3.0 units | Currently available |
| ACC 934<br>Advanced Financial Accounting  | Required (Diploma) | 3.0 units | Currently available |
| ACC 937<br>Taxation I                     | Required (Diploma) | 3.0 units | Currently available |
| ACC 938<br>Taxation II                    | Required (Diploma) | 3.0 units | Currently Available |

### **Course Descriptions:**

#### **Ethics and Workplace Skills**

Ethics and Workplace Skills is a mandatory course that focuses on business ethics and communication. In this course, you will learn that ethics and communication are central to the credibility of those who analyze financial information for employers, clients and other financial users. You will also be introduced to the ACAF Method, which is a road map that you can use to navigate accounting and finance problems. (Prerequisites: All entry and technical courses must have been completed before taking Ethics and Workplace Skills.)

#### **Applied External Audit**

Applied External Audit is an elective course that builds on the technical components from previous auditing courses, focusing on external audit issues. Applied External Audit assumes that you are familiar with the material related to the first two stages of an audit: acceptance/continuance and audit planning. In Applied External Audit, the focus will be on the last two stages: execution and reporting. (Prerequisites: All entry and technical courses must have been completed before taking this course. Ethics and Workplace Skills should have been completed, but may be taken concurrently.)



### **Applied Personal and Corporate Taxation**

Applied Personal and Corporate Taxation builds on the technical personal and corporate taxation courses, covering the selected topics in more depth. The topics are integrated to facilitate tax planning for corporations and individuals. The purpose of this course is to provide you with tax skills appropriate for environments of low- to mid-level complexity with low levels of uncertainty. The content will focus on applied knowledge, using authentic business scenarios that require you to demonstrate the application of technical knowledge. (Prerequisites: All entry and technical courses must have been completed before taking this course. Ethics and Workplace Skills should have been completed, but may be taken concurrently.)

### **Public Sector Financial Management Practices**

Public Sector Financial Management Practice focuses on how public sector entities of various kinds make the best use of the vast resources entrusted to them in creating public value. Public sector accounting is a core body of knowledge supporting financial management. The purpose of this course is to provide you with public sector financial management skills necessary to function in public sector environments of low to medium complexity and low uncertainty. Topics addressed include governance and decision-making processes, government budgeting and planning, government financial reporting, financial analysis of government and not-for-profit programs, and public sector auditing. (Prerequisites: All entry and technical courses must have been completed before taking this course. Ethics and Workplace Skills should have been completed, but may be taken concurrently.)

### **Not-For-Profit Accounting and Related Topics**

Not-For-Profit Accounting and Related Topics is a foundation course in accounting for not-for-profit organizations, with an emphasis on the application of accounting concepts encountered in the not-for-profit and charities sector. It also includes an overview of government (public sector) financial reporting standards. The purpose of this course is to produce a mid-level accountant with skills in the not-for-profit sector able to function in environments of low to mid-level complexity with low levels of uncertainty. This course will focus on applied knowledge, using authentic not-for-profit scenarios that require you to demonstrate the application of technical knowledge. Accounting software is integrated throughout the course to help you develop the skills needed in the marketplace. In addition, this course will help you develop other skills such as communication, managing and analyzing information, solving routine problems and effectively promoting personal management and teamwork. (Prerequisites: All entry and technical courses, as well as accounting software application, must have been completed before taking this course. Students must also have completed the Ethics and Workplace Skills course or be taking it concurrently.)

### **Business Applications**

Business Applications is a required course in the Certificate/Diploma in Advanced Accounting and Finance program. You will work through a scenario that deals with financial accounting, management accounting, finance, ethics, communication, taxation, audit and information systems issues, providing practice in these technical areas through the application of the ACAF Method. Working both individually and in groups, you will incorporate material from prerequisite courses and continue to refine your workplace skills relating to communication, management and analysis of information, routine problem solving, personal management and teamwork, and ethics. (Prerequisites: All entry and technical courses,

as well as Accounting Software Application, must have been completed before taking this course. Students must also have completed the Ethics and Workplace Skills course or be taking it concurrently.)

### **Accounting Software Application**

Accounting Software Application is a required non-credit course. This course is a series of self-study courses that cover the features of Sage 50 - Canadian Edition product from setup to usage of AP/AR to job costing and inventory. This material will prepare students with the knowledge to challenge the Application Specialist assessment and will require 12-15 hours of total study time.

The Accounting Software Application provides students with the opportunity to attempt the Application Specialist assessment. The course, the Sage 50 – Canadian Edition software and the assessment are offered directly through SAGE.

**NOTE: The following courses are currently available under existing CCE programs.**

### **ACC 930 Advanced Management Accounting**

This is an advanced course in Managerial Accounting. It builds on the concepts and tools already learned in the Introductory and Intermediate Financial and Management Accounting Courses. The focus is mainly on the application of cost management, financial management and accounting concepts towards corporate and organizational business decisions.

Advanced Managerial Accounting (AMA) focuses on the design and execution of effective Planning & Control Systems linking short and long-term goals and objectives of organizations – both profit and non-profit. The thrust is on effective Corporate Governance and Execution.

This course is designed to understand the concepts behind the “Current Best Practices” and their relevance in the managerial decision process. Topics include Planning for Operational Profits based on current Pricing models, Transfer Pricing and performance evaluation techniques in Decentralized Operations, Capital Budgeting for long-term Sustainability and Growth. It also introduces the current best practices in the industry using “Balanced Scorecard” towards corporate governance in both profit and non-profit organizations. ACC 925 Introductory Financial Accounting & ACC 929 Intermediate Management Accounting or equivalents

### **ACC 931 Auditing**

This course is an introduction to the field of auditing, which is broadly defined as a systematic process of objective accumulation and evaluation of evidence regarding written assertions about economic actions and events in order to determine the degree of correspondence between those assertions and established criteria (Applicable Financial Reporting Framework which is GAAP. The Canadian Auditing Standards (CAS) apply to all audits of financial statements.

As this is an introductory auditing course, the focus will be on the identification of key terminology and concepts as well as an overview of auditing in the context of a general business environment. A secondary focus will be on a rudimentary examination of the audit process and identification of the various roles that auditors can assume. ACC 927 Intermediate Financial Accounting II, ACC 928 Introductory Management Accounting & ACC 932 Management Information Systems or equivalents

**ACC 932 Management Information Systems**

This course will introduce students to the concepts of system analysis, design and implementations, with reference to the relationship between system management and organizational development. Topics to be covered include: the technology, analysis, systems evaluation and applications of an accounting system (AIS), AIS and organizational decision-making, systems design, development, documentation, implementation and monitoring, relational databases, control types and risk analysis of an AIS and marketing/purchasing applications.

**ACC 933 Financial Management**

This course in Corporate Finance is one of the core areas for participants majoring in Finance, Accounting and Business Administration programs. This course introduces current financial concepts and tools towards money management in organizations participating in the local and global economies.

The course covers the current best practices in financial analysis and planning through the application of financial concepts. These include financial performance ratios, time value of money, financial markets and institutions, securities and valuation of firms, cost of capital, risks and return, long-term financial budgeting and working capital management.

In addition, the course also introduces topics on lease financing, hybrid securities and derivatives, trust funds, mergers and acquisitions and international corporate finance. ACC 927 Intermediate Financial Accounting II and ACC 929 Intermediate Management Accounting (or equivalents)

**ACC 934 Advanced Financial Accounting**

This course deals with more advanced topics in financial accounting and reporting with an emphasis on business combinations and foreign currency transactions and translation. Specific aspects of business combinations that are covered include:

- Recording and reporting procedures at the time of acquisition;
- Recording and reporting procedures subsequent to acquisition;
- Consolidation and equity basis reporting for wholly and non-wholly owned subsidiaries.

Accounting for nonprofit sector organizations will also be examined with emphasis on financial reporting issues and Outcomes, financial statement disclosures and fund accounting. ACC 926 Intermediate Financial Accounting 1 or equivalent

**ACC 937 Taxation I**

This introductory course examines the theory and application of the Income Tax Act as it relates to both individuals and corporations. ACC 927 Intermediate Financial Accounting II or equivalent.

**ACC 938 Taxation II**

This course continues the examination of the theory and application of the Income Tax Act particularly as it relates to corporations. ACC 937 Taxation I

DATE: March 28, 2018

TO: Susan McCracken, Associate Dean, Academic

FROM: Emad Mohammad, Chair, Accounting and Financial Management  
Services

SUBJECT: Evaluation of Certificate and Diploma in Advanced Accounting and  
Finance Program Proposals for the Centre for Continuing Education  
(CCE)

Upon your request, I have reviewed the proposal for the **Certificate and the Diploma in Advanced Accounting and Finance** Programs to be offered through the Centre for Continuing Education (CCE). I have examined the programs' structure and the course descriptions. It is my finding that the program requirements meet the standards necessary to be an academic program with courses of 36 units (Diploma in Advanced Accounting and Finance) and 15 units (Certificate in Advanced Accounting and Finance) of advanced credit value as indicated in the academic submission document.

My examination of course descriptions, proposed topics, learning outcomes and the teaching and testing methods, concurs that the proposed courses are of the intellectual rigor comparable to that found in undergraduate degree courses. The academic submission indicates that the courses will be taught by qualified individuals (possessing a master's degree or equivalency), as defined by Undergraduate Council Certificate and Diploma requirements. The students taking either of the programs will meet the minimum requirements set out in the Policy on Certificates and Diplomas for Undergraduate Council.

Since the programs meet all these criteria as set out in the Policy on Certificates and Diplomas for Undergraduate Council, I have arrived at the conclusion stated above.

Sincerely,



Emad Mohammad

Cc: Anne Dwyer, Program Manager, CCE

DATE: March 28, 2018

To: Certificate and Diploma Committee, Undergraduate Council and Senate

From: Susan McCracken, Associate Dean, Academic, DeGroote School of Business

RE: Proposal for a Certificate and a Diploma in Advanced Accounting and Finance

I have reviewed the Certificate and the Diploma in Advanced Accounting and Finance program submissions presented by the Centre for Continuing Education. I have determined that the programs meet all the criteria set out by the Undergraduate Council in its guidelines for certificates and diplomas and we, therefore, endorse this submission with the support of the DeGroote School of Business.

I have had the proposal reviewed by Emad Mohammad. His conclusion is that the objectives of the proposed program are viable, that the courses included in it will fulfill the stated objectives and meet Undergraduate Council's criteria for the designation of "Certificate" and "Diploma". I concur with this assessment.

The DeGroote School of Business is pleased to have a high quality program such as the [program name] to meet the needs of people wanting to work in these fields. We support this CCE program as their academic affiliates, providing both the initial submission review and overview of ongoing curriculum issues. Additionally, we have provided CCE with the guidelines needed by their students for possible use of the advanced standing rules for students entering our degree programs using credit from completion of this program.

Sincerely,



Susan McCracken

Cc: Lorraine Carter, Director, CCE  
Suzanne Brown, Assistant Director, CCE

## Centre for Continuing Education Program Approval

| <b>A. Department &amp; Program Information (Complete all fields):</b>             |   |
|---|---|
| Academic Designation:   | Certificate, Certificate of Completion  |
| Program Name:   | Foundations of Analytics: Business Intelligence, Data Analytics and Data Science  |
| Name of Representative:   | Nancy McQuigge, Program Manager   |
| Proposed Date/Term of Program Start:  | Fall 2018 (Courses will launch throughout the 2018/19 academic year)  |
| Date of Submission:   | April 3, 2018   |
| <b>B. Faculty Statement (Required):</b>   |   |
| Refer to attached letters   |   |
| <b>C. Academic Merit (Complete all fields; write “not applicable” as needed):</b> |   |
| i. Program Overview:  | <p>The Foundations of Analytics program presents a foundational level of content in the areas of business intelligence, data analytics and data science. The purpose of the program is to offer courses for students with no or limited, academic and work experience in these three areas of analytics.</p> <p>Students may select courses based on their academic and professional backgrounds and future learning needs. In addition, students interested in enrolling in the Big Data Analytics Certificate program but lack the pre-requisite knowledge in statistics, computer programming and basic analytics, may be referred to this program as a means to fill skill gaps.</p> <p>Each course will bridge theory and practical experience through a combination of experiential learning (i.e. case studies, data laboratory activities, discussions, and presentations) and traditional teaching methods. Emerging trends, theories and practices will be incorporated to coursework to ensure that program content is current and relevant.</p> |

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|                          | <p>Development subject matter experts and program instructors will be practitioners in the fields of data analytics, business intelligence and data science, and they will emphasize the knowledge and skills required for employment in the analytics sectors.</p> <p>The program will be delivered primarily as face-to-face format. Two courses will be offered online. CCE will determine when other courses will be developed in an online or blended format. The in-class courses will be delivered at the Centre for Continuing Education's (CCE) location in Hamilton, with the option to schedule courses at a suitable satellite location (s) as deemed appropriate.</p> <p>An open enrolment format is recommended for the program, as students will select courses specific to their individual needs. Required and/or suggested pre-requisites will be posted to the course descriptions on CCE's website, and it is the responsibility of the student to ensure his/her ability to meet course pre-requisites.</p> <p>Program credential options (see Section F for course information)</p> <p>1) Certificate of Completion: Foundations of Analytics: Business Intelligence</p> <p>2) Certificate of Completion: Foundations of Analytics: Data Analytics</p> <p>3) Certificate of Completion: Foundations of Analytics: Data Science</p> <p>4) Certificate in Foundations of Analytics: Business Intelligence, Data Analytics and Data Science</p> |
| ii. Learning Objectives: | <p>The Foundations of Analytics program provides an opportunity for individuals seeking to enter into the field of data analytics, business intelligence, data science and, potentially big data analytics.</p> <p>Upon completion of the program, students will:</p> <ul style="list-style-type: none"> <li>• Apply statistical methods for the analysis of data sets</li> <li>• Collect, analyze, interpret, and share data;</li> <li>• Identify relationships in data;</li> <li>• Select and employ problem solving techniques and source standard and web-based tools to test analytical solutions;</li> <li>• Demonstrate fundamental skills for using Information Visualization techniques and tools;</li> </ul>   |

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|  | <ul style="list-style-type: none"> <li>• Define the principles and potential uses of artificial intelligence in various industries</li> <li>• Employ data models in business intelligence and data analysis case studies</li> </ul> <p>The following objectives will be threaded within each course:<br/>Students will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate an awareness of ethical practices and professional standards applicable to the field of data analytics;</li> <li>• Exemplify the skills, attitudes and behaviours required to work and collaborate with people and develop personal management skills;</li> <li>• Employ effective communication practices</li> </ul>   |
| iii. Meeting Learning Objectives:          | The Foundations of Analytics program will use a series of courses to achieve the stated program objectives. Individual course objectives are mapped to the overall program objectives. The delivery format and teaching methods are structured to have a maximum effect on achieving the learning objectives.   |
| iv. Program Admission Requirements:        | <p>In compliance with the Certificates and Diploma, admission policy from Undergraduate Council, students who wish to enter the Foundations of Analytics program should meet the following requirements based on their education and work experience:</p> <ol style="list-style-type: none"> <li>1) Be a mature student as defined in the Undergraduate Calendar of McMaster University; or be deemed an exceptional case by the Centre for Continuing Education</li> <li>2) Strong mathematical literacy achieved through university, college or high school courses in mathematics and/or science</li> <li>3) Proficiency with computer program applications, such as Excel and Access</li> <li>4) English Language Proficiency requirements: Completion of TOEFL exam with minimum acceptable score of IBT: 86 overall with a minimum score of 20 on each of the four components (Reading, Writing, Speaking, Listening), valid for 2 years</li> </ol> |
| v. Program Pre-requisites (if applicable): | Prior to the start of the first course, students will be required to attend class with the requisite laptop computer and software programs. Technology specifications will be provided to students  |



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|   | upon course enrolment and will be posted to CCE's program webpages.  |
| vi. Program Completion Requirements:          | To qualify for a Certificate of Completion, students must complete a minimum of 9 units of study.<br>To qualify for a Certificate, students must complete a minimum of 15 units of study.  |
| viii. Program Delivery Format:                | Program courses will be delivered in-class and online. All formats will include instructor lecture and/or presentations, group discussions, and practical application activities. Lab activities will be completed using a cloud-based environment specifically built for the analytics program.   |
| ix. Student Evaluations (Grading Process):    | Each course will include several evaluation components. The evaluations will consist of assignments, case studies, presentations, laboratory application activities, individual or group projects, class participation, or a combination thereof. Where appropriate, evaluations will be structured to evaluate participants' level of competency in achieving overall learning objectives.                                  |
| x. Course Evaluation:                         | For each course, students will complete an evaluation to assess content, delivery, materials, method of evaluation and instruction.  |
| xi. Course Instruction:                       | Instructors for courses will be selected from a pool of qualified external professionals. In compliance with <i>McMaster's Senate and Undergraduate Council Guidelines for Certificates and Diplomas</i> , selection will be based on academic background and/or experience within the field. Instructors must have a Master's Degree (or equivalent) and significant professional experience and teaching within the field. |
| xii. Credit Towards Degree Programme Studies: | The academic credit courses included in a the program may be used for credit towards undergraduate degree studies in accordance with the normal academic rules specified by the Faculty offering the degree.   |
| xiii. Program Advanced Standing:              | Upon enrolment to the program, a student may receive up to a maximum of 6 units of advanced credit for the Certificate option.<br><br>Upon enrolment to the program, a student may receive up to a maximum of 3 units of advanced credit for the Certificate of Completion.<br><br>The courses used for such credit must be equivalent to the  |

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|   | <p>McMaster courses that they replace; specifically,</p> <ul style="list-style-type: none"> <li>• Courses must have an 80% content/curricula overlap and a similar number of equivalent to classroom hours;</li> <li>• Courses must be listed on an official transcript from an accredited academic institution with a grade; and,</li> <li>• Courses must be taken within the last 3 years</li> </ul> |
| <b>D. Statement of Financial Viability:</b>   |  |
| <p>I have reviewed the business case and financial projections which includes enrolment projections and costs. Sources of revenue for this program include tuition and supplementary fees (MAPS). Expenses are typical and include significant up front development and marketing costs, as well as typical ongoing delivery costs (such as payment of facilitators, honoraria for other guest facilitators, materials, advertising and administration).</p> <p><i>Lorraine Carter, Director, Centre for Continuing Education, March 2018</i></p>   |  |
| <b>E. Statement of Administrative Responsibilities:</b>   |  |
| <p>The human and systems infrastructure to support the following functions exists within CCE. Costs will be fully covered by tuition, with the exception of the first year of the program, when the start- up will be subsidized by CCE.</p> <p>Responsibilities for the programs are as follows:</p> <ul style="list-style-type: none"> <li>• Budget development and monetary responsibilities</li> <li>• Program and Course Development</li> <li>• Course Registrations/Administration</li> <li>• Supervision of Instructors to ensure University policies and practices are adhered to</li> <li>• Courses taught according to program requirements and standards</li> <li>• Marketing and Promotions</li> </ul> <p><i>McMaster's DeGroote School of Business</i></p> <p>The DeGroote School of Business will act as academic liaison and is charged with the responsibility of on-going academic review and assessment of curriculum. In return for services rendered, the DeGroote School of Business will receive an annual stipend at the end of each fiscal year during which the program records a surplus.</p> |  |
| <b>F. Listing of Courses by Program</b>   |  |
| <p>Certificate of Completion: Foundations of Analytics: Business Intelligence (Minimum of 9 units required)</p>   | <p><b>Courses:</b></p> <ul style="list-style-type: none"> <li>• Working with Databases (3 units)</li> <li>• Business Intelligence &amp; Data Analytics (3 units)</li> <li>• Data Analysis and Visualization (3 units)</li> <li>• Statistical Analysis for Data Analysis (3 units)</li> </ul>   |

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| <p>Certificate of Completion: Foundations of Analytics: Data Analytics<br/>(Minimum of 9 units required)</p>   | <p><b>Courses:</b></p> <ul style="list-style-type: none"> <li>• Foundations of Computer Programming (3 units)</li> <li>• Working with Databases (3 units)</li> <li>• Statistical Analysis for Data Analysis (3 units)</li> <li>• Data Analysis and Visualization (3 units)</li> <li>• Data Analytics &amp; Modelling (3 units)</li> </ul>   |
| <p>Certificate of Completion: Foundations of Analytics: Data Science<br/>(Minimum of 9 units required)</p>   | <p><b>Courses:</b></p> <ul style="list-style-type: none"> <li>• Statistical Analysis for Data Science (3 units)</li> <li>• Data &amp; Web Technologies for Data Analysis (3 units)</li> <li>• Introduction to Artificial Intelligence (3 units)</li> </ul>  |
| <p>Certificate in Foundations of Analytics: Business Intelligence, Data Analytics and Data Science (students must take a minimum of one course from each topic area)<br/>(Minimum 15 units required)</p>   | <p><b>Business Intelligence:</b></p> <ul style="list-style-type: none"> <li>• Business Intelligence &amp; Data Analytics (3 units)</li> <li>• Working with Databases (3 units)</li> <li>• Data Analysis and Visualization (3 units)</li> <li>• Statistical Analysis for Data Analysis (3 units)</li> </ul> <p><b>Data Analysis:</b></p> <ul style="list-style-type: none"> <li>• Foundations of Computer Programming (3 units)</li> <li>• Working with Databases (3 units)</li> <li>• Statistical Analysis for Data Analysis (3 units)</li> <li>• Data Analysis and Visualization Analysis (3 units)</li> </ul> <p><b>Data Science:</b></p> <ul style="list-style-type: none"> <li>• Statistical Analysis for Data Science (3 units)</li> <li>• Data &amp; Web Technologies for Data Analysis (3 units)</li> <li>• Introduction to Artificial Intelligence (3 units)</li> <li>• Data Analytics &amp; Modelling (3 units)</li> </ul> |
| <p><b>Course Descriptions (listed in alphabetical order):</b><br/> <i>Course One: Business Intelligence &amp; Data Analytics</i> (36 hours; 3 units)<br/> Learn to apply data analytics skills to the area of business intelligence (BI). Focus is placed on</p> |   |

the components of business intelligence project lifecycle such as project planning, BI tool selection, data modelling, ETL design, BI application design and deployment and reporting. This course is designed for individuals interested in BI practices and analysis without a detailed focus on statistical analysis and computer programming. Pre-requisites: Programming experience is not required; however, proficiency with computer operating systems is required.

Suggested topics/themes:

- What is Business intelligence and the BI Analyst (distinguishing between Data Analyst and Data Scientist)
- The business intelligence project life cycle (applied through case studies)
- Concepts of data modelling, data warehouse, BI architecture
- BI tools

*Course Two: Data & Web Technologies for Data Analysis (36 hours; 3 units)*

This course introduces students to the identification and use of, essential web technologies for data science. Students will discover how to access, collect, and analyze data from various sources with a focus on integrating robust technologies to a data project. This course is designed for individuals with previous study in statistics, information technology.

Pre-requisites: University or college course in Statistics; or Statistical Analysis for Data Science, AND Foundations of Computer Programming, Working with Databases (SQL)

Suggested topics/themes:

- Fundamentals of using relational databases and SQL
- Processing data in blocks.
- Introduction to text mining and natural language processing
- Data visualization using web-based technologies
- Future trends and technologies

*Course Three: Data Analytics & Modelling (36 hours; 3 units)*

This course offers an introduction to data science and machine learning paving the way for students to learn big data principles. In particular, this course begins with a brief history of data science, followed by regression analysis, regression and classification trees, and ends with introductions to K-means clustering, principal component analysis (PCA). Each lecture has associated with it a practical lab session which students will put "theory into practice" offering students a hands-on approach to learning the material.

Pre-requisites: This course is the first course in the Big Data Analytics program and is offered for students who have completed the Statistical Analysis for Data Analysis and/or Statistical Analysis for Data Science with a minimum grade of 65% ("C" letter grade). Knowledge and experience working with R and Python required.

Suggested topics/themes:

- What is Big Data?

- Analytics Examples, Modeling for Analytics
- Basic Stats I & II
- Review of Linear Algebra and Matrix Computations I & II
- Introduction to Linear Regression
- Introduction to Nonlinear Regression
- Visualizations
- Optimization Modeling, Random Forest Classifier and Decision Trees

*Course Four: Data Analysis & Visualization (36 hours; 3 units)*

This course will examine the exploration of data in order to discover meaningful information to solve problems. The course will present the analytics life cycle in context of planning to solve a business problem. Emphasis will be placed on framing the problem, proposing an analytics solution, communicating with stakeholders, and establishing an analytics focussed project plan. Common data visualization tools and techniques will be explored and used as students learn best practices for the presentation and communication of analytical solutions and insights. Pre-requisite: University or college introductory course in Statistics; Statistics for Data Analytics

Suggested Topics/themes:

- Obtain or receive problem statement and usability requirements
- Identify stakeholders
- Determine whether the problem is amenable to an analytics solution
- Refine the problem statement and delineate constraints
- Identify data analysis strategy
- Present the data in a meaningful way to stakeholders

*Course Five: Foundations of Computer Programming (36 hours; 3 units)*

This course introduces students to the fundamentals of structured programming and problem solving using C. The C programming language will be used to introduce problem analysis, algorithm design, and program implementation. Understanding and using C provides students with the foundation for other programming languages such as C++. Programming experience is not required; however, proficiency with computer operating systems is required.

Suggested topics/themes:

- Introduction to Computer Programming
- Problem Solving and Flow Charts
- Variables
- Flow Control
- Modular Programming and Introduction to Object Oriented Programming
- Error Handling using Exceptions
- Data Structures: Strings, Tuples and Lists
- Data Structures: Mappings and Dictionaries

- Data Structures: Sets and Iterators
- File Handling
- Libraries
- Introduction to R

*Course Six: Introduction to Artificial Intelligence (360 hours; 3 units)*

This course presents the basics of artificial intelligence (AI) through an examination of its history and evolution. A review of the applications of AI in various industries will serve as the focus on inquiry for the course. Current uses and trends in AI will be discussed and students will be encouraged to consider the potential of AI to solve complex problems.

Pre-requisites: Introductory level computer programming and statistics. This course is an inquiry/exploratory course into artificial intelligence; it is not a programming or technical course in AI.

Suggested topics/themes:

- What is AI?
- The evolution of AI
- Technologies of AI
- Exploring Industry and AI

*Unlocking the Potential of AI Course Three: Statistics for Data Analysis (36 hours; 3 units)*

This course introduces descriptive statistics, basic inferential statistics, linear regression, and probability concepts and calculations. Practical application activities in the course focus on how statistical methods are used in the analysis of data. Common statistical tools will be introduced and employed in order to demonstrate how significant and insightful information is collected, used and applied to problem-solving processes. This course is designed for individuals with no, or limited, study in Statistics.

Pre-requisite: Grade 11/12 Mathematics (College/University prep), Anti-requisite: Statistical Analysis for Data Science

Suggested topics/themes:

- exploratory data analysis
- visualizing data graphically
- reading and transforming data in complex formats
- performing simulations

*Course Seven: Statistical Analysis for Data Science (36 hours; 3 units)*

This course provides a foundation of exploring data through computing and statistical analysis. Focus is placed on the structure and applications of probability, statistics, computer simulation and data analysis for students exploring the field of data science. This course builds upon introductory statistics courses and is designed for students with experience/study in programming, calculus and algebra. Programming in R will be used throughout the course.

Pre-requisite: Grade 12 U level Mathematics (Advanced Function, or Calculus and Vectors, or

Mathematics for Data Management, or Mathematics for College Technology); University or college introductory course in Statistics; Statistics for Data Analytics

Suggested topics/themes:

- Introduction to programming with R
- Descriptive statistical summaries
- Introduction to probability
- Sampling distributions
- Introduction to statistical inference
- Concepts of linear regression and correlation

*Course Eight: Working with Databases* (36 hours; 3 units)

This course introduces the students to database management concepts using a practical approach. The course will begin with an introduction to data modeling and how these models are implemented through the use of the Structure Query Language (SQL). The remainder of the course explores how SQL can be used to query and manipulate data. Proficiency with computer operating systems is required.

Suggested topics/themes:

- Introduction to databases
- Entity Relationship Diagrams
- Relations and Normalizing Data
- SQL – Data Definition Language
- SQL – INSERT and SELECT
- SQL – UPDATE and DELETE
- SQL – Aggregate Functions
- SQL – Using JOIN in SELECT statements
- Indexes
- Database Maintenance
- Using Databases in other programs
- What is NoSQL?

Undergraduate Certificate & Diploma Committee  
Course Submission

**A. Department & Program Information (Complete all fields):**

|                         |                                  |
|-------------------------|----------------------------------|
| Department:             | Centre for Continuing Education  |
| Program Name:           | Applied Clinical Research        |
| Name of Representative: | Nathalie Vallée, Program Manager |
| Nature of Submission:   | Course revision                  |
| Effective Date:         | As soon as approved              |
| Submission Date:        | April 3 <sup>rd</sup> , 2018     |

**B. First Program Revision – Change in Pre-requisites:**

| Course Titles:                           | Prerequisites           |
|--|-------------------------|
| ACR 101: Principles of Clinical Research | None                    |
| ACR 102: Research Ethics                 | Completed ACR 101       |
| ACR 103: Clinical Trial Design           | Completed ACR 102       |
| ACR 104: Clinical Trials Management      | Completed ACR 103       |
| ACR 105: Clinical Research Capstone      | ACR 104 as Co-requisite |

**Rationale for Revision:**

Upon development of the courses with the Subject Matter Experts, it became apparent that some previous knowledge was required in order to complete the next course and successfully complete assignments. This needed to be revised based on what was submitted to the Certificate & Diploma Committee in March 2017 which indicated that there were no pre-requisites for ACR 101, 102, 103 or 104.

**C. Second Course Revision: Change in course description**

|  |                       |
|--|-----------------------|
| Course Title:  | Clinical Trial Design |
| Is this course currently offered? No                                   |                       |
| Existing Course Code: ACR 103 (was previously submitted under ACR 102) |                       |



Undergraduate Certificate & Diploma Committee  
Course Submission

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| Course Unit Value:   | 3 units   |
| List Course Pre-requisites (if applicable):<br>ACR 102: Clinical Trial Design  |   |
| Revised Course Description:  | Scientific and statistical concepts related to the design and analysis of clinical trials will be examined, as well as the regulatory framework and guidelines that govern clinical trials. Emphasis will be placed on the concepts in the design of a clinical trial including the process of protocol development and effective use of Case Report forms.                         |
| <p>Rationale for Revision:</p> <p>Upon development of the course with the Subject Matter Expert, the course description needed to be revised based on what was submitted to the Certificate &amp; Diploma Committee in March 2017.</p> |   |
| <b>D. Third Course Revision – Change in course title and description</b>   |   |
| Old Course Title:  | Clinical Research Practicum   |
| New Course Title:  | Clinical Research Capstone  |
| <p>Is this course currently offered? No</p> <p>Existing Course Code: ACR 105</p>   |   |
| Course Unit Value:   | 3 units   |
| List Course Pre-requisites (if applicable):<br>Co-requisite : ACR 104: Clinical Trials Management  |   |
| Revised Course Description:  | This course is intended to simulate a real-world experience that offers an applied synthesis of learning in the areas of clinical research protocols, and study and site management principles. Participants will also be expected to demonstrate a solid grasp of competencies in leadership, and communication skills that are also needed to ensure a successful clinical trial. |



## Undergraduate Certificate & Diploma Committee Course Submission

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|   | This course is designed to offer students the opportunity to apply the theoretical knowledge and skills gained from the Applied Clinical Research program to a capstone project. |
| <p>Rationale for Revision:</p> <p>Upon development of the course with the Subject Matter Expert, it was agreed that it was not feasible to offer a practicum course for students. This was changed to a capstone project. The course title and course description need to be revised compared to what was submitted to the Certificate &amp; Diploma Committee in March 2017.</p> |  |



DATE: March 20th, 2018

TO: Certificate and Diploma Committee, Undergraduate Council and Senate

FROM: Delsworth Harnish, Associate Dean, Undergraduate Education, Faculty of Health Sciences

SUBJECT: Evaluation of Revisions Made to the Applied Clinical Research Program Proposal for the Centre for Continuing Education (CCE)

I have reviewed the proposal for the review of the Applied Clinical Research program to be offered through the Centre for Continuing Education (CCE). I have examined the proposed revisions for the courses descriptions, names and the rationale for their changes. My examination of the revisions concurs that the proposed courses are still of the intellectual rigour comparable to that found in undergraduate degree courses. The students taking the courses will continue to meet the minimum requirements set out in the Policy on Certificates and Diplomas for Undergraduate Council.

Since the courses meet all these criteria as set out in the Policy on Certificates and Diplomas for Undergraduate Council, I support the submission of these revisions to the Committees for approval.

Sincerely,

Delsworth Harnish  
3M Fellow  
Associate Dean  
Undergraduate Education  
Faculty of Health Sciences  
Tel: 905-525-9140 ext 22312  
harnishd@mcmaster.ca

## Undergraduate Certificate & Diploma Committee Course Submission

| <b>A. Department &amp; Program Information (Complete all fields):</b>  |  |
|--|--|
| Department:  | Centre for Continuing Education  |
| Program Name:  | Big Data Analytics, Certificate  |
| Name of Representative:  | Nancy McQuigge   |
| Nature of Submission:  | Course revision  |
| Effective Date:  | May 1, 2018  |
| Submission Date:   | April 3, 2018  |
| <b>B. Course Details (Complete all fields):</b>  |  |
| Course Title:  | <ol style="list-style-type: none"> <li>1. Data Analytics and Modelling</li> <li>2. Data Management</li> <li>3. Predictive Modelling and Data Mining</li> </ol> |
| <p>Is this course currently offered? Yes</p> <p>Existing Course Code:   <ol style="list-style-type: none"> <li>1. BDA 101</li> <li>2. BDA 103</li> <li>3. BDA 104</li> </ol></p>   |  |
| Course Unit Value:   | 3 units  |
| <p>List Course Pre-requisites (if applicable):</p> <ol style="list-style-type: none"> <li>1. Admission to the program</li> <li>2. Completion of BDA 101</li> <li>3. Completion of BDA 101</li> </ol>   |  |
| <b>C. Course Revisions:</b>  |  |
| <p>Revised Course Description – <i>BDA 101 Data Analytics and Modelling</i></p> <p>This course offers an introduction to data science and machine learning paving the way for students to learn big data principles. In particular, this course begins with a brief history of data science, followed by topics such as: regression analysis, regression and classification trees, and ends with introductions</p> |  |

## Undergraduate Certificate & Diploma Committee Course Submission

to K-means clustering, and principal component analysis (PCA) and their related models and algorithms. Each lecture has associated with it a practical lab session in which students will put "theory into practice" offering students a hands-on approach to learning the material.

### Revised Course Description – *BDA 103 Data Management*

Big Data problems require new tools/technologies to store and manage the data to realize the business benefit. This course explores the importance of managing data as an enterprise asset and the data management components required in terms of the acquisition, storage, sharing, validation and accessibility of data for addressing business problems. An examination of Database Management Systems, database architectures, the differences between OLTP (Online transaction processing) OLAP (online analytical processing) and the administrative processes that guide the data life cycle will be among the main topics covered by the course.

### Revised Course Description – *BDA 104 Predictive Modelling and Data Mining*

This course builds upon the knowledge and skills acquired in BDA 101 Data Analytics and Modelling. The course expands upon predictive modeling techniques as well as related statistical and visualization tools for data mining and analysis. The course will cover common machine learning and data mining techniques that are focused on predictive outcomes and clustering. Students will learn how to clean, process and prepare a raw dataset to implement various machine learning and data mining algorithms and models. They also learn how to evaluate the performance of the models and how to improve them.

### **Rationale for Revision:**

It was determined by course developers and program instructors that the original course descriptions did not specify specific content covered in each of the courses in order for students to have a clear, and accurate statement of the courses' intent.

Instructors who have developed and taught the content for each course have collaborated to write the revised course descriptions.

### **D. Statement from Faculty**



## Undergraduate Certificate & Diploma Committee Course Submission

I have reviewed the proposal for the revision of course descriptions for three courses in the Big Data Analytics program offered by the Centre for Continuing Education (CCE). I have examined the revised course descriptions and the rationale for the change. My examination of the revisions concurs with the assessment completed by the content developers and instructors, and the courses will continue to be at the level of intellectual rigour found in undergraduate degree courses.

The students taking the courses will continue to meet the minimum requirements set out in the Policy on Certificates and Diplomas for Undergraduate Council. Since the courses meet all these criteria as set out in the Policy on Certificates and Diplomas for Undergraduate Council, I have arrived at the conclusion stated above.

Sincerely,

Dr Elkafi Hassini,  
Professor, DeGroote School of Business

# McMaster University



## NEW PROGRAM PROPOSAL

**Carbon Mitigation**

*Certificate of Completion*

(courses + project)

**Florent Lefevre-Schlick**

**March 21, 2018**

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# **1 PROGRAM**

## **1.1 PROGRAM DESCRIPTION**

Greenhouse gas emissions is a problem that affects all sectors of our society and for that reason effective solutions must develop from a collaborative approach. With this in mind, it is important that any program aimed at training current and future leaders to address the problem of CO2 emissions, is designed by and for a diverse range of key stakeholders. In that regard, the current team is uniquely placed to deliver such a program. The partnership brings together, the largest industrial emitter in Canada (ArcelorMittal Dofasco), the automotive sector who will have a key role in any long term solution, a municipality whose planning and regulation over the next several decades must find a way to balance strong economic growth with sustained greenhouse gas reduction, and a university educator with a track record of partnering in industry focused programs. By leveraging the skills, experience and perspectives of all partners in both developing and running the program, we will create a program that will be relevant to industrial and political leaders today, and will evolve to meet future needs.

McMaster Engineering has a track record over several decades of practice based education delivered in collaboration with industry, from the Steel Certificate program, first offered in the nineteen fifties and still popular today, to the ADMI (manufacturing), UNENE(nuclear engineering) programs, to the suite of programs offered by the W. Booth School, culminating today in a new range of micro credentials, aimed at pressing societal needs. McMaster Engineering's success in industry focused programing is grounded in a deep seated belief that the best education is developed and delivered in partnership with the learner and stake holder groups. This record and the underlying ethos are exactly what is needed to develop the proposed program.

ArcelorMittal Dofasco and the wider ArcelorMittal organization are a leader in their field, including developing advanced high strength steels for vehicle light-weighting and process developments to reduce CO2 emissions. Dofasco is deeply immersed in the very real problem of reducing CO2 emissions and will be able to offer real industrial context and real world problems for experiential learning. There is no partner who better understands the needs of the processing industry in meeting the challenge of reducing CO2 emissions. The City of Hamilton is a large industrial city and has all of the emission problems one would expect in such a city. However, they are forward looking and recognize that to develop as a "smart city" they must take on the challenge of greenhouse gases. Again the City of Hamilton brings their own unique perspective to the problem and further enriches the leadership and experiential learning opportunities.

The primary target of this program is future thought leaders in industry and municipal government, but it will also offer opportunities for McMaster students at the graduate and

undergraduate level, to leverage their strong technical education. Participation in class work with industry practitioners while also working on projects related to real world problems from these practitioners organizations, will greatly enrich the educational experience for students. This benefit will be a “two-way street” exposing industry leaders to graduate students who will be working on leading edge research on CO2 reduction. McMaster Engineering has a 40 year plus track record programing that combines a technical education in Engineering with a strong value added non-technical component. The best example of this is the high demand program in Engineering and Management.

In summary, this proposal brings together a diverse user community, who have a real need to educate future leaders and a deep expertise in their respective fields, with an internationally renowned educator with a record of success in partnering with industry. We believe we have the capability to build an enduring program in carbon mitigation.

### **Background: a perspective on a low-carbon Canadian economy**

The present proposal is by design very succinct. Indeed, the topic of Carbon mitigation, although urgently talked about, knows no easy answers and solutions. Nor are the fundamental issues to be addressed well known.

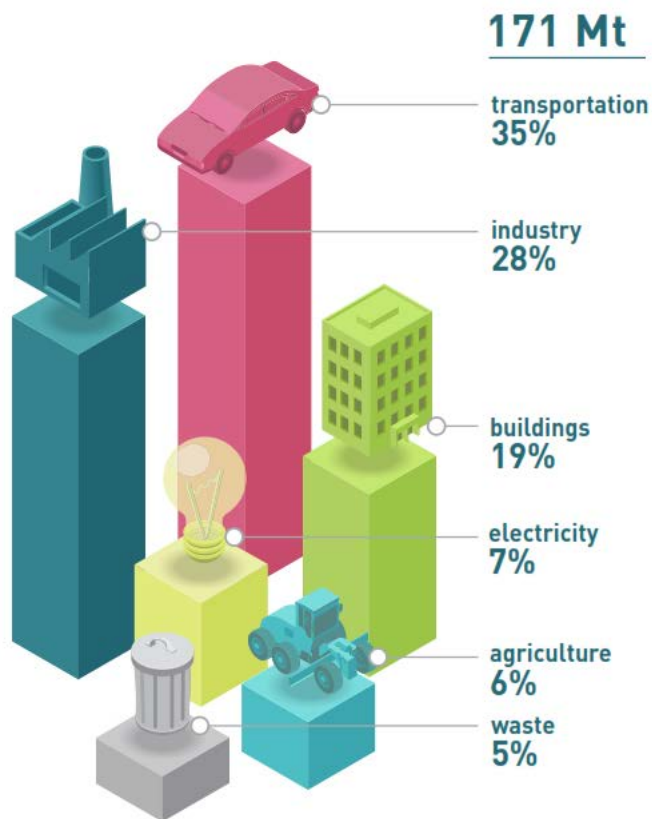
Summarizing the various findings and proposed solutions for the future of energy management and greenhouse gas reduction, is not the purpose of this proposal. Rather the curious reader is encouraged to review some key literature which has been used to create the training background of the proposed certificate of completion.

Key references used are:

- Sustainable Energy – without the hot air by David J.C. MacKay
- Analyse des rapports DOE et pertinence pour la France/Analysis of the reports from the US Department of Energy and applicability for France by Yves Brechet Haut-Commissaire a l'énergie Atomique
- Ontario's five year climate change action plan 2016-2020
- Cap and trade in Ontario documentation
- Ontario report on “Building the workforce for tomorrow”
- Various discussions with people involved in sustainable design
- Consulting with key industrial partners
- Supported by funding from The Skills Catalyst Fund of Ontario for the period 2018-2019

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## Emissions by Sector, 2013



Ontario's greenhouse gas emissions by sector

### 1.2 PROPOSAL PREPARATION AND CONSULTATION PROCESS

Not applicable.

### 1.3 CONSISTENCY WITH MCMASTER'S MISSION AND ACADEMIC PLAN

i. **McMaster's Strategic Mandate Agreement:**

This Certificate of Completion will strengthen the relationship between McMaster and local industry.

ii. **McMaster's current priorities**

The goal of the proposed certificate is engage and enable leadership activities in the domain of policy making for carbon mitigation to the local community of businesses. The primary learning mode will be experiential learning, particularly during the workshops in which hands-on role play type activities will give the students the time and opportunity to practice in a safe environment what they have learned during the classes.

### 1.4 PROGRAM LEARNING OUTCOMES

Upon completion of the Certificate the student will have acquired the knowledge and practical skills to:

PLO #1. Develop a fundamental and strong understanding of Carbon mitigation, its challenges and opportunities.

PLO #2. Develop a deep understanding of policy making, carbon economics, and alternate solutions as part of a larger ecosystem.

PLO #3. Become an agent of change and lead initiatives of Carbon management programs within their organizations.

PLO #4. Identify and quantify opportunities for developing and implementing policies and programs around Carbon management.

PLO #5. Communicate clearly and in simple terms the current practices in Carbon management.

## **1.5 CONSISTENCY WITH DEGREE LEVEL EXPECTATIONS**

Not applicable.

## **1.6 DEMAND FOR THE PROGRAM**

### **EVIDENCE OF SOCIETAL/LABOUR MARKET NEED**

Of particular importance for this certificate of completion, is the Ontario's five year climate change action plan 2016-2020. It outlines guidelines by sector on the various requirements for changes that sectors need to follow in order to drive a carbon free economy. Points such as the ones outlined below are all relevant to reduce greenhouse gas emissions while bettering the Canadian economy.

- Creating a Just Transition
- Set Tax and Regulatory Policies that Encourage Innovations
- Helping businesses transition in a carbon priced economy
- Reducing emissions through cap and trade
- New approach to technology deployment: a low-carbon service provider and financing entity
- Becoming a North American leader in low-carbon and zeroemission transportation
- Becoming a North American leader in energy efficient buildings and homes
- Help industries adopt low-carbon technologies
- Support innovation and commercialization of new low-carbon technologies
- Move toward a carbon neutral public service

Traditionally, a lot of focus is given to the development of new technologies. However, although relevant, this strategy is rather discrete by nature, and does not have a significant impact without extraordinary efforts. Indeed, it requires both a cultural change from our industrial partners, along with access to expertise and funding in order for them to invest in these new technologies.

The strategy for the present program is quite different. It is thought that by derisking a culture change and the adoption of innovation via the development of a policy deployment curriculum, the program can have a greater and wider impact on developing a carbon free economy. Indeed, like any major paradigm shift which occurred in society over the ages, Canadians need to be engaged and enabled in the right way in order for them to promote that change.

As a practical example, for every garbage can that a Canadian recycles, the supply chain manufacturing of goods that we use, produces 70 garbage cans in average. Needless to say, that the direct impact of Canadians is minor in the great scheme of things.

However, our impact can be significant if we develop and implement the right policies which will encourage industries to become carbon free. As well these policies can be either general in nature or sector/firms specific.

As mentioned earlier, there is currently no program that we could find that specifically tackles issues around policy making from a practical perspective. In addition, this program applies to many professionals from all sectors.

## **1.7 DEGREE NOMENCLATURE**

Not applicable.

## **2 ADMISSION & ENROLMENT**

### **2.1 ADMISSION REQUIREMENTS**

Applicants with a 4 year undergraduate degree in engineering or science, as well as applicants with an advanced 3-year college diploma will be admitted to the Certificate. A letter of support from the applicant's employer will also be required.

### **2.2 ENROLMENT PLANNING AND ALLOCATIONS**

Not applicable.

### **2.3 ALTERNATIVE REQUIREMENTS**

Not applicable.

### 3 STRUCTURE

#### 3.1 ADMINISTRATIVE, GOVERNANCE AND COMMUNICATION

The proposed program resides within the W Booth School of Engineering Practice and Technology; a School within the Faculty of Engineering. The School is led by a Director who reports to the Dean of Engineering. The Director of the School serves a 5-year term and is appointed by the Senate. The program will be lead and administered by a program leader reporting to the director of the school.

#### 3.2 STRUCTURE AND REGULATION

##### Program Structure

The proposed certificate will provide participants with technical and professional capabilities. In order to successfully complete the Program, the students must complete 8 - ¼ courses, plus a ½ course project. The content of the Certificate is equivalent to 5 – ½ courses.

It is a 12 month program.

##### Modes of Delivery

The coursework for this Certificate will be offered as three to four modules based on a theme, via a blend of on-line, in-class, and a final 3 days in laboratory delivery at the end of each 3 months period. The program is articulated around 3 themes which have both been identified as key enablers to ensure the success of Canadian industries, namely:

- a. Module 1: Sensitization to climate change and carbon management
- b. Module 2: Policy making and carbon management programs
- c. Module 3: Promotion and introduction of carbon friendly technologies and alternate solutions
- d. A fourth module can be used for tailored type training or activities in order to address the specifics of some industries.

The courses will be scheduled in ‘blocks’ of time which are intended to make the Certificate more appealing and accessible to working professionals (see calendar below).

| Period            | Q3     |     | Q4     |     | Q1     |     | Q2     |     |
|-------------------|--------|-----|--------|-----|--------|-----|--------|-----|
| Module 1          | Course | Lab |        |     |        |     |        |     |
| Module 2          |        |     | Course | Lab |        |     |        |     |
| Module 3          |        |     |        |     | Course | Lab |        |     |
| Module 4 specific |        |     |        |     |        |     | Course | Lab |

### **3.3 GRADUATE PROGRAMS - PROGRAM LENGTH**

Not applicable.

## **4 CURRICULUM AND TEACHING**

### **4.1 PROGRAM CONTENT**

The Carbon Mitigation Certificate of completion is focused on engaging and enabling its graduates to acquire and practice the professional, ethical, and technical behaviors and competencies required to lead and manage the development and implementation of Carbon Mitigation related policies within their company or industrial sector.

The current states and emerging trends in Carbon Mitigation, greenhouse gas emission, energy management, and policy making, will be the subject of the program. Term workshops and practical activities in this program will facilitate in-depth and practical exploration of specific topics as well as a survey of the broad system aspects by the students.

The latest industry-applicable methods and standards will be addressed in the corresponding courses. Relevant infrastructure standards from different parts of the globe will be presented as needed and their impact on Carbon Mitigation policies will be discussed.

### **4.2 PROGRAM INNOVATION**

The program is structured and delivered in an innovative way more suitable for training of professionals working in industry. Each one of the 8 courses will be delivered in steps as part of 3-4 modules. This will promote the multidisciplinary aspects of policy making for carbon mitigation and allow students to integrate aspects of each course into learning activities which will culminate at the end of each quarter during the workshops.

The 8 courses are:

- Science and source of GHG
- Politics and policy of GHG (2 parts)
- Carbon measurement and accounting (2 parts)
- Building a carbon reduction plan
- Understanding Carbon markets
- Understanding alternate solutions

The core architecture of the courses delivery and knowledge acquisition is as follow:

- Practical knowledge based on simple tools and techniques which focus on the fundamentals of policy making and deployment.

- Experiential learning: students will be asked to bring forward real issues they are facing or best practices. These scenarios will be used during the workshops by applying what they have learned in class.
- Problem solving: The purpose of the curriculum is to guide the students so that they build confidence in tackling and solving problems or initiating improvements.
- Role playing: multiple activities are planned as part of the learning curve of the students. This is a known method particularly to teach LEAN manufacturing.
- Team based activities are planned as well, not only as part of the learning experience, but also as part of networking practice. The intent is for the team to stay in contact professionally.
- Industrial speakers will be invited as well, to share their own experience with the students.

### **4.3 MODE(S) OF DELIVERY**

The program is delivered in a blended learning environment including online lectures, forums, self-directed learning and hands-on applications.

### **4.4 EXPERIENTIAL LEARNING**

The program is uniquely defined through a strong experiential learning component. Each course is specifically oriented towards problem-solving, the intensive workshops provide a hands-on learning experience and courses emphasize a “learn-by-doing” approach. Work on industry or civic oriented problems will provide further opportunities for experiential learning by solving problems encountered in real industry situations.

### **4.5 ACCESSIBILITY**

The program supports an environment in which race, age and gender are irrelevant. The program is focused on helping students to attain the level of capabilities corresponding to their role and function irrespective of their abilities or disabilities.

### **4.6 RESEARCH REQUIREMENTS (IF APPLICABLE)**

Not applicable



## 5 ASSESSMENT OF LEARNING

### 5.1 METHODS FOR ASSESSING STUDENTS

Student assessment during the course of the Program will be based on demonstrated learning outcomes in each course. Assessments in the courses will be based on

- Assignments
- Demonstrated learning during workshop
- Questionnaire

### 5.2 CURRICULUM MAP

| Program Learning Outcome  |   |  |   |
|---|---|--|---|
| By the end of the program, students will  | Expectations  | Teaching activities & learning opportunities   | Assessments & evidence  |
| PLO #1. Develop a fundamental and strong understanding of Carbon mitigation, its challenges and opportunities.                  | Understanding of laws and regulations<br>Current status of carbon mitigation programs<br>Roles & responsibilities | Each module will have a blend of online lectures, scenario assignments, and inspirational videos or texts.<br>A final 3 day workshop will give the students hands-on experience in applying the fundamental concepts reviewed during the module. | Assignments, questionnaires, and activity during the workshops. |
| PLO #2. Develop a deep understanding of policy making, carbon economics, and alternate solutions as part of a larger ecosystem. | Basic financials<br>Budgeting<br>Sustainable economics  |  |   |
| PLO #3. Become an agent of change and lead initiatives of Carbon management programs within their organizations.                | Leadership<br>Entrepreneurship & Intrapreneurship<br>Communication<br>Initiative                                  |  |   |
| PLO #4. Identify and quantify opportunities for developing and implementing policies and programs around Carbon management.     | Continuous improvement<br>Problem solving   |  |   |
| PLO #5. Communicate clearly and in simple terms the current practices in Carbon management.                                     | Communication<br>Active listening<br>Project management<br>Leadership   |  |   |

### 5.3 DEMONSTRATING STUDENT ACHIEVEMENT

The assessment tasks will be designed to measure the achievement of program and course level learning outcomes throughout the program and will be embedded into each course.

The following assessment tools will be used to measure student achievements: assignments, and questionnaires. These will be graded using the McMaster University grading system.

The data collected from each of these activities will be analysed using a variety of methods that are currently used in the department.

We will be conducting a survey of students asking them to reflect on their learning experiences. A similar survey of faculty and the students' respective organizations will also be conducted to assess the achievement of learning outcomes by the students and their efforts to provide activities for assessment of the learning outcomes, levels of achievement, and any associated challenges.

## **6 RESOURCES**

### *ADMINISTRATIVE, PHYSICAL AND FINANCIAL RESOURCES*

The Program will be hosted by the W.Booth School of Engineering Practice. The School has administrative staff experienced in the operation of graduate, undergraduate and industry oriented programs. The Director of the School is responsible for the programs offered by the School. Day to day operation of the programs will be managed by a Program Leader who will assume the responsibility for the management of the new program.

The program will be funded from the courses fees. Immediately after the program is approved, the School will start implementing a marketing program which will be prepared in advance in cooperation with the marketing group in the Faculty of Engineering.

At the time of processing applications for the first cohort (expected in 2018/2019) of approximately 20 accepted students, it is anticipated the Program Leader will be responsible for the administrative tasks related to this Certificate. The need for admin support will be assessed in future years of the program.

The delivery of the program will use sessional lecturers with very specific and relevant industry experience. This will likely include the Program Leader which will also be a contract position.

SEPT physical space in ETB building will be used to provide a working and teaching space for the students and instructors.

### *LIBRARY, TECHNOLOGY, AND LABORATORY RESOURCES*

Library facilities in the traditional sense (books and journals on the shelves and space to sit and read them in the library) are not needed by the Program. On-line availability of the journal and books will provide the students with access to the material required for their course work.

### *FACULTY*

The proposed program has been budgeted using sessional lecturers. However, several current SEPT Faculty members may fill teaching roles within the Certificate as appropriate.

Table 1 Faculty Members for W. Booth School of Engineering Practice and Technology who may teach courses with the Certificate Program

| <b>Name</b>      | <b>Rank</b>         | <b>M/F</b> | <b>Dept.</b> |
|------------------|---------------------|------------|--------------|
| Mo Elbestawi     | Professor           | M          | SEPT         |
| Lofty Bekhir     | Professor           | M          | SEPT         |
| Fleising, Robert | Associate Professor | M          | SEPT         |
| David Potter     | Associate Professor | M          | SEPT         |
| Dan Centea       | Assistant Professor | M          | SEPT         |
| Gao, Zhen        | Assistant Professor | M          | SEPT         |
| Jeff Fortuna     | Assistant Professor | M          | SEPT         |
| Mehrtash, Moein  | Assistant Professor | M          | SEPT         |
| Tom Wanyama      | Assistant Professor | M          | SEPT         |
| Yuam, Timber     | Assistant Professor | M          | SEPT         |
| Long, Jennifer   | Lecturer            | F          | SEPT         |
| Singh, Ishwar    | Adjunct Professor   | M          | SEPT         |
| Mikhail Hanna    | Adjunct Professor   | M          | SEPT         |

### *STUDENT FINANCIAL SUPPORT*

The program will not offer financial support to the students.

***FACULTY RESEARCH FUNDING – NOT APPLICABLE; THIS IS NOT A RESEACH PROGRAM***

## **7 QUALITY AND OTHER INDICATORS**

### **7.1 ACADEMIC QUALITY OF THE PROGRAM**

This certificate will be added to the school's IQAP process.

### **7.2 INTELLECTUAL QUALITY OF THE STUDENT EXPERIENCE**

The fundamental nature of the program based on problem solving of real issues the students are facing, improvement of their work area, and interaction with peers from other sectors should encourage 'crosspollination' of knowledge and experience.

SEPT Faculty have been recognized as having one of the highest student ratings in the Faculty of Engineering, which is a clear indication of their ability to engage students and create an engaging working environment.

In addition to the classes, the students will be able to participate in the social activities in SEPT. Remotely located students will be able to interact with their colleagues via social media platforms (e.g. Facebook group for each class is a tradition at SEPT).

## Centre for Continuing Education Certificate of Completion

| A. Department & Program Information (Complete all fields):                 |   |
|--|---|
| Program Name:  | Cybersecurity Certificate of Completion   |
| Name of Representative:  | Anne Dwyer  |
| Effective Date:  | March 27, 2018  |
| Date of Submission:  | April 3, 2018   |
| B. Faculty Statement (Required):   |   |
| n/a  |   |
| C. Academic Merit (Complete all fields; write "not applicable" as needed): |   |
| i. Program Overview:   | <p>Cybersecurity Foundations is designed as a professional development course for cybersecurity professionals, including security analysts, intel analysts, policy analysts, security operations personnel, network administrators, system integrators, VARS, and security consultants</p> <p>In this cybersecurity course, you will gain a global perspective of the challenges of designing a secure system, touching on all the cyber roles needed to provide a cohesive security solution. You will learn about current threat trends across the Internet and their impact on organizational security. You will review standard cybersecurity terminology and compliance requirements, examine sample exploits, and gain hands-on experience mitigating controls. In a contained lab environment, you will work with live viruses, including botnets, worms, and Trojans.</p> |
| ii. Learning Objectives:   | <p>After completing this course, you will be able to:</p> <ul style="list-style-type: none"> <li>• Increase your awareness of security</li> <li>• Interpret and analyze tool output for network mapping and footprinting</li> <li>• Reduce the attack surface of systems</li> <li>• Review networking as it applies to security controls</li> <li>• Explore different data protection principles</li> </ul>   |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>• Examine the role of PKI and certificates in building trusted relationships between devices in a network</li> <li>• Implement login security and other identity management solutions</li> <li>• Reduce the attack surface of network devices</li> <li>• Explore malware threats and anti-malware solutions</li> <li>• Explore social engineering threats, methods, and techniques</li> <li>• Examine software vulnerabilities and security solutions for reducing the risk of exploitation</li> <li>• Explain monitoring capabilities and requirements and how those may raise privacy concerns</li> <li>• Identify physical security controls and the relationship between physical and IT security</li> <li>• Explain incident response capabilities</li> <li>• Identify legal considerations and investigative techniques when it comes to cybersecurity</li> <li>• Research trends in cybersecurity</li> </ul> |
| iii. Meeting Learning Objectives:          | Cybersecurity Foundations uses a series of modules (topics) to achieve the stated program objectives. Individual module objectives are mapped to the overall program objectives. The delivery format and teaching methods are structured to have a maximum effect on achieving the learning objectives.  |
| iv. Program Admission Requirements:        | n/a  |
| v. Program Pre-requisites (if applicable): | TCP/IP Networking or equivalent knowledge  |
| vi. Program Completion Requirements:       | Students must complete all 16 modules in order to qualify for the Cybersecurity Foundations Certificate of Completion.   |
| viii. Program Delivery Format:             | <p>Working in collaboration with Global Knowledge, a worldwide leader in IT and business skills training, Cybersecurity Foundations Certificate of Completion will be available in both online and in-class formats.</p> <p>The online format will be completed directly through Global Knowledge and will use a combination of synchronous and asynchronous activities designed to present the fundamental concepts and theories in cybersecurity and</p>   |

|  |   |
|--|---|
|  | <p>promote the application to the workplace. Course activities may include instructor video lecture/presentations, discussion board topics, web-based learning activities, as well as, experiential learning activities (i.e. lab work, case studies, group discussions, projects).</p> <p>The In-class format will be offered at McMaster University's One James North Campus and will include a mixture of lecture and experiential learning activities, such as labs, individual and group work.</p>   |
| ix. Student Evaluations (Grading Process):   | Each module will include an evaluation component. The evaluation may consist of discussion, case scenarios and lab assignments.   |
| x. Course Evaluation:  | For each course, students will complete an evaluation that explores content, delivery, materials, method of evaluation and instruction.   |
| xi. Course Instruction:  | <p>Instructors for Cybersecurity Foundations will be selected from a pool of qualified applicants. In compliance with McMaster's Senate and Undergraduate Council Guidelines for Certificates and Diplomas, selection will be based on academic background and/or experience within the field. Instructors will have the equivalency of a Master's Degree or significant professional and teaching experience within the field. Instructors will be required to hold a professional certification - Certified Information Systems Security Professional (CISSP) or equivalent industry certification.</p> |
| xii. Credit Towards Degree Programme Studies:  | n/a   |
| xiii. Program Advanced Standing:   | n/a   |
| <b>D. Statement of Financial Viability:</b>  |   |
| <p>I have reviewed the business case and financial projections which includes enrolment projections and costs. Sources of revenue for this program include tuition. Expenses are typical that may include marketing costs (although bulk of marketing will be done by Global Knowledge), as well as typical ongoing delivery costs (such as payment of facilitators, honoraria for other guest facilitators, materials, advertising and administration).</p> <p><i>Lorraine Carter, Director, Centre for Continuing Education, <b>March 27, 2018</b></i></p> |   |

#### E. Statement of Administrative Responsibilities:

The human and systems infrastructure to support the following functions already exists within CCE and Global Knowledge. Costs will be fully covered by tuition.

Responsibilities for the program are as follows:

- Budget development and monetary responsibilities
- Program and Course Development
- Course Registrations/Administration
- Supervision of Instructors to ensure University policies and practices are adhered to; course are taught according to program requirements and standards
- Marketing and Promotions

#### F. Listing of Courses (complete the chart to provide suggested course title, required/elective, number of academic units, proposed hours, and estimated term offering):

| <u>Course Name</u>        | <u>Required/Elective</u> | <u>Academic Units/hours</u> | <u>Scheduled Term</u> |
|---------------------------|--------------------------|-----------------------------|-----------------------|
| Cybersecurity Foundations | Required                 | 0.0 units/35 hours          | Fall 2018             |

Course Descriptions (Provide a one-paragraph course description; indicate course pre-requisite (if applicable) and a bullet list of key topics to be covered in the course):

##### **Cybersecurity Foundations**

(Prerequisite: TCP/IP Networking or equivalent knowledge)

##### **Description**

In this cybersecurity course, you will gain a global perspective of the challenges of designing a secure system, touching on all the cyber roles needed to provide a cohesive security solution. You will learn about current threat trends across the Internet and their impact on organizational security. You will review standard cybersecurity terminology and compliance requirements, examine sample exploits, and gain hands-on experience mitigating controls. In a contained lab environment, you will work with live viruses, including botnets, worms, and Trojans.

##### **Topics:**



- 1. Cybersecurity Awareness**
- 2. Network Discovery**
- 3. Systems Hardening**
- 4. Security Architecture**
- 5. Data Security**
- 6. Public Key Infrastructure**
- 7. Identity Management**
- 8. Network Hardening**
- 9. Malware**
- 10. Social Engineering**
- 11. Software Security**
- 12. Environment Monitoring**
- 13. Physical Security**
- 14. Incident Response**
- 15. Legal Considerations**
- 16. Trends in Cybersecurity**

| <b>A. Department &amp; Program Information (Complete all fields):</b>             |   |
|---|---|
| Academic Designation:   | Certificate of Completion, not for credit   |
| Program Name:   | Family Engagement in Research   |
| Name of Representative:   | Lorraine Carter in collaboration with the Faculty of Rehabilitation Sciences  |
| Proposed Date/Term of Program Start:  | Fall 2018   |
| Date of Submission:   | April 3, 2018   |
| <b>B. Faculty Statement (Required):</b>   |   |
| NA  |   |
| <b>C. Academic Merit (Complete all fields; write “not applicable” as needed):</b> |   |
| i. Program Overview:  | <p>This proposal is to establish a not for credit Certificate of Completion in Family Engagement in Research. Participants will include caregivers of children with disabilities and research trainees. The participants will learn from each other and discover what family engagement in research involves and the various practices that support the development of an integrated research team.</p> <p><i>Areas to be explored include:</i></p> <ul style="list-style-type: none"> <li>• Family engagement in research: What do we really mean?</li> <li>• Family engagement in research: Why is it important?</li> <li>• Building an integrated research team: How can we find each other?</li> <li>• Building an integrated research team: How can we work together?</li> <li>• Roles and responsibilities of families and researchers</li> <li>• Ethics of family engagement in research</li> <li>• Barriers and Facilitators to Family Engagement</li> <li>• Family Engagement Tools &amp; Resources</li> <li>• Evaluation of Family Engagement Activities</li> </ul> |

|  |  |
|--|--|
|  | Upon successful completion of the course, students will receive the McMaster University Certificate of Completion in Family Engagement in Research. The course will be delivered online.   |
| ii. Learning Objectives:                   | <p>Specifically, participants will:</p> <ul style="list-style-type: none"> <li>• Define and describe the benefits of family engagement in research</li> <li>• Identify family/research partners and understand how to engage families throughout each step of the research process</li> <li>• Discuss the roles/responsibilities of researchers and families on integrated teams</li> <li>• Understand the ethics surrounding family engagement in research as well as the rights and responsibilities of research 'participants' versus a research 'partners'</li> <li>• Recognize the barriers and facilitators to family engagement and identify strategies to support family engagement in research (at the family, researcher, and system levels).</li> <li>• Understand and utilize tools and resources available for the implementation and evaluation of family engagement activities</li> <li>• Communicate ideas related to family engagement verbally and in writing</li> </ul> |
| iii. Meeting Learning Objectives:          | The delivery formats and teaching methods are structured to have a maximum effect on achievement of the learning objectives. A variety of approaches will be used to support learning and meet objectives.   |
| iv. Program Admission Requirements:        | While the Family Engagement in Research Certificate of Completion has no specific academic pre-requisites, there will be an application process to ensure that prospective participants have a good understanding of the program and are suitable learners for it. A class size of approximately 20 will also be managed through the application process. The application process will be facilitated by McMaster's School of Rehabilitation Science.  |
| v. Program Pre-requisites (if applicable): | NA   |
| vi. Program Completion                     | Students must complete all requirements in order to qualify for the  |

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| Requirements:   | Certificate in Completion.   |
| viii. Program Delivery Format:  | <p>Online delivery activities will include instructor presentations, group discussions, online resources (articles and videos), and practical application activities. Course content will be delivered over 10 weeks. On average, each week will include three hours of content.</p> <p>The course will be facilitated by an instructor from the School of Rehabilitation Science.</p> |
| ix. Student Evaluations (Grading Process):  | The course will include several evaluation components. Evaluation strategies will include participation in synchronous and asynchronous discussions, case studies, group assignments, and presentations. Where appropriate, evaluations will be structured to evaluate participants' level of competency in achieving overall learning objectives.                                     |
| x. Evaluation:  | Students will complete an evaluation to assess content, delivery, materials, method of evaluation, and instruction.  |
| xi Instruction:   | Instructors will be identified by the School of Rehabilitation Science.  |
| xii. Credit Towards Degree Programme Studies:   | NA   |
| xix. Program Advanced Standing:   | NA   |
| <b>D. Statement of Financial Viability:</b>   |  |
| <p>I have reviewed the business case and financial projections with the School of Rehabilitation Science. Areas considered include enrolment projections and costs. Expenses are typical and within scope.</p> <p><i>Lorraine Carter, Director, Centre for Continuing Education, April 2018</i></p> |  |
| <b>E. Statement of Administrative Responsibilities:</b>   |  |

The human and systems infrastructure to support the following functions exists within CCE.

Responsibilities for the program is as follows:

- Budgetary and monetary responsibilities
- Course registrations/administration
- Technical support for students during start-up and delivery of the course
- Support for instructor
- Collaboration with the School of Rehabilitation Science to ensure that University policies and practices are adhered to; course is taught according to program requirements and standards

#### **F. Listing of Course(s)**

**Course Title:** Family Engagement in Research

**Course Description:**

This course is designed for research trainees and families who have an interest in neurodevelopmental research and researcher-family partnerships. This course is unique in that it will bring trainees and families together in a fully integrated online course. Learners will learn about family engagement in research (including why it is important, how to engage families throughout the research process, barriers/facilitators to engagement, ethics surrounding engagement, and tools and resources to support and evaluate engagement activities). Learners will build skills in engagement through participating in online (synchronous and asynchronous) discussions and working on integrated team projects. By the end of the certificate, learners will have an advanced understanding of family engagement, and will be ready to partner on integrated research teams.

**Course Goals:**

*Create a cohort of family members who are:*

- Invested in contributing to and ready to engage in neurodevelopmental research
- Knowledgeable about the research process and can make informed decisions with regards to partnering on a research project
- Capable and confident to engage with researchers at various levels of the research process and recognize the impact they can have on the research community

*Create a cohort of research trainees who are:*

- Invested in contributing to neurodevelopmental research
- Knowledgeable about family engagement in research
- Capable and confident in engaging with families and other stakeholders in various stages of the research process

## REPORT TO UNDERGRADUATE COUNCIL FROM THE UNDERGRADUATE COUNCIL AWARDS COMMITTEE

Report from the April 6, 2018 and subsequent electronic vote.

### FOR APPROVAL

#### I Proposed New Awards

- i. The T.H.B. Symons Academic Grant in Canadian Politics

#### II Changes to Award Terms

- i. The Leone Betty Blackwell Memorial Book Prize
- ii. The Mickelsen-Gould Family Academic Grant
- iii. The Canadian Medical Foundation (CMF) Bursary

#### III Proposed New Bursaries

- i. The Richard Day Bursary

The Undergraduate Council Awards Committee now recommends,

**that Undergraduate Council approve one new award, changes to three terms of award and one new bursary, as set out in the attached**

#### IV Awards and Bursaries Removed from the Undergraduate Calendar

- i. The T.H.B. Symons Bursary
- ii. The Symons Prize in Canadian Studies
- iii. The Dr. Elizabeth Bagshaw Bursary
- iv. The Dr. A.P. Bolt Memorial Bursary
- v. The McMaster M.D. Class of 1985 Bursary
- vi. The McMaster M.D. Class of 1994 Bursary
- vii. The McMaster M.D. Class of 1997 Bursary
- viii. The McMaster M.D. Class of 1998 Bursary
- ix. The McMaster M.D. Class of 1999 Bursary
- x. The McMaster M.D. Class of 2000 Bursary
- xi. The McMaster M.D. Class of 2003 Bursary
- xii. The McMaster M.D. Class of 2004 Bursary
- xiii. The McMaster M.D. Class of 2005 Bursary
- xiv. The McMaster M.D. Class of 2006 Bursary

- xv. The McMaster M.D. Class of 2007 Bursary
- xvi. The McMaster M.D. Class of 2008 Bursary
- xvii. The McMaster M.D. Class of 2009 Bursary
- xviii. The McMaster M.D. Class of 2010 Bursary
- xix. The McMaster University M.D. Class of 2001 Bursary

The Undergraduate Council Awards Committee now recommends,

**that Undergraduate Council approve the removal of 19 awards and bursaries, as set out in the attached**

## **FOR INFORMATION**

### **V Award Name Changes**

The Committee received, for information, one award name change.

### **VI Award Value Changes**

The Committee received, for information, two award value changes.

## PROPOSED NEW AWARDS FOR APPROVAL

### In-Course and Renewal Academic Grants

#### **The T.H.B. Symons Academic Grant in Canadian Politics**

Established in 2018 by Thomas H.B. Symons. To be awarded to students who meet provincial residency requirements, are enrolled in level 2 or above of a Political Science program and in at least six units of Canadian Politics courses, attain a high average and demonstrate financial need.

## CHANGES TO AWARD TERMS FOR APPROVAL

#### **The Leone Betty Blackwell Memorial Book Prize**

Established in 1999 by Dr. Bonnie Blackwell in memory of her mother, Leone Betty Blackwell. To be awarded to a graduating student with the highest grade in EARTHSC 3P03 OR ENVIRO SCI 3P03 EARTH SC 4P03.

#### **The Mickelsen-Gould Family Academic Grant**

Established in 2016 by I. David Gould (Class of 1962) and his wife Ruth Gould. To be awarded to a student enrolled in any program who attains a high Fall-Winter average and demonstrates financial need.

### Submitted by the Faculty of Health Sciences

#### **The Canadian Medical Foundation (CMF) Bursary**

Established in 2015 by the Canadian Medical Foundation.

**Requirements:** To be granted to students enrolled in the Michael G. DeGroote School of Medicine who demonstrate financial need. Preference will be given to Aboriginal Indigenous students.

## PROPOSED NEW BURSARIES FOR APPROVAL

### Submitted by the Faculty of Health Sciences

#### **The Richard Day Bursary**

Established in 2018 by Dr. Richard Day, MD (Class of '79) in recognition of the goodwill that was shown to him during his days at McMaster. To be granted to students enrolled in the Michael G. DeGroote School of Medicine, in the Faculty of Health Sciences, who demonstrate financial need.

### Awards and Bursaries Removed from the Undergraduate Calendar for Approval

The T.H.B. Symons Bursary  
The Symons Prize in Canadian Studies

### Awards and Bursaries Removed from the Undergraduate Calendar for Approval; Submitted by the Faculty of Health Sciences

The Dr. Elizabeth Bagshaw Bursary  
The Dr. A.P. Bolt Memorial Bursary



The McMaster M.D. Class of 1985 Bursary  
The McMaster M.D. Class of 1994 Bursary  
The McMaster M.D. Class of 1997 Bursary  
The McMaster M.D. Class of 1998 Bursary  
The McMaster M.D. Class of 1999 Bursary  
The McMaster M.D. Class of 2000 Bursary  
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The McMaster M.D. Class of 2007 Bursary  
The McMaster M.D. Class of 2008 Bursary  
The McMaster M.D. Class of 2009 Bursary  
The McMaster M.D. Class of 2010 Bursary  
The McMaster University M.D. Class of 2001 Bursary

#### FOR INFORMATION

##### Award Name Changes

The Dr. Leo Cellini ~~Class of '84~~ Bursary

##### Award Value Changes

The Class of '50 Scholarship in Honours Economics Value: ~~\$700~~ \$1500

The Pitcher-Ratford Awards Value: ~~\$1000~~ \$3000

April 2018

TO: Undergraduate Council

FROM: Susan Searls Giroux  
Vice-Provost, Faculty



RE: 2016-17 IQAP Cyclical Program Reviews

## INTRODUCTION

The purpose of Institutional Quality Assurance Process (IQAP) program reviews is to assist academic units in clarifying their objectives and to assess curriculum and pedagogical policies, including desirable changes for future academic development. Although the primary objective for these reviews is the improvement of our academic programs, the processes that we adopt are also designed to meet our responsibility to the government on quality assurance. The process by which institutions meet this accountability to the government is outlined in the Quality Assurance Framework (QAF), developed by the Ontario Councils of Academic Vice-Presidents (OCAV). Institutions' compliance with the QAF is monitored by the Ontario Universities Council on Quality Assurance, also known as the Quality Council, which reports to OCAV and the Council of Ontario Universities.

The goal of McMaster's IQAP is to facilitate the development and continued improvement of our undergraduate and graduate academic programs, and to ensure that McMaster continues to lead internationally in its reputation for innovation in teaching and learning and for the quality of its programs. McMaster's IQAP is intended to complement existing mechanisms for critical assessment and enhancement, including departmental reviews and accreditation reviews. The uniqueness of each program emerges through the self-study.

All program review reports (including self studies, review team recommendations, departmental responses, and dean's implementation plans) are submitted to McMaster's Quality Assurance Committee, a joint committee of Undergraduate and Graduate Councils. The Quality Assurance Committee assesses all submitted reports and prepares a Final Assessment Report (FAR) for each program review conducted during the previous academic session. Each FAR:

- Identifies significant strengths of the program;
- Addresses the appropriateness of resources for the success of the program;
- Identifies opportunities for program improvement and enhancement;
- Identifies and prioritizes the recommendations;

Undergraduate Council and/or Graduate Council will review this report to determine if it will make additional recommendations.

#### 2016-2017 IQAP CYCLICAL PROGRAM REVIEWS

The following undergraduate programs were reviewed during 2016-17:

##### Joint Undergraduate and Graduate Reviews

Anthropology

Physics and Astronomy

The Final Assessment Reports for the reviews are attached.



## FINAL ASSESSMENT REPORT

### Institutional Quality Assurance Program (IQAP) Review

#### Anthropology

**Date of Review: March 23 and 24, 2017**

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the undergraduate and graduate programs delivered by **Department of Anthropology**. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

*The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.*

#### **Executive Summary of the Cyclical Program Review of the Undergraduate and Graduate Anthropology Programs**

In accordance with the Institutional Quality Assurance Process (IQAP), the Department of Anthropology submitted a self-study to the School of Graduate Studies in January 2017. The self-study presented the program descriptions and learning outcomes, an analytical assessment of these two programs, and program data including the data collected from a student survey along with the standard data package prepared by the Office of Institutional Research and Analysis. Appended were the CVs for each full-time faculty member in the Department.

One external reviewer from Ontario, one external reviewer from Alberta and one internal reviewer were endorsed by the Dean, Faculty of Social Sciences and selected by the Associate Vice-President and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on March 23 and 24, 2017. The visit included interviews with the Provost and Vice-President (Academic); Associate Vice-President, Faculty, Associate Vice-President and Dean of Graduate Studies, Dean and Associate Dean of the Faculty of Social Sciences, Chair of the department and meetings with groups of current undergraduate students, full-time faculty and support staff.

- **Strengths**

In their report (April 2017), the Review Team highlighted the following strengths of the program:

- The strengths of the Department are made evident in the report. First, the Department works at a very high rate of research productivity, as evidenced by its research output, including talks and publications. The Department also enjoys a very high success rate in CFI and Tri-Council funding.
- The Department enjoys a high success in graduate student funding, largely by Canada's Tri-Council, but also international funding sources, including the highly prestigious Wenner-Gren and Fulbright grants.
- Although the Department consists of three subfields (archaeology, cultural anthropology, biological anthropology) that both intellectually and methodologically can hold different points of orientation, the Department enjoys a high level of collegial interconnectedness and coherence that is not self-evident in a Anthropology department of such diversity and size.

- **Areas for Enhancement or Improvement**

The Review Team noted the following areas for improvement in the program:

- The report has identified four major areas for improvement: 1) the health field, 2) course offerings on the undergraduate level, 3) course offerings on the graduate level, and 4) the relationship between the Department and the Indigenous Studies Program.
- The Department agrees with report's recommendation for the hiring of three positions (cultural anthropology, health, and Indigenous Studies), but realizes that – most likely – these resources will not be immediately diverted from the faculty to the department level. Given this scenario, it has agreed in Department meetings and in its Strategic Research Plan to advocate first and foremost for a Cultural Anthropology position. It also would like to maintain some autonomy in relation to the way in which positions will be defined, and would like to follow – as closely as possible – the trajectory as outlined in its Strategic Plan.

### **Summary of the Reviewers' Recommendations with the Department's and Dean's Responses**

| <b>Recommendation</b> | <b>Proposed Follow-Up</b> | <b>Responsibility for Leading Follow-Up</b> | <b>Timeline for Addressing Recommendation</b> |
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| At a number of places, the report states that the department needs to determine “whether to build or eliminate the health field in both the undergraduate and graduate programs.”   | The department’s executive committee and the department as a whole will meet to follow-up on the recommendation to build or eliminate the health field in the graduate program. As stated above, there is currently no health field in the undergraduate program.                                  | The Department Chair, in conjunction with the department’s executive committee, graduate committee, and faculty members will carry the responsibility for leading the follow-up. | Unfortunately, in the 2017/18 academic year five faculty members will be on administrative or research leave: 3 on a six-month-leave, and 2 on a 12-month leave. Given that –as the report correctly states – decisions related to the health field are potentially contentious, the Department as a whole will start to follow up on this issues in the 2018/19 academic year. This may seem late, but since the outcome of this process will affect the entire department for years to come, it seems wise to wait until then. |
| The report advises the department to revise undergraduate course listings, especially in terms of the number of courses being offered.  | The department will follow up on this suggestion to tighten its undergraduate program in regard to its course offerings.   | The Undergraduate Chair, in consultation with the undergraduate committee and faculty members will lead this process.  | This process will be initiated in the 2017/18 academic year. Given various administrative timelines, it can be completed in 2018/19.   |
| The report advises the department to examine its course offerings on the graduate level, specifically with a view to the internal competition that seems to exist between the three subfields mentioned in the report: cultural anthropology, archaeology, biological anthropology. | The department will follow up on this suggestion. However, it is important to note that the current chair and graduate chair began this process in 2016-17 by raising pertinent issues with faculty members. The department will continue to streamline graduate courses and work on creating more | The Graduate Chair, in consultation with the graduate committee and faculty members will lead this process.  | This process will be initiated in the 2017/18 academic year. Given various administrative timelines, it can be completed in 2018/19.   |

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|  | courses that cross-cut subfields.   |  |   |
| The Department takes the report's recommendation to build a "fruitful relationship" with the Indigenous Studies Program seriously. | In consultation with ISP and the FSS Dean, the Department would like to think about possibilities to initiate and sustain such a "fruitful relationship." It is pleased to recognize that the report states that "Dr. Martin-Hill's position [...] provides a wonderful bridging opportunity," and would like to reiterate its willingness to work with ISP and the Dean on this issue. | The Department Chair will carry the responsibility on following up on this suggestion. | This process can be initiated in the 2017/18 academic year. |

#### **Faculty Response:**

The reviewers' overall assessment is that the Department of Anthropology offers excellent education to its undergraduate and graduate students. The department has implemented a number of important innovations in recent years and the undergraduate program in particular offers a more integrated curriculum across the sub-disciplines than do most anthropology programs in Canada. The reviewers, as directed, also identify a number of areas where the program and department could make changes to improve the programs. None of the recommendations, to the Dean's knowledge, required changes in organization, policy or governance to implement. Some require resources. Most require deliberation among departmental members and between the department and the Faculty to assess the best way to respond to the recommendations in the context of current resources and desired directions for the undergraduate and graduate programs. The Dean's response below focuses on the key recommendations offered by the reviewers, focusing first on those recommendations that raises issues of resources.

#### **Human Resources**

The reviewers make recommendations in three areas that pertain to faculty resources and one that pertains to staff resources.

#### *Faculty*



- That, should the department want to retain the health field, the Faculty consider funding a hire to contribute to it
- That the department re-think its relationship to the Indigenous Studies Program (ISP), and Dawn Martin-Hill's commitments in particular.
- That the department retain the hiring of a socio-cultural faculty member as a priority.

The Dean recognized that recent retirements and departures have weakened the health field within the department and that the department has identified the hiring a socio-cultural anthropologist as a need and priority. The ability to address these needs depends on resources available to the Faculty, and Anthropology's needs relative to other departments, schools and programs within the Faculty. It may also be possible to help address both of these priorities with a single hire of a socio-cultural anthropologies working in the area of health. While the Dean recognized these needs, the uncertainty created by the new provincial funding model for universities, and its impact on McMaster and the Faculty of Social Sciences in particular, precluded him from making any commitments regarding faculty hires.

The issue of Anthropology's relationship to the ISP, and opportunities for anthropology students to pursue interests in Indigenous history, culture and knowledge systems, extend beyond Dawn Martin-Hill's appointment. The ISP is keen to work with other programs to increase the numbers of students studying Indigenous history, culture and knowledge systems at both the undergraduate and graduate levels. This presents many opportunities to expand the options for anthropology students to pursue Indigenous-related interests. In addition, the ISP and School of Social Work are jointly developing a new graduate course on Indigenous knowledge systems open to all graduate students within the Faculty of Social Sciences. It is being offered on Dean's permission in 2017-18, and will be offered into the future if there is sufficient interest. So opportunities are expanding, and the Faculty welcomes Anthropology's participation in discussion regarding how best to expand such opportunities further at the undergraduate and graduate levels.

### *Staff*

- Make the Archaeology Instructional Assistant a 12-month contract rather than a 10-month contract

The 10-month contract reflects the structure and timing of course offerings within the program. A shift to a 12-month contract would only make sense under a revised curriculum, with commensurate resources to fund the additional two months over the summer.

### **Physical Resources**

The report observes that overall the current teaching labs are serving the program well, but makes a set of recommendations to restructure, reorganize and/or develop further aspects of these labs.

- Of particular importance is the Human Skeletal Biology and Bioarchaeology lab, which is a bottleneck in the undergraduate program. The Faculty will work with the department this coming year to assess what physical or scheduling changes can be made to address these concerns.
- The reviewers recommend enhanced space for the biological anthropology lab and identifies needs associated with ANTH 2D03 and ANTH 3R03. In the review of space requirements within the Faculty this past year, these needs were not identified as a priority by the department, but as part of the Faculty's continuing review of space allocation, this coming year the Dean will work with the department to consider these recommendations.
- The Dean shared the reviewer's assessment that the Sustainably Archaeology Lab provides an underdeveloped opportunity for training undergraduate and graduate students, and will work with the department, and the Lab Director, Aubrey Cannon in particular, to explore ways to facilitate its use in student training.

### **Financial Resources**

- The report recommends that the university "enhance and/or regularize" the financial support of graduate student fieldwork. The Faculty is prepared to work with the department and the School of Graduate Studies to assess options that can address the financial needs of graduate students conducting fieldwork.

### **Educational Programs**

The report recommends a number of actions to enhance the undergraduate and graduate programs and which that have no direct resource implications. The Faculty will work the department and its respective undergraduate and graduate committees to support changes as appropriate. Here the Dean offered comment on two issues identified by the reviewers.

- Student Advising. The report indicates that inconsistency in academic advising occurs between the department, the Faculty advising and the website. We will work with the department before the start of the Fall term to improve coordination between the department and the Faculty advisors; website issues will be addressed as part of the Faculty refresh of its website. In the longer term, the Faculty will be using strategic funding from the Provost to create an on-line academic "journey planner" that should help students understand program options and requirements.
- Teaching Opportunities for Graduate Students. Anthropology, like all departments, is allocated PhD teaching Fellow positions to enable graduate students to gain teaching experience. Further, the allocation of TA resources to the department has increased slightly in recent years. Resources to support teaching opportunities therefore are likely not the problem; it may be a matter of course designs and how TA funding is

used within the programs.

### **Quality Assurance Committee Recommendation**

**McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with an 18-month progress report and a subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review. The committee will request an update on the strategic plan concerning the Health Studies field to be included the progress report.**

## FINAL ASSESSMENT REPORT

### Institutional Quality Assurance Program (IQAP) Review

#### Physics: B.Sc., M.Sc. and Ph.D.

**Date of Review: March 6<sup>th</sup> and 7<sup>th</sup>**

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the undergraduate and graduate programs delivered by Physics. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

*The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.*

#### **Executive Summary of the Review**

In accordance with the Institutional Quality Assurance Process (IQAP), the Physics program submitted a self-study in January 2017 to the Vice-Provost and Dean of Graduate Studies and Associate Vice-President, Faculty to initiate the cyclical program review of its graduate and undergraduate programs. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained all course outlines associated with the program and the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Science, and selected by the Associate Vice-President, Faculty and Associate Vice-President and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a site visit to McMaster University on March 30 - 31, 2017. The visit included interviews with the Provost and Vice-President (Academic); Associate Vice-President, Faculty, Associate Vice-President and Dean of Graduate Studies, Associate Dean, Grad Studies and Research, Director of the School of Labour Studies and meetings with groups of current undergraduate students, full-time faculty and support staff.

The Chair of the Department and the Dean of the Faculty of Science submitted responses to the Reviewers' Report. Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

- **Strengths**

- high-quality, sustainable, research- intensive, student-centred programs at all levels
- attention given to the large-enrolment service courses and other educational opportunities for students outside Physics & Astronomy.

- **Areas for Enhancement or Improvement**

- new undergraduate Medical & Biological Physics program as a potential opportunity for growth
- Coordination with the Associate Dean's office and the faculty of science around level I enrolment targets and student advising is suggested.
- skills training at both the graduate and undergraduate levels, and suggest a mechanism to enhance communication with the department at the graduate level.
- concern that the lack of faculty renewal is beginning to put limits on the graduate programs, particularly in areas of experimental and theoretical physics.

### **Summary of the Reviewers' Recommendations with the Department's and Dean's Responses**

| <b>Recommendation</b>   | <b>Proposed Follow-Up</b>   | <b>Responsibility for Leading Follow-Up</b> | <b>Timeline for Addressing Recommendation</b> |
|---|---|---|---|
| Continue to vigorously pursue bringing research into the Department undergraduate programs  | Maintain current practices. In light of the intended increase of international students in the Faculty of Science, search for creative ways to fund summer research positions for non-NSERC eligible undergraduates.                          | All faculty                                 | Ongoing                                       |
| Coordinate with Associate Dean's office and the faculty of Science to provide support and advising for recruiting into level 1 and department programs. | Create level I advising information sheet. Work with advising team to communicate roles of all level I physics courses.<br><br>Increase admission target into Chemical & Physical Sciences I while maintaining appropriate admission average. | Chair, Associate Chair (Undergraduate)      | 2017/18                                       |
| Give departmental recruitment and outreach a high priority.   | Explore possibilities to re-implement the activities of the former Outreach Coordinator, perhaps through reorganized duties of departmental staff.<br><br>Seek external funding for outreach activities (e.g. PromoScience, fundraising).     | Chair                                       | Begin immediately.                            |

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| Explore mechanisms to provide additional opportunities for students to strengthen aspects of data analysis, statistical analysis, and computational skills within the undergraduate programs. | Identify courses where skills could be included with minor modifications to curriculum (e.g. Inquiry, lab courses) and work with instructors to make those changes. Coordinate with Laboratory Review Group (see below)<br><br>Identify non-course resources (e.g. online) that are appropriate for physics students and create repository. | Associate Chair (Undergraduate)              | Begin implementation in 2018/19   |
| Review scaffolding of learning outcomes of all undergraduate laboratory courses. Review the overall workload of 3H03, "Intermediate Laboratory", possibly change unit load to 6.              | Undertake review of lab components of 1C03, 1CC3, 2B03, 2BB3, 2H04, and 3H03 by laboratory staff and faculty teaching those courses. Start review after 2B03 and 2BB3 have been taught in their revamped configuration.   | Laboratory Review Group Established by Chair | Implement recommended changes in 2019/20.   |
| Explore the possibility of increasing options for "general interest" courses for non-program students, through new courses and relaxed prerequisites on existing courses.                     | Solicit ideas from department; assess teaching capacity within department; consult with Dean/Associate Dean's offices concerning resources.   | Chair, Associate Chair (Undergraduate)       | Begin immediately, with numeracy course Physics 2NM3 on Dean's Permission in Winter 2018. |

#### Dean's Response:

##### Graduate programs:

The Dean was pleased to receive a positive assessment of the graduate and undergraduate programs in the Department of Physics & Astronomy. The report highlights many strengths of both programs and the value and commitment placed in training students. The recommendations in the report have been reviewed by the Department and are included in a response letter along with plans to address them in an appropriate timeframe. They note that two specific items related to graduate programs have been appropriately addressed by the Department. The graduate courses are being reviewed in order to consider ways to offer a set number of courses each year some of which may involve collaboration with other programs both at McMaster and outside. The issue of communication gap between students and department is being addressed. A new Graduate Student Council is being established this fall, which will offer effective channel to address concerns that student might have.

##### Undergraduate Programs:

Recommendations: *“Coordinate with the Associate Dean’s office and the Faculty of Science to provide support and advising for recruiting into the level 1 and department programs.” “Give departmental recruitment and outreach a high priority”.*

While they understand the foundation for these requests and are looking for sustainable ways for Departments in the Faculty of Science to support their current students and generate interest in future students, they are concerned that these comment paint an inaccurate picture of the current level of activity and coordination in the areas of advising, outreach and recruitment. For many years, the Department of Physics and Astronomy had a member of staff who was responsible for outreach and promotion. During the Academic review initiated by Dean Baker, data was presented to show that over a substantial time period during which the department had an outreach person, enrollment numbers had actually declined into both the Level 1 gateway and the Level 2 entry programs. Level 1 outreach is carried out centrally by the University and the Faculty of Science and its Departments have little control over centralized high school outreach. However, at all recruitment events, the office of the Associate Dean of Science gives equal priority to all its Level 1 Science programs. A number of steps were taken at the level of the office of the Associate Dean and formed part of the 5-year academic plan resulting from Dean Bakers review. Firstly, the Level 1 physics course offerings were completely reviewed and redesigned. Secondly, the Level 2 offerings were promoted through the new Science 1A03 course (Investigating Science: Experience and Opportunities). Thirdly, the minimum entry grade requirements for all Level 2 programs was lowered to a GPA of 5. Lastly, all programs including the Gateways were promoted on the McMaster Academic Planner (MAP). Since then the numbers are no longer in decline, in fact this year the Level 1 gateway program has exceeded its target of 100 for the first time. The Level 2 program numbers for the new Medical and Biological Physics program are high (much higher than previous numbers for the honours Medical Physics and Biophysics combined). Also, enrollment into the honours Physics program is higher this year than they have been for many years. All this improvement without a dedicated outreach person. The Faculty of Science is dedicated to funding centralized recruitment that is targeted to the needs and interests of different groups of students, however they current priority is to support this through the Office of the Associate Dean and through existing recruitment events and tools. The Dean was happy to work with Departments to look at alternative models of funding less centralized outreach activities in the future.

Recommendation: *“Monitor student preparation from 1A03/1AA3 for department programs including cross over paths”.* This is a very important task. Although it would appear from many points of view that the level 1 physics offerings are a success, some research into the effectiveness is essential. They are happy to encourage the Department of Physics as a whole and the instructors of these courses in particular to partner with the McPherson Institute to build an effective and evidence based evaluation platform to monitor and assess the effectiveness of the redesigned courses.

|   |  |                                   |           |
|---|--|-----------------------------------|-----------|
| Monitor student preparation from 1A03/1AA3 for department programs, including crossover paths (1A/1CC or 1C/1AA)              | <p>Data collection, both historical and going forward, to track program students with any 1A/1AA background. Interviews with those students, and level 2 instructors, as warranted.</p> <p>Provide report, with suggestions, to department curriculum committee.</p> | Instructional Assistant           | 2019/20   |
| Create a sustainable suite of graduate courses.   | <p>Discuss teaching credit for small graduate courses with Faculty of Science.</p> <p>Continue to seek out partnerships with other units on campus (e.g. CSE) and external institutions (e.g. PI)</p>  | Associate Chair (Graduate), Chair | Ongoing   |
| Create elected Graduate Student Council   | <p>Work with current graduate Liaison Committee to identify gaps in communication.</p> <p>Elect first Graduate Student Council members during graduate orientation session in September 2017.</p>  | Associate Chair (Graduate)        | 2017/18   |
| Bolster experimental physics and theoretical physics research groups, to maintain strengths in those graduate research areas. | <p>Submit proposals to Faculty Academic Appointments Committee in these areas.</p> <p>Pursue CERC appointments through already authorized university submission.</p>   | Chair                             | Fall 2017 |



### **Quality Assurance Committee Recommendation**

**McMaster's Quality Assurance Committee (QAC) reviewed the above documentation and the committee recommends that the program should follow the regular course of action with an 18-month progress report and a subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.**

## **Terms of Reference**

### **Quality Assurance Committee**

**Date created:** December 4, 2014

**Date approved by QAC:** March 26, 2018

#### **Authority**

The Quality Assurance Committee is a joint Committee of Graduate Council and Undergraduate Council established pursuant to McMaster University's *Policy on Academic Program Reviews*.

#### **Composition**

The Committee consists of:

Ex Officio

- Vice-Provost (Faculty) (Co-Chair)
- Vice-Provost and Dean of Graduate Studies (Co-Chair)
- Associate Registrar and Graduate Secretary
- Associate Director, Program Enhancement and Development

Appointed

- Three (3) members appointed by Undergraduate Council
- Three (3) members appointed by Graduate Council

Members shall be appointed by Undergraduate Council and Graduate Council, but not necessarily drawn from Undergraduate Council and Graduate Council, one from each of the Faculties of Business, Engineering, Health Sciences, Humanities, Science, and Social Sciences. Members shall be appointed for staggered two-year renewable terms, effective July 1 in the year of appointment.

#### **Mandate**

The Committee's mandate is to assess cyclical reviews and submit Final Assessment Reports to Undergraduate Council or Graduate Council.

#### **Primary Duties, Functions and Responsibilities**

The Committee will read and assess cyclical program reviews and, for each, prepare a Final Assessment Report for Undergraduate Council and/or Graduate Council that:

- Identifies significant strengths of the program
- Identifies opportunities for program improvement and enhancement
- Identifies and prioritizes recommendations
- Addresses the appropriateness of resources for the success of the program
- May include a confidential section (e.g. where personnel issues may be addressed)
- May include additional recommendations or comments to the Provost and Vice-President (Academic). Recommendations will include requiring a detailed

progress report that will describe progress towards addressing major concerns. In addition, it may recommend scheduling an additional cyclical review sooner than specified by the normal 8-year cycle.

The Committee will receive a status report of any pending new program reviews.

## **Meeting Procedures Quality Assurance Committee**

**Date created: December 2014**

**Date approved by QAC: March 26, 2018**

### **Schedule:**

The Quality Assurance Committee will meet at least two (2) to four (4) times annually.

### **Format:**

Meetings will be held in person when cyclical program review documents are being assessed. Other meetings may be held in person or by telecommunications or electronic means.

### **Agenda:**

An agenda, developed by the Committee Co-Chairs with input from the Committee members, will be circulated at least 2 days prior to any scheduled meeting.

### **Minutes:**

Using a standard format, circulated to the Chair for approval of the draft, minutes will be recorded, circulated to Committee members, and reviewed and approved by the Committee at the next meeting.

### **Program Reviews:**

Appointed committee members will be assigned to review and assess several program review packages and then present a high-level summary of each program to the QAC. This high-level summary will include strengths and weaknesses, opportunities for program enhancement, and recommendations. Refer to the Terms of Reference for further detail. Confidential sections in the reports should be treated as such and should not be shared beyond this committee.

### **Range of outcomes:**

Normally, the Quality Assurance Committee members may recommend, upon assessment of each cyclical program review the following options:

1. The program should follow the regular course of action with progress report and a subsequent full external cyclical review to be conducted no later than 8 years after the start of the last review.
2. The program should follow a modified course of action with a progress report and a full external cyclical review to be conducted no later than 4 years after the start of the last review.
3. The program should follow a modified course of action with a progress report and a modified internal cyclical review to be conducted no later than 4 years after the start of the last review.

Other options as discussed and approved by the full Quality Assurance Committee. The co-chairs of the committee will maintain a list of alternate recommendations used in the past.

## Appeals Process

Outlined below are the steps involved in the event that a program would like to appeal a QAC decision:

1. Program chair or associate dean submits a written letter to the committee requesting an appeal within 30 days of receiving the original decision. The appeal letter is addressed to the Vice-Provost (Faculty) and Vice-Provost and Dean of Graduate Studies, the co-chairs of QAC, and must include a detailed rationale and demonstrated faculty support for the appeal request.
2. Following the receipt of an appeal request, QAC membership will determine if there are sufficient grounds for considering an appeal. The program will be notified if their appeal will be considered or not.
3. In the event that an appeal will be considered, the committee may request further rationale for the appeal and program representatives may be invited to a QAC meeting to respond to questions related to their specific concerns from the committee members. After this meeting, the QAC may request additional information from the review team and/or a written follow up from the program.
4. Once the QAC has had sufficient time to review information related to the appeal, a decision will be made. The majority decision of QAC will be final and binding. The QAC co-chairs will notify the program of the outcome of their appeal within 10 business days.

Possible outcomes for an appeal request:

- 1) Appeal granted
- 2) Committee will revisit decision after progress report has been submitted
- 3) Appeal denied