February 24, 2017

TO: Members of Undergraduate Council

FROM: Tamara Bates
Governance Advisor and Assistant University Secretary

RE: Notice of Meeting

The next meeting of Undergraduate Council will be held on Tuesday, February 28, 2017 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
McMaster University
UNDERGRADUATE COUNCIL

Tuesday, February 28, 2017 at 2:30 p.m.
in the Council Room (GH 111)

AGENDA

I
MINUTES of the meeting of January 31, 2017 (forthcoming – for approval)

II
BUSINESS ARISING

III
CHAIR’S REMARKS

IV
REPORT FROM AWARDS COMMITTEE (attached)

For Approval
i. Terms of Award for New Awards
ii. Changes to Award Terms
iii. New Bursaries

For Information
iv. Award Name Changes
v. Award Value Changes

V
REPORT FROM CERTIFICATE AND DIPLOMAS COMMITTEE (attached)

For Approval
i. New Certificate Program - Big Data Analytics Certificate

For Information
ii. New and Revised Certificate of Completion Programs
   a. Establishment of the Certificate of Completion in Foundations in Canadian Health
   b. Establishment of the Strategic Leaders Certificate of Completion Program
   c. Personal Leadership Certificate of Completion Program – Name Change
   d. Emerging Leaders Certificate of Completion Program – Name Change

iii. Certificate of Completion Program Closure – Web Analytics Certificate of Completion

VI
FINAL CURRICULUM CHANGES FOR 2017-2018 UNDERGRADUATE CALENDAR

i. Faculty of Business
ii. Faculty of Engineering
iii. Faculty of Science
iv. Faculty of Social Sciences

VII
OTHER BUSINESS
REPORT TO UNDERGRADUATE COUNCIL
FROM THE
UNDERGRADUATE COUNCIL AWARDS COMMITTEE

FOR APPROVAL

(a) Terms of Award
At its meeting of February 7, 2017, the Undergraduate Council Awards Committee approved the following for recommendation to Undergraduate Council.

(i) Terms of Award for New Awards
   The Tax Executives Institute Scholarship
   The Nikola Tesla Educational Corporation Scholarship
   The Professor David Thompson Scholarship
   The Terence James Kennett Academic Grant
   The Mickelsen-Gould Family Academic Grant
   The Jaisal Chauhan Research Book Award
   The Dr. Henry Chaim Witelson Memorial Prize in Ophthalmology

(ii) Changes to Terms of Award
   The Moffat Family Prize
   The Jeanne and Peter Nolan Award
   The Tony and Lucy Pickard Scholarship
   The Michael Kamin Hart Memorial Fund

(iii) New Bursaries
   The David Cook Canadian Literature Bursary
   The Henderson Family Bursary
   The Ledwith Family Bursary
   The Robert H. and Lillian Scullion Bursary
   The McMaster Nursing Alumni Class Bursary Fund
   The Robert and Ruth Miller Entrance Bursary
   The Rolls’ Family Bursary
   The Whitley Family Bursary
   The Drs. Andrew and Annette McCallum Medical Bursary
   The Shoalts Family Bursary
   The Dr. Victoria Lee Bursary for Indigenous MD Students

The Undergraduate Council Awards Committee now recommends,

that Undergraduate Council approve the terms of award for seven new awards, changes to four terms of award, and eleven new bursaries, as set out in Attachment I.
FOR INFORMATION

(b) Award Name Changes
   At its meeting of February 7, 2017, the Awards Committee received, for information, two award name changes.

(c) Awards Value Changes
   At the same meeting, the Awards Committee received, for information, six award value changes.

Undergraduate Council
February 28, 2017
PROPOSED NEW AWARDS FOR APPROVAL

SECTION B: Awards for In-Course Students

THE TAX EXECUTIVES INSTITUTE SCHOLARSHIP
Established in 2016 by the Tax Executives Institute, Inc. – Toronto Chapter to support students entering the taxation field. To be awarded to a level III student in the DeGroote School of Business who attains the highest combined average in Commerce 3AB3 and 3AC3.
Value: $3,000

THE NIKOLA TESLA EDUCATIONAL CORPORATION SCHOLARSHIP
Established in 2016 by the Nikola Tesla Educational Corporation in tribute to Nikola Tesla, engineer and inventor. To be awarded to a student who graduated from a high school in the City of Hamilton or Regional Municipality of Halton, has completed Level 1 Engineering with a high Fall-Winter Average and who, in the judgment of the Faculty of Engineering, demonstrates a commitment to continuing in a field of study that is directly related to Nikola Tesla’s work and body of knowledge. The scholarship is tenable for up to three years provided the student remains enrolled in 24 units or more and achieves a Fall-Winter Average of 9.5.
Value: $10,000 (approximately $3,333 per year)

THE PROFESSOR DAVID THOMPSON SCHOLARSHIP
Established in 2016 by Robert Walker (M.Eng. ’75, Ph.D. ’77 & D.Sc. 2013) and Karen Walker to honour Robert’s Engineering Physics graduate supervisor Dr. David Thompson. Robert Walker was Dr. Thompson’s first Ph.D student. To be awarded to a student who has completed Level I Engineering with a high Fall-Winter Average and who is entering a Level II Engineering Physics program.
Value: $5,000

SECTION G: Academic Grants for Full-Time Students

THE TERENCE JAMES KENNETT ACADEMIC GRANT
Established in 2015 by friends of Dr. Kennett (1927-2013). To be awarded to a student in the Faculty of Engineering, Department of Engineering Physics who has completed at least Level II with a high Fall-Winter Average and demonstrates financial need.
Value: Variable

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.
Value: $1,000

CHANGES TO AWARD TERMS FOR APPROVAL

THE MOFFAT FAMILY PRIZE
The Moffat Family Prize was established in 1990 by Moffat Kinoshita Associates Inc. To be awarded to a student who, in the judgment of the School of Geography and Earth Sciences, has the highest standing in the following senior level urban geography courses: GEOG 3UH3 (Urban Housing) and/or GEOG 4UT3 (Selected Topics in Urban Geography).

THE KIM JEANNE AND TIM PETER NOLAN SCHOLARSHIP AWARD
Established in 2014 by Kim (Class of 2004 and 2009) and Tim Nolan (Class of ’86 and 2004) to recognize the outstanding academic achievement of a student with a disability as they complete their program of study, celebrate the lives of Jeanne and Peter Nolan. To be awarded to a graduating student in a Social Work program with the highest Grade Point Average and who is enrolled registered with Student Accessibility Services.
THE TONY & LUCY PICKARD MEMORIAL SCHOLARSHIP
Established in 1973 by Lucy Pickard, B.A., M.A., his wife and family, in honour of Captain Antony F. Pickard, O.B.E., C.D., R.C.N. (Ret’d). To be awarded to a student in any program with a high Fall-Winter Average.

PROPOSED NEW BURSARIES FOR APPROVAL

Submitted by the Office of Student Financial Aid & Scholarships

THE DAVID COOK CANADIAN LITERATURE BURSARY
Established in 2016 in honour of David Cook who was a devotee of Canadian Literature and long-time librarian at McMaster University. To be awarded to students enrolled in the Department of English and Cultural Studies who demonstrate financial need. Preference will be given to students with an interest in English Literature.

THE HENDERSON FAMILY BURSARY
Established in 2016 by Trevor Henderson, B.A. (Class of ’92 & ’93), and Meredith (Henderson) Rainey, B.A.Hon. (Classes of ’95), in memory of their parents Edward and Marilyn. To be awarded to students enrolled in the Faculty of Humanities or the Faculty of Social Sciences who demonstrate financial need.

THE LEDWITH FAMILY BURSARY
Established in 2016 by Janette Ledwith (Class of ’73). A variable number of bursaries to be granted to students enrolled in the Faculty of Social Sciences, who demonstrate financial need. Preference will be given to students enrolled in a program in the Department of Health, Aging and Society.

THE ROBERT H. AND LILLIAN SCULLION BURSARY
Established in 2016 in memory of Robert Hugh (Class of ’51) and Lillian Scullion by Roy and Anne Mason. To be granted to a student who demonstrates financial need. Preference to be given to a student active in community service.

THE MCMASTER NURSING ALUMNI CLASS BURSARY FUND
A variable number of bursaries to be granted to students enrolled in a Nursing program and who demonstrate financial need.

THE ROBERT AND RUTH MILLER ENTRANCE BURSARY
Established in 2016 by Ruth Miller (Class of ’79), lifetime resident of Burlington who had a career dedicated to education in the Halton School Board; and Robert Miller (Class of ’76), who had a career in engineering and business management, to assist students that demonstrate wise use of time, energy and skill. To be awarded to a student entering a Level 1 program in the Faculty of Humanities who graduated from a Burlington high school and demonstrates financial need. Preference to be given to students who graduated from M.M. Robinson High School. Value: $7,500

THE ROLLS’ FAMILY BURSARY
Established in 2016 by the Rolls family. To be granted to students enrolled in level 2 or above, in a program in the Department of English and/or the School of Nursing, who demonstrate financial need.

THE WHITLEY FAMILY BURSARY
Established in 2016 by the Whitley Family. To be granted to a student in the Bachelor of Commerce program who demonstrates financial need.
PROPOSED NEW AWARDS FOR APPROVAL

THE JAISAL CHAUHAN RESEARCH BOOK AWARD
Established in 2015 by medical professionals in the Niagara region. To be awarded to a student from the Niagara Regional Campus of the Michael G. DeGroote School of Medicine who, in the judgment of the Assistant Dean of the Niagara Regional Campus, has demonstrated inspiring leadership during their undergraduate medical program; exceeded expectations of medical students as researchers; contributed to a successful quality improvement project in health care.

THE DR. HENRY CHAIM WITELSON MEMORIAL PRIZE IN OPHTHALMOLOGY
Established in 1997 by family and friends of the late Dr. Henry Chaim Witelson, former Chief of Service in Ophthalmology for Hamilton Civic Hospitals, to honour his memory and work. To be granted to a student enrolled in the Faculty of Health Sciences who has demonstrated academic excellence and an interest in ophthalmology. The prize is intended to provide an opportunity for an in-depth experience in a block elective for a minimum of two weeks in a clinical or research aspect of ophthalmology and to increase interest in the specialty of eye medicine and surgery.

PROPOSED NEW BURSARIES FOR APPROVAL

THE DRS. ANDREW AND ANNETTE MCCALLUM MEDICAL BURSARY
Established in 2016 by Dr. Andrew McCallum (Class of ‘80, MD), and Dr. Annette McCallum (Class of ‘91, MD) to provide financial support for medical students who wish to pursue their educational goals. To be granted to a student enrolled in the Michael G. DeGroote School of Medicine at McMaster University who demonstrates financial need.

THE SHOALTS FAMILY BURSARY
Established in 2016 by Todd and Kerry Shoalts. To be granted to a student enrolled in the Niagara Regional Campus (NRC) of the Michael G. DeGroote School of Medicine who demonstrates financial need. Preference will be given to individuals (a) from the Niagara region (or another small community, i.e. population < 100,000), and (b) with a demonstrated interest in elder care or family medicine.

THE DR. VICTORIA LEE BURSARY FOR INDIGENOUS MD STUDENTS
Established in 2016 by Victoria Lee (Class of ‘82) in support of her belief that all students should have the opportunity to pursue their educational goals. To be granted to indigenous students enrolled in the Michael G. DeGroote School of Medicine who demonstrate financial need. Note: Students may be asked to provide proof of indigenous ancestry.

CHANGES TO AWARD TERMS FOR APPROVAL

THE MICHAEL KAMIN HART MEMORIAL SCHOLARSHIP FUND
Established in 2011 by the Michael G. DeGroote Institute for Infectious Disease Research along with family, friends and donors in memory of Michael Kamin Hart, who was a student within the Institute. Aligned with Michael’s academic trajectory, to be awarded to: (a) an undergraduate summer student in either their third or fourth year of study who plans to go on to graduate work at McMaster; and (b) an MSc student; and (c) a PhD student and (d) a research staff member recipient of the Staff Award of Excellence. The recipients must be associated with the Michael G. DeGroote Institute for Infectious Disease Research and have demonstrated academic excellence. To be awarded on the recommendation of the Executive Committee of the Michael G. DeGroote Institute for Infectious Disease Research.
FOR INFORMATION

AWARD NAME CHANGES

THE SUSAN FARLEY AND BETH FARLEY-GROVES SCHOLARSHIP
THE CANADIAN RENEWABLE FUELS ASSOCIATION INDUSTRIES CANADA SCHOLARSHIP

AWARD VALUE CHANGES

THE HANS GROH ACADEMIC GRANT
$1,000 $2,000
THE SUSAN FARLEY AND BETH FARLEY-GROVES SCHOLARSHIP
$500-$1,000
THE CLASS OF ‘37 TRAVEL SCHOLARSHIP IN ARTS AND SCIENCE
$1,300-$2,500
THE MANSON OLSON ACADEMIC GRANT
$800 $1,000
THE ONTARIO PROFESSIONAL ENGINEERS FOUNDATION FOR EDUCATION ENTRANCE SCHOLARSHIP
$1,000 $1,500
THE ONTARIO PROFESSIONAL ENGINEERS FOUNDATION FOR EDUCATION UNDERGRADUATE SCHOLARSHIPS
$1,250 $1,500

AWARDS REMOVED FROM THE UNDERGRADUATE CALENDAR FOR APPROVAL

THE SOCIAL JUSTICE MIDWIFERY BURSARY
REPORT TO UNDERGRADUATE COUNCIL
FROM THE
UNDERGRADUATE COUNCIL
CERTIFICATES AND DIPLOMAS COMMITTEE

FOR APPROVAL

I  New Certificate Program - Big Data Analytics Certificate (Attachment I)

At its meeting of February 14, 2017, the Undergraduate Council Certificates and Diplomas Committee approved, for recommendation to Undergraduate Council, the establishment of the Big Data Analytics Certificate program. The program, which is a collaboration between McMaster’s MacData Institute and the Centre for Continuing Education, covers common areas of knowledge and skills for data analysts as identified by the Institute for Operations Research and the Management Sciences (INFORMS), which provides the designation of Certified Analytics Professional (CAP).

The Undergraduate Council Certificates and Diplomas Committee now recommends,

that Undergraduate Council approve the establishment of the Big Data Analytics Certificate program, effective September 2017, as recommended by the Centre for Continuing Education and set out in Attachment I.

FOR INFORMATION

II  New and Revised Certificate of Completion Programs

i.  Establishment of the Certificate of Completion in Foundations in Canadian Health (Attachment II)

At its meeting of February 14, 2017, the Undergraduate Council Certificates and Diplomas Committee received information about the establishment of a new Certificate of Completion in Foundations in Canadian Health. The program combines three existing courses that are part of the Health Information Management and Health Informatics programs.

ii.  Establishment of the Strategic Leaders Certificate of Completion Program (Attachment III)

At the same meeting, the Undergraduate Council Certificates and Diplomas Committee received information about the establishment of a new Strategic Leaders Certificate of Completion program. The new program will cover topics such as leadership development, communications, community engagement, creativity and innovation, change management, employee engagement, and creating healthy workplaces.
iii. **Personal Leadership Certificate of Completion Program – Name Change** (Attachment III)

iv. **Emerging Leaders Certificate of Completion Program – Name Change** (Attachment III)

At the same meeting, the Undergraduate Council Certificate and Diplomas Committee received information about name changes for two custom certificate of completion programs. The Personal Leadership Certificate of Completion Program is now called the Personal Leaders Certificate of Completion Program. The Emerging Leaders Certificate of Completion Program is now called the Knowledge Leaders Certificate of Completion Program.

### III Certificate of Completion Program Closures – Web Analytics Certificate of Completion (Attachment IV)

At its meeting of February 14, 2017, the Undergraduate Council Certificate and Diplomas Committee received information about the closure of the Web Analytics Certificate of Completion program, effective immediately. The program is being replaced by the Digital Marketing Certificate program, which was launched in September 2016.

**Undergraduate Council**

**February 28, 2017**
<table>
<thead>
<tr>
<th>A. Department &amp; Program Information (Complete all fields):</th>
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<tbody>
<tr>
<td>Academic Designation: Certificate</td>
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<tr>
<td>Program Name: Big Data Analytics</td>
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<tr>
<td>Name of Representative: Nancy McQuigge, Program Manager</td>
</tr>
<tr>
<td>Proposed Date/Term of Program Start: Fall 2017 (September 2017)</td>
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<td>Date of Submission: February 14, 2017</td>
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<th>B. Faculty Statement (Required):</th>
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<tr>
<td>Refer to attached letter of support from Associate Dean, Dr. John Medcof, DeGroote School of Business.</td>
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<tr>
<th>C. Academic Merit (Complete all fields; write “not applicable” as needed):</th>
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<tr>
<td>i. Program Overview: The Big Data Analytics certificate program will consist of six, three 3-unit courses (18 units). Program content is based on common areas of knowledge and skills for data analysts as identified by the Institute for Operations Research and the Management Sciences (INFORMS) which provides the designation of Certified Analytics Professional (CAP). The program is a joint effort between, McMaster’s MacData Institute and the Centre for Continuing Education. Upon successful completion of the required six courses, participants will receive the McMaster University Certificate in Big Data Analytics. Students are given a three-year period to complete all required components of the certificate program. This requirement is based on the fast-paced and evolving technologies used in the field of work. Program learning objectives and specific course outcomes align with INFORMS seven knowledge domains: i) Business problem framing; ii) Analytics problem framing: iii) Data; iv) Methodology; v) Model Building; vi) Deployment, and vii) Model lifecycle management. Each course will bridge theory and practical experience through a combination of experiential learning (i.e. case...</td>
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</table>
studies, data laboratory activities, discussions, and presentations) and traditional teaching methods. In particular, students will complete a capstone project as the final course in the program, which provides the opportunity to apply the data analytical methods, techniques and strategies to a real-world situation/case. Emerging trends, theories and practices will be incorporated to coursework to ensure that program content is current and relevant.

Development subject matter experts and program instructors will be researchers and practitioners in the field and will emphasize the knowledge and skills required for employment in the fields of Big Data, Data Analytics and Predictive Analytics.

The program will be delivered in a face-to-face format. Instructors will facilitate the in-class program 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. Given the complexity of the program content, the instructors, data lab-coaches and an online tutor will support learners academically.

Two pre-requisite courses will be offered for individuals without recognized academic courses in the areas of the statistics and introductory computer programming. These pre-requisite courses will be 3.0 units in value and designed to be delivered online.

Completion of the two pre-requisite courses is not required to receive the Certificate in Big Data Analytics.

| ii. Learning Objectives: | The Big Data Analytics program provides an opportunity for individuals seeking to enter into the field of big data, data analytics and predictive analytics to enhance their knowledge and skills required for employment and professional certification. Program objectives are based primarily on INFORMS’ seven knowledge domains. Specifically, successful participants will be able to: • Identify a business problem and determine if, and how, an analytics solution is applicable; |

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Translate a business problem into an analytics problem;
Propose, and refine, analytical solutions to business problems;
Collect, analyze, interpret, and share data;
Identify relationships in data;
Select problem solving techniques and software tools to test analytical solutions;
Employ common industry software tools;
Identify, test, and evaluate model structures to apply to solve a business problem;
Estimate the management of the model life cycle in terms of short, long term benefits to a business

The following objectives will be threaded within each course: Students will be able to:

Demonstrate an awareness of ethical practices and professional standards applicable to the field of data analytics;
Exemplify the skills, attitudes and behaviours required to work and collaborate with people and develop personal management skills;
Employ effective communication practices

iii. Meeting Learning Objectives:

The Big Data 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:

In compliance with the Certificates and Diploma, admission policy from Undergraduate Council, students who wish to enter the Certificate in Big Data Analytics should meet the following requirements based on their education and work experience:

1) Equivalent academic experience, such as a university degree/college diploma with relevant coursework in mathematics, computer science, science, engineering, or business with a minimum cumulative GPA of C-, or better;
2) OR, relevant professional experience (a minimum of 3 years), or related professional certification in the field of data analytics;
3) OR, 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. Prospective students must contact the Program Manager for consultation and evaluation of past education and professional experience).

Program Pre-requisites:
In order to ensure that learners have the basic capabilities necessary to be successful in the program’s academic courses, it is recommended that learners have the following pre-requisite knowledge, skills, or course completion:

- Knowledge and skills in statistics, and mathematical literacy;
- Knowledge of programming language (such as C or Java) and/or scripting language (such as Matlab or Python)
- Proficiency with computer program applications, such as Excel and Access
- 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

CCE will determine if a formal application or other tool will be put in place to assist with the assessment of students’ pre-requisite knowledge.

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, and will be posted to CCE’s program webpages.

vi. Program Completion Requirements:
Students must complete all 6 courses (5 core courses + capstone project course; 18 units) in order to qualify for the Certificate in Big Data Analytics.

viii. Program Delivery Format:
All program courses will be delivered in-class. The final capstone course will permit students to work independently on their project with an expectation of attending scheduled meetings with an instructor, or project mentor as well as small group tutorials.

In-class delivery activities will include instructor lecture and/or presentations, group discussions, and practical application activities. Courses will be scheduled for 3-hour duration, with 1.5
hours spent with the instructor, and 1.5 hours working on activities via a digital data laboratory. Data lab coaches will be available to support students during the laboratory hours.

<table>
<thead>
<tr>
<th>ix. Student Evaluations (Grading Process):</th>
<th>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.</th>
</tr>
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<tbody>
<tr>
<td>x. Course Evaluation:</td>
<td>For each course, students will complete an evaluation to assess content, delivery, materials, method of evaluation and instruction.</td>
</tr>
<tr>
<td>xi. Course Instruction:</td>
<td>Instructors for courses will be selected from a pool of qualified external professionals. In compliance with <em>McMaster’s Senate and Undergraduate Council Guidelines for Certificates and Diplomas</em>, 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.</td>
</tr>
<tr>
<td>xii. Credit Towards Degree Programme Studies:</td>
<td>The academic credit courses included in a certificate programme can be used for credit towards degree programme studies in accordance with the normal academic rules specified by the Faculty offering the degree.</td>
</tr>
<tr>
<td>xiii. Program Advanced Standing:</td>
<td>Upon enrolment to the program, a student may receive up to a maximum of 6 units of advanced credit. The courses used for such credit must be equivalent to the McMaster courses that they replace; specifically,   - Courses must have an 80% content/curricula overlap and a similar number of equivalent to classroom hours;   - Courses must be listed on an official transcript from an accredited academic institution with a grade; and,   - Courses must be taken within the last 3 years</td>
</tr>
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</table>

**D. Statement of Financial Viability:**

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).

*Lorraine Carter, Director, Centre for Continuing Education, January 2017*
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; course are taught according to program requirements and standards
- Marketing and Promotions

The DeGroote School of Business

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.

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

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Required/Elective</th>
<th>Academic Units</th>
<th>Proposed Term</th>
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</thead>
<tbody>
<tr>
<td>Data Analytics &amp; Modelling</td>
<td>Required</td>
<td>3.0 units</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Big Data Analytics</td>
<td>Required</td>
<td>3.0 units</td>
<td>Fall 2017</td>
</tr>
<tr>
<td>Data Management</td>
<td>Required</td>
<td>3.0 units</td>
<td>Winter 2018</td>
</tr>
<tr>
<td>Predictive Modelling &amp; Data Mining</td>
<td>Required</td>
<td>3.0 units</td>
<td>Winter 2018</td>
</tr>
<tr>
<td>Big Data Programming</td>
<td>Required</td>
<td>3.0 units</td>
<td>Spring 2018</td>
</tr>
<tr>
<td>Big Data Analytics Capstone Course</td>
<td>Required</td>
<td>3.0 units</td>
<td>Spring 2018</td>
</tr>
</tbody>
</table>

Notes: Courses may be taken in any order; however, the following order is recommended:

- Data Analytics & Modelling should be the first course completed;
- Data Analytics & Modelling, and Big Data Analytics may be taken at the same time;
- Data Management and Predictive Modelling & Data Mining should be taken before Big Data Programming;
- Students may enrol in the Capstone course while completing their fifth and final course.
Course Descriptions:

Pre-requisite courses:

I) Foundations of Computer Programming (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.

II) Statistics (3 units)

Understanding the fundamentals of statistical methods and analysis is a necessary skill for individuals in a variety of employment sectors. This course provides students with the opportunity to understand and apply statistical concepts to practical problems. Topics include the organization and graphing of data, probability models, distributions, intervals, hypothesis testing, statistical process control, and more.

Pre-requisite(s): Algebra and computational skills

Certificate Required Courses:

I) Data Analytics & Modelling (3 units)

The course focuses on the fundamental principles of big data, data analytics and data modelling. Students will learn how big data analytics has evolved to impact various industries and business sectors. 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.

Topics in the course are selected to meet the following INFORMS outcomes:

- 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
- Define an initial set of business benefits
- Obtain stakeholder agreement on the problem statement

II) Big Data Analytics (3 units)

Building on the fundamental principles of data analytics, the course content progresses to identifying and using common analytics tools to process big data.
Students will work on the identification of model structure, the processes to run, evaluate and calibrate model and data structures using applicable industry standards and software tools.

Topics in the course are selected to meet the following INFORMS outcomes:
- Use data analytics tools and technologies such as Hadoop, SQL, etc.
- Identify available problem solving approaches (methods)
- Select software tools
- Test approaches (methods)
- Select approaches (methods)

III) Data Management (3 units)
The course explores the importance of data management in term of the acquisition, storage, sharing, validation and accessibility of data for solving a business problem. An examination of Database Management Systems, database architectures, and the administrative processes that guide the data life cycle will be a focus of the course.

Topics in the course are selected to meet the following INFORMS outcomes:
- Identify and prioritize data needs and sources
- Acquire data
- Harmonize, rescale, clean and share data
- Identify relationships in the data
- Document and report findings (e.g. insights, results, business performance)
- Refine the business and analytics problem statements

IV) Predictive Modelling & Data Mining (3 units)
The course will introduce predictive modelling techniques as well as related statistical and visualization tools for data mining. The course will cover common machine learning techniques that are focused on predictive outcomes. Students will learn how to evaluate the performance of the prediction models and how to improve them through time.

Topics in the course are selected to meet the following INFORMS outcomes:
- Statistical model building
- Identify model structures
- Run and evaluate the models
- Calibrate models and data
- Integrate the models
- Document and communicate findings (including assumptions, limitations, and constraints)
V) Big Data Programming (3 units)
Developing solutions for extracting and analysing big data sets using Hadoop and Spark is the focus of the course. Students will build upon the knowledge and skills of earlier program courses to analyze large-scale network data and to problem solve potential solutions.

Topics in the course are selected to meet the following INFORMS outcomes:
- Identify and prioritize data needs and sources
- Acquire data
- Harmonize, rescale, clean and share data
- Identify relationships in the data
- Identify model structures
- Run and evaluate the models
- Calibrate models and data
- Integrate the models

VI) Big Data Analytics Capstone Course (3 units)
The course provides students with a real world business problem/project in order to apply analytics models, methodologies and tools learned in the program. Faculty mentors will work with students to ensure the capstone project reflects, and encompasses, best practices for big data analytics and project management.

Topics in the course are selected to meet the following INFORMS outcomes:
- Identify and prioritize data needs and sources
- Identify available problem solving approaches (methods)
- Select software tools
- Identify relationships in the data
- Develop a proposed set of drivers and relationships to outputs
- State the set of assumptions related to the problem
- Define key metrics of success
- Document and report findings (e.g. insights, results, business performance)
- Perform business validation of the model
- Deliver report with findings
DATE: February 2, 2017

TO: Certificate and Diploma Committee, Undergraduate Council and Senate

FROM: Dr. Emad Mohammad, Associate Dean (Academic), DeGroote School of Business

RE: Proposal for Certificate in Big Data Analytics, Centre for Continuing Education

I have reviewed the Big Data Analytics program submission presented by the Centre for Continuing Education (CCE). I have determined that it meets 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 Dr. Elkafi Hassini, Professor, DeGroote School of Business. 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 Big Data Analytics to meet the needs of people wanting to work in this field. 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. Emad Mohammad, B.A., M.B.A., Ph.D.

Cc: Lorraine Carter, Director, Centre for Continuing Education
Dr. Elkafi Hassini, Professor, DeGroote School of Business
A. Department & Program Information:

<table>
<thead>
<tr>
<th>Program Name:</th>
<th>Foundations in Canadian Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Designation:</td>
<td>Certificate of Completion</td>
</tr>
<tr>
<td>Name of Representative:</td>
<td>Nancy McQuigge</td>
</tr>
<tr>
<td>Effective Date:</td>
<td>May 1, 2017</td>
</tr>
<tr>
<td>Date of Submission:</td>
<td>February 14, 2017</td>
</tr>
</tbody>
</table>

B. Faculty Statement (Required):

Refer to attached letter from Faculty Reviewer, Dr. Lynn Martin.

C. Academic Merit (Complete all fields; write “not applicable” as needed):

| i. Program Overview: | The proposal is to establish a Certificate of Completion program for three health preparatory courses. The Foundations in Canadian Health is a Certificate of Completion program consists of three, 3-unit academic courses. McMaster University’s Senate has approved these courses as part of the Health Information Management and Health Informatics programs. The courses are:  
|                     |  - Understanding the Canadian Health Care System (3 units)  
|                     |  - Anatomy and Physiology (3 units)  
|                     |  - Medical Terminology (3 units)  
|                     | These three courses will be packaged together to offer individuals with little or no health studies education with a foundational basis for future studies in health based programs. The program may be promoted to internationally trained professionals who require some Canadian health care education. There is potential to attract individuals who require academic upgrading, or refreshing of past courses in health care. |
### ii. Learning Objectives:
Upon completion of all three courses, students will be able to:
- Describe the Canadian health care system; its governance, its regulation and operation, its current trends and issues
- Demonstrate knowledge of the levels and continuum of care within Canada
- Identify structural units of the body including cells, tissues, organs and systems
- Apply biomedical terms commonly used in health care documentation
- Apply medical abbreviations and acronyms used in health care documentation

The following objectives will be threaded within each course:
Students will be able to:
- Demonstrate an awareness of ethical practices and professional standards applicable to the field of health care;
- Exemplify the skills, attitudes and behaviours required to work and collaborate with people and develop personal management skills;
- Employ effective communication practices

### iii. Meeting Learning 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:
Courses will be open enrolment.

### v. Program Pre-requisites (if applicable):
Not applicable.

### vi. Program Completion Requirements:
To earn a Certificate of Completion, students must complete all three courses.

### viii. Program Delivery Format:
All courses will be delivered online using McMaster University’s Learning Management System.
<table>
<thead>
<tr>
<th>ix. Student Evaluations (Grading Process):</th>
<th>Each course will include several evaluation components. The evaluations will consist of quizzes, assignments, case studies, presentations, 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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>x. Course Evaluation:</td>
<td>For each course, students will complete an evaluation to assess content, delivery, materials, method of evaluation and instruction.</td>
</tr>
<tr>
<td>xi. Course Instruction:</td>
<td>Instructors for courses will be selected from a pool of qualified external professionals. 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 must have a Master’s Degree (or equivalent) and significant professional experience and teaching within the field.</td>
</tr>
<tr>
<td>xii. Credit Towards Degree Programme Studies:</td>
<td>The academic credit courses included in this Certificate of Completion programme can be used for credit towards degree programme studies in accordance with the normal academic rules specified by the Faculty offering the degree.</td>
</tr>
<tr>
<td>xiii. Program Advanced Standing:</td>
<td>Transfer credits are not accepted for this program.</td>
</tr>
</tbody>
</table>

**D. Statement of Financial Viability:**

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).

*Lorraine Carter, Director, Centre for Continuing Education, January 2017*

**E. Statement of Administrative Responsibilities:**

The administrative responsibilities for the revised program have not changed from the original program submission. 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; course are taught according to program requirements and standards
- Marketing and Promotions

*The 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.

### F. Listing of Courses

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Academic Units</th>
<th>Scheduled Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTH 100 Understanding the Canadian Health Care System</td>
<td>3 units</td>
<td>Spring 2017</td>
</tr>
<tr>
<td>HTH 200 Medical Terminology</td>
<td>3 units</td>
<td>Spring 2017</td>
</tr>
<tr>
<td>HTH 300 Anatomy/Physiology</td>
<td>3 units</td>
<td>Spring 2017</td>
</tr>
</tbody>
</table>

Course Descriptions:

**I) HTH 100: Understanding the Canadian Healthcare System**

*Course Description:*

This course presents an overview of the Canadian health care system in terms of its history, health care governance and related provincial and federal regulations and legislation. The course will examine how Canada’s healthcare system is organized, regulated, and managed. The course will present the different levels of care found in the health care system, and discuss how information is used and shared within the different levels. Application activities will provide students with the opportunity to analyze the various components of the health care system, and develop an understanding how different professional roles fit within this large and complex system. This course is geared towards individuals with no previous health education, or professional experience within the Canadian health care sector.

**II) Medical Terminology**

*Course Description:*

This course...
This course is designed to familiarize the student with the relevant clinical terminology to work successfully as part of the health care team. By completion of this course, the student will gain the requisite knowledge of medical terminology commonly used in the health care environment. Specific topics of focus include the origins and composition of medical words (roots, prefixes, suffixes, abbreviations) as they relate to major body systems, common disease terms, diagnostic tests and clinical procedures. This course is geared towards individuals with no previous health education, or professional experience within the Canadian health care sector. This course is designed for individuals with limited, or no, educational background in the healthcare sector, or study of anatomy, physiology and pathology.

III) Anatomy & Physiology

Course Description:
This comprehensive course provides students with an understanding of the anatomy and physiology of the human body. Topics include an overview of the human body in health and disease, Skeletal System, Muscular System, Cardiovascular System, Lymphatic and Immune System, Respiratory System, Digestive System, Urinary System, Nervous System, Special Senses, Integumentary System, Endocrine System, Reproductive System. This course is designed for individuals with limited, or no, educational background in anatomy, physiology and pathology.
DATE: February 2, 2017  
TO: Certificate & Diploma Committee  
FROM: Dr. Lynn Martin, Assistant and Teaching Professor, School of Nursing  
RE: Evaluation of the Foundations of Canadian Health Care, Certificate of Completion Program

I have reviewed the submission document for the Foundations of Canadian Health Care, Certificate of Completion program to be offered as part of the professional development offerings for the Centre for Continuing Education (CCE).

My examination of the program overview document, course descriptions, instructional and evaluation methods indicate that the program's components are of appropriate intellectual rigor for a 3-unit, undergraduate course. The students taking the program will meet the minimum requirements set out in the Policy on Certificates and Diplomas for Undergraduate Council – Certificate of Completion.

Sincerely,

[Signature]

Dr. Lynn Martin, BScN, MScN, EdD

Cc: Lorraine Carter, Director, Centre for Continuing Education  
   Dan Piedra, Assistant Director, Centre for Continuing Education  
   Dr. Alan J. Neville, Associate Dean, Education, Faculty of Health Sciences
MEMORANDUM

Date: January 10, 2017

To: Certificate and Diploma Committee

From: Nancy Buschert

Re: McMaster Certificate of Completion – Strategic Leaders Program, Program Name Changes

The purpose of this memo is to advise the Certificate and Diploma Committee and Undergraduate Council, pursuant to clause 6.3 in the University’s Policy on Certificates & Diplomas, that the Centre for Continuing Education (CCE) issues a Certificate of Completion to participants who complete requirements of the following McMaster University corporate training program (see below):

<table>
<thead>
<tr>
<th>Program</th>
<th>In-class contact hours</th>
<th>Pre-work estimated time</th>
<th>Criteria for completion</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Leaders Program</td>
<td>Approximately 45 hours</td>
<td>Approximately 25 hours</td>
<td>Attendance, maximum 1 missed class, participation, completion of multi-rater assessment, short assignments, experiential community engagement activity</td>
<td>Members of TMG (The Management Group), MUALA (McMaster University Academic Librarians Association), Faculty leaders, Unifor members – anyone performing in a “strategic leader” role within the University.</td>
</tr>
</tbody>
</table>

Participants attend classroom sessions and are responsible for completing varying levels of pre-work in advance of the sessions. The program is facilitated by experienced instructors with expertise in areas such as leadership development, communications, community engagement, creativity and innovation, change management, employee engagement, and creating healthy workplaces. In addition, a variety of McMaster senior leaders and community leaders serve as guest lecturers throughout the program.
Participants are assessed on a “completed/did not complete” basis depending upon criteria noted in the grid above. A sample program schedule and overview is attached.

In addition to the above, two existing McMaster custom programs that the Certificate & Diploma Committee was advised about in fall of 2014 are undergoing name changes. The changes are necessary in order to align with McMaster’s new leadership framework. Effective winter 2017:

- The Personal Leadership Program is now called Personal Leaders Program.
- The Emerging Leaders Program is now called Knowledge Leaders Program.

Please contact me with any questions.
McMaster’s Strategic Leaders Program: A New, Bold, and Different Way of Thinking about Leadership

Building on McMaster’s six leadership capabilities, the program integrates three key themes: Leading Self, Leading Others, and Leading at the University. Participants will gain an awareness of their current capabilities and work to develop them to more effectively lead others and ultimately position themselves to grow their careers within McMaster.

The curriculum is based on current literature drawing from diverse sectors, research, and best practices. A variety of learning methods are incorporated including a McMaster specific multi-rater leadership assessment, experiential and self-reflection activities including journaling, small group work, case studies, and more. Activities to support learning application include coaching, mentoring, small group activities, and experiential learning in the community. Examples of leadership, best practices, and guest speakers from McMaster University and the Hamilton community will be integrated throughout the program. An online component will enable participants to stay connected between sessions and complete pre-assignments.

Program Learning Outcomes

Through the program, the participant will be able to:

- Describe the Strategic Leader Capabilities and demonstrate growth in relation to the capabilities from program beginning to end
- Understand his or her own personal leadership style and leverage it to effectively interact with others and develop teams
- Participate in learning based on lived experience and implement knowledge, skills, and attitudes acquired through experiential activities in the workplace
- Strengthen existing and develop new networks that will enhance cross-organization collaboration and cooperation
- Experience increased comfort and skill in practising leadership consistently and successfully across the University
- Connect leadership practice and behaviours to support and advance University strategy

New, Bold, and Different

Elements that make this program new, bold, and different from past programming include the following:

- **New Facilitator Format:** Multiple facilitators and guest speakers from diverse sectors will present ideas and lead discussions. A lead integrator will ensure continuity and threading of themes throughout the program.
- **Online/Blended Experience:** Avenue2Learn will be used to expose learners to online learning and enable engagement between sessions.
- **Community Focus:** Drawing on the expertise of community leaders, sessions will be hosted at a variety of McMaster and Hamilton locations, and participants will engage in a community-focused, experiential initiative.
- **Interdisciplinary Approaches:** The program will incorporate articles and resources from the literatures of the humanities, social sciences, health, education, and business. An interdisciplinary lens will be used in discussions and activities.
- **Capabilities Assessment:** Participant completion of a McMaster-specific multi-rater tool will generate feedback related to the leadership capabilities and McMaster values.
- **Dynamic Curriculum:** Compelling and thought-provoking stories, narratives, and case studies that relate to McMaster and Hamilton will be part of the program. Participants will analyze situational implications for the University and experience diverse leadership lessons.
- **New Perspectives:** Guest facilitators and speakers will challenge participants to view their roles and work differently.
- **Senior Leader Connections:** The program includes opportunities for dialogue with members of PVP, business leaders, and community leaders.
Credential

A McMaster Certificate of Completion will be awarded to participants who attend all sessions, participate in online discussions, complete assignments, and meet other in-class requirements.

This program is funded by McMaster University. Strategic Leaders Program is delivered by the Centre for Continuing Education.

Learning and Development Programming Partners:

| Centre for Continuing Education | DeGroote Executive Education | Human Resources Services |
# Strategic Leaders Program – 2017 Schedule

Schedule is subject to change. Dates or topics may need to be altered due to unforeseen conflicts with speakers and/or locations. Sessions will be held at a variety of McMaster and Hamilton locations.

<table>
<thead>
<tr>
<th>Day</th>
<th>Date - 2017</th>
<th>Theme/Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Wed. March 8</td>
<td>Leadership Foundations &amp; Self-awareness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Welcome &amp; Introductions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Experiential Learning: 100 in 1 Day Hamilton</td>
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<tr>
<td></td>
<td></td>
<td>• Values Driven Leadership</td>
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<tr>
<td></td>
<td></td>
<td>• The Art of Seeing</td>
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<tr>
<td>Day 2</td>
<td>Wed. March 29</td>
<td>Leadership Foundations &amp; Leadership Brand</td>
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<td></td>
<td></td>
<td>• Neuro-Leadership</td>
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<tr>
<td></td>
<td></td>
<td>• Building a Personal Leadership Brand</td>
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<tr>
<td></td>
<td></td>
<td>• Panel: Diversity, Bias &amp; Respect</td>
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<tr>
<td></td>
<td></td>
<td>• Leadership Best Practices &amp; Trends</td>
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<tr>
<td>Day 3</td>
<td>Thurs. April 20</td>
<td>Communicating, Collaborating &amp; Coaching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Collaborative Leadership: Community Engagement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Creating Great Partnerships &amp; Building a Leadership Network</td>
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<tr>
<td></td>
<td></td>
<td>• The Coach Approach: Grow Model</td>
</tr>
<tr>
<td>Day 4</td>
<td>Wed. May 10</td>
<td>Leadership Resiliency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Leading Change</td>
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<tr>
<td></td>
<td></td>
<td>• Multi-rater Group Debrief</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Strategies for Resiliency</td>
</tr>
<tr>
<td>Day 5</td>
<td>Wed. May 18</td>
<td>Creative Thinking &amp; Innovation</td>
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<tr>
<td></td>
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<td>• Intrapreneurship, Innovative Risk Taking</td>
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<td></td>
<td></td>
<td>• Failing Better</td>
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<tr>
<td></td>
<td></td>
<td>• Design Thinking Simulation</td>
</tr>
<tr>
<td>Day 6</td>
<td>Wed. May 31</td>
<td>Strategic Thinking: Connecting Systems &amp; Building for the Future</td>
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<tr>
<td></td>
<td></td>
<td>• Presenteesism: Engagement Best Practices</td>
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<tr>
<td></td>
<td></td>
<td>• Case Clinics: Planning for the Future at McMaster</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Great Ideas!</td>
</tr>
<tr>
<td>100 in 1 Day Hamilton</td>
<td>Sat. June 3</td>
<td>Community Engagement Experiential Activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <em>Information will be provided on Day 1. Participants will lead or co-lead an activity, event or prepare something to be displayed.</em></td>
</tr>
<tr>
<td>Day 7</td>
<td>Wed. June 21</td>
<td>Creating a Healthy Workplace Culture</td>
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<tr>
<td></td>
<td></td>
<td>• Mental Health Awareness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Audit/Checklist for Engaged, Healthy Workplace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Art of Seeing Revisited</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Graduation!</td>
</tr>
</tbody>
</table>
DATE: February 6, 2017

TO: Certificate and Diploma Committee

FROM: Lorraine Carter
       Director

RE: FYI Closure of Web Analytics Certificate of Completion

This memo is for informational purposes only.

In November 2012, The Centre for Continuing Education submitted a memo for approval of a Web Analytics Certificate of Completion program.

This program is now being closed as the content is substantially covered in the recently approved Digital Marketing Certificate, submitted October 2016.

There are currently no students enrolled in this program that would be impacted by this closure, and consequently, this closure is effective immediately.
FACULTY OF BUSINESS

UNDERGRADUATE CURRICULUM REPORT TO UNDERGRADUATE COUNCIL FOR THE 2017-18 CALENDAR FEBRUARY 28, 2017
This report highlights substantive changes being proposed to the undergraduate curriculum. For a complete review of all changes, please refer to the Faculty of Business Curriculum Report for Changes to the 2017-18 Undergraduate Calendar located electronically at: http://ug.degroote.mcmaster.ca/business-ugc-submission-2017/

NEW PROGRAMS
NONE

PROGRAM CLOSURES
NONE

MAJOR REVISIONS
NONE
This report highlights substantive changes being proposed to the undergraduate curriculum. For a complete review of all changes, please refer to the Faculty of Business Curriculum Report for Changes to the 2017-18 Undergraduate Calendar located electronically at: http://ug.degroote.mcmaster.ca/business-ugc-submission-2017/

SUMMARY

NEW COURSES

Level I Courses for the IBH Program
- IBH 1AA3 - Financial Accounting
- IBH 1AB3 – Perspectives on Canadian Business
- IBH 1BA3 – Leadership Coaching 1
- IBH 1AC3 – Introduction to Language and Society
- IBH 1AD3 – IBH in the Community
- IBH 1BB3 – Insight and Inquiry: Questions to Change the World
- IBH 1BC3 – Fundamentals of Ethics
- IBH 1BD3 – Introduction to Peace Studies for IBH

COMMERCE 4SM3 – Sports Management

COMMERCE 4BX3 – Special Topics in Human Resources and Management

CHANGES TO EXISTING COURSES

Commerce 3MC3 – Applied Marketing Management
- Change: Removal of reference to the “major field project” in the course description

Commerce 4SD3 – Commercial Law
- Change: Prerequisites changed to allow students in the Justice, Political Philosophy, and Law program to enrol
CALENDAR TEXT CHANGES

- Changes to update language and policies to include the Integrated Business & Humanities program as a DeGroote Undergraduate Business Program
- Changes to align description of Specialized Minor in Commerce for Students Completing a Single Honours B.A in Humanities with the Faculty of Humanities calendar text
NEW COURSES

IBH 1AA3 - Financial Accounting

Description: This course will help students understand the purpose of accounting, its implementation, its usefulness for decision making, its effect on behaviour and contracts, and its surrounding controversies over accounting methods.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in Commerce 1AA3

IBH 1AB3 – Perspectives on Canadian Business

Description: This course will examine how the business environment can affect Canadian organizations and their stakeholders. Functional areas of business will be introduced in order to understand the basics of management. The course will introduce students to business principles, techniques, and terms within both the Canadian and global context. This will include a discussion on the business environment, management theory, and the introduction of functional areas of business. The overall objective is that upon completion, students will have a foundation for future business courses.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in LINGUIST 1ZZ3 or 2S03

IBH 1AC3 – Introduction to Language and Society

Description: This course equips students with basic linguistic terminology and necessary tools to examine the relationship between language and society. Topics covered include linguistic variation (regional, social, situational), language and gender, language and disadvantage/power, multilingualism, language change, pidgin and creole languages.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in LINGUIST 1ZZ3 or 2S03

IBH 1AD3 – IBH in the Community

Description: As community engagement is a key component of the IBH program, this course will introduce students to the politics, processes and functioning of communities and provides foundational knowledge and skills for effective and principled community engagement. As an IBH student, you will be
a member of many communities - your workplace, your professional group, your neighborhood, your city, your country, the world. In the future, whether as a business professional, humanist or health/social services provider, you will be called upon to participate in community activities and community change.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in CMTYENGA 2A03

**IBH 1BA3 – Leadership Coaching 1**

Description: This course provides the foundations for building the critical competencies in Managing (“Doing things Right”) to Leading (“Doing the Right Things”). Through in-class group coaching, students will develop and practice the successful thinking and associated behaviours required to grow Emotional Intelligence in the four primary components of Self-Awareness, Self-Management, Social Awareness, Social Management. The coaching model of “What?” (Understanding the critical theoretical foundations), “So What?” (Specific meaning/impacts for individual students), “Now What?” (action steps for application to self and other), provides the format for teaching and learning.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in Commerce 1BA3 or Commerce 4BN3

**IBH 1BB3 – Insight and Inquiry: Questions to Change the World**

Description: Effective leaders are able to formulate creative questions, recognizing that how we ask a question determines the nature of the answers available to us. Working in the technology-enriched environment of an active learning classroom, students will focus on how to ask good questions about specific issues and how to use those questions to interrogate evidence in different ways.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in HUMAN 1QU3

**IBH 1BC3 – Fundamentals of Ethics**

Description: An introduction to ethical theory and to its application to contemporary moral problems. Topics covered may include the nature of morality and its relationship to culture, religion, and self-interest; the strengths and weaknesses of normative ethical theories, including utilitarianism,
Kantianism, virtue ethics and social contract theory; and ethical issues raised by war, torture, world hunger, assisted dying, affirmative action, corporations, and the environment.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in PHILOS 2YY3

IBH 1BD3 – Introduction to Peace Studies for IBH

Description: An introduction to the applications of peace research to business and the “Triple Bottom Line” (economics, ecology, ethics), focusing on the concepts of peace, war, security, conflict, violence and nonviolence, and examining opportunities for active peace-making and conflict transformation in daily life and in business.

Prerequisites: Registration in Level 1 of the Integrated Business and Humanities Program
Antirequisites: Not open to students with credit or enrolment in PEACEST 1A03

COMMERCE 4SM3 – Sports Management

Description: This course emphasizes management principles as they relate to the business of sports. Students are introduced to the following sports management issues: marketing and advertising of sports events and brands, understanding of legal and ethical issues in sport, media and promotion, sponsorship and event management, sports equipment and product management, recreational sports management and other related areas. There is an emphasis on developing and improving communication skills as much of the course content will be case-based. An overview is provided with regard to career opportunities in the sports management field.

Prerequisites: Registration in Level 4 or above

COMMERCE 4BX3 – Special Topics in Human Resources and Management

Description: Various topics in Human Resource Management are considered. They will vary depending upon recent developments in the field and upon the research interests of the instructor. The topics to be included are announced at the time of course offering. For information on course offerings, please refer to the School of Business web site at http://ug.dgroote.mcmaster.ca/course-outlines/ or contact the Student Experience Academic Office, DSB 112.

Prerequisites: COMMERCE 1BA3 (or 2BA3); and registration in level III or above in any Honours Commerce, Engineering and Management program, or Level IV of the Commerce program.
**Changes to Existing Courses**

**Commerce 3MC3 – Applied Marketing Management**

Proposed Change: Removal of reference to the “major field project” in the course description

Rationale: The Marketing Area is discussing the current course structure and requires flexibility. Even without the line in question, it is possible/feasible for the course to be taught with a major field project (where student teams work with companies) as a critical part of the course.

Updated Text –

Builds upon material in COMMERCE 2MA3 but is more applied in nature and covers the 4 P’s in greater depth. It also has a heavier industrial and service sector component, and relies more on practical, real world cases. A major field project (student teams working with companies) is a critical part of the course.

**Prerequisite(s):** COMMERCE 2MA3 and registration in any Commerce, Engineering and Management or four or five-level non-Commerce program.

**Commerce 4SD3 – Commercial Law**

**Proposed Change:** Addition to Prerequisites to allow students in the Justice, Political Philosophy, and Law program to enrol

Rationale: This course has had strong demand from students in the Justice, Political Philosophy, and Law Program. Commercial Law is a good compliment to their current studies and ambitions.

Updated Text –

This course emphasizes those areas of law which are most relevant to business activity. Particular attention is given to the law relating to contracts and business organizations. Other areas of study include: sources of law, the judicial process, real and personal property, torts, agency, credit and negotiable instruments.

**Prerequisite(s):** Registration in any Commerce or Engineering and Management program; or Level IV of the Justice, Political Philosophy, and Law Program.
Program Notes

1. Students cannot take elective work until Level III of the program.
2. Students have only one opportunity to be reviewed for entry to Level II. Other options may be pursued through the Student Experience - Academic Office (DSB-112).
3. To be considered for entry into Level II of the IBH Program, students must have met all of the following:
   - achieved a cumulative GPA of at least 5.0 on a minimum of 24 units of the required course work for Level I (on first attempts only)
   - cannot have failed more than one required course. These students must successfully complete the failed course at the earliest possible opportunity or they will not be able to continue in the program.
4. Students are responsible for ensuring that their course selection is meeting the requirements of their degree.

Level I: 30 units
Students admitted to the Integrated Business & Humanities Program must complete 30 units as follows:

24 units
- IBH 1AA3 - Financial Accounting
- IBH 1AB3 – Perspectives on Canadian Business
- IBH 1BA3 – Leadership Coaching 1
- IBH 1AC3 – Introduction to Language and Society
- IBH 1AD3 – IBH in the Community
- IBH 1BB3 – Insight and Inquiry: Questions to Change the World
- IBH 1BC3 – Fundamentals of Ethics
- IBH 1BD3 – Introduction to Peace Studies for IBH

6 units
- ECON 1B03 - Introductory Microeconomics
- ECON 1BB3 - Introductory Macroeconomics

Level II: 30 units

30 units
- IBH 2AA3 – Introduction to Marketing
- IBH 2AB3 – Information Systems in Management
- IBH 2AC3 – Talent Management
- IBH 2AD3 – Applied Statistics for Business
- IBH 2AE3 – Critical Thinking
- IBH 2BA3 – Managerial Accounting
- IBH 2BB3 – Introduction to Finance
• IBH 2BC3 – Production and Operations Management
• IBH 2BD3 – Moral Issues
• IBH 2BE3 – Business History

Level III: 30 units

24 units
• IBH 3AA3 – Management Skills Development
• IBH 3AB3 – Applied Marketing Management
• IBH 3AC3 – Corporate Finance
• IBH 3AD3 – Cross-Cultural Communication
• IBH 3BA3 – Third Year UG Entrepreneurship
• IBH 3BB3 – Strategic Philanthropy and Leadership
• IBH 3BC3 – Poverty, Privilege and Protest in Canadian History
• IBH 3BD3 – Interpersonal Communication

6 units
• Electives from Commerce courses

Level IV: 30 units

18 units
• IBH 4AA6 - Leadership
• IBH 4AB6 – Social Entrepreneurship
• IBH 4AC6 – Global Perspective and Community Engagement

12 units
• Electives from Commerce courses
Faculty of Business Degree Programs

HONOURS BACHELOR OF COMMERCE PROGRAM
The Honours Bachelor of Commerce (H.B.Com) requires the completion of 120 units, including specific courses from each level of the program.

The School of Business offers a four year Honours Commerce program, which leads to the Honours Bachelor of Commerce (Honours B.Com.) degree. The Honours Bachelor of Commerce allows substantial concentration in business subjects beyond the essential core of studies. Students must apply and qualify for the Honours Bachelor of Commerce program. Please see the admission requirements below to qualify for the Honours Bachelor of Commerce program listed for each year of entry.

In addition, the School of Business and the Faculty of Engineering offer nine five-level joint programs for the Bachelor of Engineering and Management (B.Eng.Mgt.) degree.

The Commerce Programs

BACHLOR OF COMMERCE PROGRAM
The Bachelor of Commerce program also requires the successful completion of 120 units, including specific courses from each level of the program. The Bachelor of Commerce program provides students with the same core business courses as the Honours Bachelor of Commerce, but focuses elective work on courses outside of the business discipline and Faculty.

INTEGRATED BUSINESS AND HUMANITIES PROGRAM
The Integrated Business & Humanities program also leads to an Honours Bachelor of Commerce degree. Students will be exposed to a variety of learning opportunities via coursework and co-curricular activities, with an emphasis on responsible leadership and management tactics for the changing global economy. The program also focuses on community engagement and sustainable business practices. The Integrated Business & Humanities program is limited enrolment program and students begin the program in their first year of studies.

ENGINEERING AND MANAGEMENT PROGRAMS
In addition, the School of Business and the Faculty of Engineering offer nine five-level joint programs for the Bachelor of Engineering and Management (B.Eng.Mgt.) degree.

Change of Program
Business students may be permitted to transfer between programs, or students in other Faculties may apply to transfer to a program in the Faculty of Business, provided they have obtained a GPA of at least 5.0 and have completed the necessary admission requirements as described on the Faculty undergraduate website. However, the Integrated Business & Humanities program does not accept transfer student into the program.

The Faculty of Business will include the grades of all courses attempted (including failures) in the calculation of the GPA.
Commerce Internship Program
This program is designed to provide students with an opportunity to engage in a career-oriented work experience with one host employer, following their third year of study, for a period of 12 - 16 months. Students compete for opportunities with participating companies through an application and interview process with employers directly. Applications to participate in the internship program will be accepted in the Fall semester (deadlines will be communicated in the Undergraduate Faculty of Business Bulletin and on the website for DeGroote Career and Professional Development services). As a pre-requisite to participating in the internship program, students must register in and pass COMMERCE 2IN0 (formerly 3IN0), a comprehensive, non-credit, ten-hour career development course. Only students in good standing with a minimum cumulative GPA of 7.0 at the time of application, who have completed Level II and have "passed" Commerce 2IN0 (formerly 3IN0) and completed the mandatory workshops, will be eligible to participate in the Commerce Internship Program. Should a student's academic standing fall below a cumulative GPA of 7.0, or is no longer in good standing during the recruitment cycle, the student may be removed from CIP. Due to legal considerations, only students who are able to work full-time in Canada will be eligible to participate. Upon completion of the internship, students must return to campus full-time to complete their degree program.

After securing an internship, students must successfully complete a minimum twelve months of work experience, obtain satisfactory employer evaluation(s) and submit a detailed work term report prior to their return to campus. All internship students will be enrolled in Commerce 4IA0 (Internship Program: 12 Months) and/or Commerce 4IB0 (Internship Program: 16 months). Upon successful completion of the internship requirements, a notation including the name of the employer and dates of employment will be added to the student transcript. Commerce 4IA0 and Commerce 4IB0 will be evaluated as a pass/fail.

For more information, please contact Student Experience - Career & Professional Development in DSB-112 or at cip@mcmaster.ca.

Exchange Programs
There are a number of official exchange programs offered to undergraduate students registered in the School of Business. The countries involved include: Australia, China, Denmark, England, France, Germany, Japan, the Netherlands, New Zealand, Norway, India, Ireland, Mexico, Singapore, and the United Kingdom. Official exchange programs offer students the most inexpensive means of studying abroad as students participating in these exchanges avoid the foreign student fees by paying fees to McMaster. All students must be in good standing with a cumulative Grade Point Average of at least 7.0 to be eligible to participate in an exchange. In most cases, students who participate in exchange programs go abroad for Level III of their program. Students are only permitted to take one exchange opportunity, regardless of whether it is a one or two term exchange. Information is available from the Student Experience - Academic Office, DeGroote School of Business, Room 112. Additional information may be found under International Study in the General Academic Regulations section of this Calendar.

Information concerning student exchanges can also be found in the Academic Facilities, Student Services and Organizations section of this Calendar under the heading International Student Services. Inquiries can be directed to the office at:

International Student Services / MacAbroad
Gilmour Hall, Room 104
Telephone: (905) 525-9140, extension 24748

The Commerce Programs
The Bachelor of Commerce (B.Com)
In Level I, a student who wishes to pursue either of the Commerce programs establishes a foundation in accounting, organizational behaviour, economics and mathematics, and also undertakes elective work. While this course of study is prescribed in Business I, a student who establishes a similar background in the Level I program of another Faculty may be considered for admission to Level II of the Commerce Program.

A student must gain admission to Commerce II in order to proceed towards the Honours B.Com. degree. In Level II a wide range of business subjects including accounting, finance, marketing, human resources, information systems and operations management are introduced and further course work in economics is required. Elective work is taken from non-Commerce courses.

International/Cross-Cultural/Language Menu for Students in the Honours Bachelor of Commerce and Bachelor of Commerce Programs

In its programs, the School of Business is stressing the importance of breadth of knowledge. Students in the Honours Bachelor of Commerce program and the Bachelor of Commerce program are required to take courses in a variety of business disciplines, thus giving them a sound understanding of business functions and their relationships. They also obtain exposure to international and cross-cultural issues. This will provide them with the knowledge needed for the world of global organizations. Prior to graduation, students are required to successfully complete two courses from an International/Cross-Cultural/Language menu. Note: Students who participate in an official McMaster University exchange are required to successfully complete one course from an International/Cross-Cultural/Language menu prior to graduation. Students must satisfy the normal prerequisites for the courses listed on the menu. Students follow the menu requirements of the Calendar in force when they enter Business I, however, when a later Calendar expands the menu options, students may choose from those additional courses as well.

The menu for 2017-18 is as follows:

- All Anthropology courses except ANTHROP 1AA3 or 1AB3 if completed as part of the Business I requirements, if entry to Business I was prior to September 2014.
- All courses in the Faculty of Humanities open to Commerce students, with the exception of all Multimedia courses, PHILOS 2N03 (COMMERCE 2SB3) and English courses other than those listed below.
- All Indigenous Studies courses
- All Political Science courses, except POLSCI 1G06 A/B, POLSCI 3F03, POLSCI 3FF3, POL SCI 3S03, POLSCI 4O06 A/B
- All Religious Studies courses except RELIGST 1B06 A/B if completed as part of the Business I requirements, if entry to Business I was prior to September 2014.
  - CSCT 1CS3 - Studying Culture: A Critical Introduction
  - ECON 2F03 - The Political Economy of Development
  - ECON 3H03 - International Monetary Economics
  - ECON 3HH3 - International Trade
  - ECON 3I03 - Economic History of the United States
  - ECON 3LL3 - History of Economic Theory
  - ECON 3T03 - Economic Development
  - ENGLISH 1CS3 - Studying Culture: A Critical Introduction
• ENGLISH 2C03 - Contemporary Canadian Fiction
• ENGLISH 2F03 - Studies in American Literature
• ENGLISH 2J03 - Contemporary Popular Culture
• ENGLISH 3D03 - Science Fiction
• ENGLISH 3EE3 - African American Literature
• ENGLISH 3Y03 - Children's Literature
• GEOG 1HA3 - Human Geographies: Society and Culture (if not completed as part of the Business I requirements, if entry to Business I was prior to September 2014)
• GEOG 1HB3 - Human Geographies: City and Economy (if not completed as part of the Business I requirements, if entry to Business I was prior to September 2014)
• GEOG 3RJ3 - Geography of Japan
• GEOG 3RW3 - Regional Geography of a Selected World Region
• GEOG 3UR3 - Urban Social Geography
• KINESIOL 3SS3 - Body, Mind, Spirit
• SOCIOL 2E06 A/B - Racial and Ethnic Group Relations
• SOCIOL 3Z03 - Ethnic Relations
  • All courses included under the Peace Studies Minor (See Minor in Peace Studies in the Faculty of Humanities section of this Calendar)

Full-Time/Part-Time Studies
Students can take Business I and the Commerce programs Students may complete program work on a full-time or part-time basis. Progression to the next level is at the end of the successful completion of the 24 units of course work that pertain to the lower level. It should be noted that not all Commerce courses are offered in the evenings or in the Spring/Summer term.

Continuing Students
Graduates of McMaster's Commerce programs a DeGroote undergraduate Business program, or one of the Engineering and Management programs may take, as part-time students, Commerce courses (to a maximum of 18 units), subject to space availability. Other than those graduates specified above, Commerce undergraduate courses in the Faculty of Business are not open to Continuing Students.

Second Undergraduate Degree
A student with an undergraduate degree will not be admitted or readmitted to either of the Commerce programs any DeGroote undergraduate program. Such a student may wish to apply for admission to the M.B.A. program.

Credit Towards Professional Designations
Educational requirements toward professional designations can be met in varying degrees within the Honours and non-Honours Bachelor of Commerce programs, as well as the Engineering and Management programs. The professional accounting designation Chartered Professional Accountant (C.P.A.) is awarded by the Chartered Professional Accountants of Ontario. The designation C.H.R.P. is awarded by the Human Resources Professionals Association. Further opportunities for meeting educational requirements for professional designations are available to students in all Commerce Business and Engineering and Management programs. Additional course work may be taken while in the
program providing the student is satisfying all course requirements for their degree. Further units of credit may also be taken after graduation (See Continuing Students above.). Information concerning credit towards these professional designations can be obtained from the Student Experience - Academic Office in the School of Business (DSB 112).

**Minor**

A Minor is an option available to a student enrolled in a four- or five-level program. A Minor consists of at least 18 units of Level II, III or IV courses beyond the designated Level I course(s) that meet the requirements set out in the program description of that Minor. A student is responsible for ensuring that the courses taken fulfill these requirements. Those who have completed the necessary courses may apply for recognition of that Minor when they graduate. If recognition is granted for a Minor, a notation to that effect will be recorded on the student’s transcript. For further information, please refer to Minors in the General Academic Regulations section of this Calendar.

**Academic Regulations**

**Student Academic Responsibility**

You are responsible for adhering to the statement on student academic responsibility found in the General Academic Regulations of this calendar.

**Access to Courses**

All undergraduate courses at McMaster have an enrolment capacity. The University is committed to making every effort to accommodate students in required courses so that their program of study is not extended. Unless otherwise specified, registration is on a first-come basis and in some cases priority is given to students from particular programs or Faculties. Students will be informed of their enrolment periods and are encouraged to enroll as soon as online enrolment is available to them in the Student Centre in Mosaic.

**Student Communication Responsibility**

It is the student’s responsibility to:

- maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- use the university provided e-mail address or maintain a valid forwarding e-mail address.
- regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student’s designated primary e-mail account via their @mcmaster.ca alias.
- accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.

A student enrolled in either of the Commerce programs in a DeGroote undergraduate program, in addition to meeting the General Academic Regulations of the University, shall be subject to the following School of Business Regulations.

**Qualifying for The Honours Bachelor of Commerce Program (For Students Entering the Program Business 1 in September 2016 or Later)**

To be considered for entry to the Honours Commerce program, students must have successfully completed Business 1 (as described in the Program Notes for Students who Enter Business 1 in 2016 or Later) with a cumulative Grade Point Average (GPA) of at least 5.0.
Qualifying for The Honours Bachelor of Commerce Program (For Students Entering the Program Business 1 in September 2013, 2014, or 2015)

To be considered for entry to Level III of the Honours Bachelor of Commerce program, students must have successfully completed Business I and have successfully completed at least 24 units of course work for Level II Commerce (as described in this section of the Calendar) with a cumulative Grade Point Average (GPA) of at least 5.0 and no more than six units of failures (in required and/or elective course work) after entry to Level II Commerce.

Change of Program

Students in good standing in the Engineering and Management program may transfer to the Honours Commerce program with the permission of the Student Experience - Academic Office. The conditions for eligibility for entrance to the Commerce programs are the same as for students registered in the School of Business.

Workload

In Business I, a full-time student must complete minimum 9-unit load in each Fall and Winter term. Advance credit and credit earned during the Spring/Summer term may not be used to reduce this load requirement. Such reductions will be applied as late as possible in a student's program. A part-time student in Business I is permitted to take a maximum of 6 units in either Fall or Winter term. Students who wish to take more courses than recommended for a single Level of their program may do so only if their Fall-Winter Average in the immediately preceding review period is at least 7.0. Students registered in the final Level of their program are permitted to overload by up to six additional units during the Fall and Winter terms, with no more than three units of overload per term, in order to become eligible to graduate.

Deferred Examinations

See the heading Deferred Examinations under Examinations in the General Academic Regulations section of the Calendar for application procedures. Students who are in a precarious position with respect to achieving the minimum GPA or otherwise meeting the Commerce program requirements for continuation in the program will not necessarily be permitted to undertake further work before clearing deferred examinations.

Repeated Courses

Any failed course must be repeated if it is a required course for the program, or must be repeated or replaced if it is not required. The grades for both the failed course and its repetition or replacement, as appropriate, will be included in the calculation of a student's GPA. Students are permitted to repeat no more than two courses in which passing grades have been obtained. Only one repeat attempt per course is allowed. The grades for all attempts appear on the transcript and enter into the computation of the Grade Point Average. However; only one successful attempt will enter into the computation of credit earned towards the degree.

Business I students may not repeat a passed course in order to qualify for entry into Commerce II. Continuing students who have graduated in the last five years with a DeGroote Bachelor of Commerce (Honours or B.Com), from a DeGroote undergraduate Business program, may apply to repeat up to two courses, one attempt each, subject to space availability.
Level I Courses
Students are not permitted to take more than 48 units of Level I courses in their program.

Level of Registration
A student enrolled in a program in the Faculty of Business is required to register in the lowest level for which more than six units of work is incomplete. Work of the next higher level may be undertaken only when necessary to fill a program load. Courses must be taken in the sequence specified by the School of Business.

Courses Not Used
Courses, in addition to those which constitute a student’s program requirements that are not otherwise designated as Extra courses, are classified as being Not Used course work. The Not Used course work would appear on students’ degree audits. Not Used course work may be taken only if students are in their final year of the program and are satisfying all the course requirements for their degree program. Not Used course work may not be scheduled in a manner which would delay completion of a student’s degree program.

Readmission
A student in Level II, III or IV of a Commerce undergraduate Business program, who becomes ineligible to continue in the School of Business, may apply for readmission to their respective program in a subsequent calendar year up to a maximum of five years following the year in which the student becomes ineligible to continue. Readmission is not guaranteed.

Application for readmission must be made in writing to the Undergraduate Recruitment, Admissions, and Student Affairs Committee by June 30 for entry in September. This application should explain why the applicant would expect to succeed in the program if readmitted. Forms for this purpose may be obtained from the Student Experience - Academic Office in the DeGroote School of Business, Room 112.

A student who is readmitted after having become ineligible to continue in a Commerce undergraduate Business program must repeat all the courses of the level at which he/she became ineligible to continue unless specific course exemptions or credits are granted. The earliest possible term for readmission is the term starting in September of the year following the year in which the student became ineligible to continue.

Former Commerce undergraduate Business program students who have not been registered in a Commerce undergraduate Business program within the past five years, including those who were in good standing at the time of their most recent registration, must apply for readmission through the Office of the Registrar.

Reinstatement
Business I
A student who May Not Continue at the University may apply for reinstatement.

There are two categories of students who may apply for reinstatement to Business I:

1. Applicants who have been registered in Business I within the past five years, have exceptional or extraordinary circumstances that affected their performance*, and have not been registered in another McMaster program or at another University during that time, or
2. Applicants from other Faculties.

Integrated Business & Humanities I
An IBH student who May Not Continue at the University may apply for reinstatement.
Applicants must have been registered in IBH I within the past five years, have exceptional or extraordinary circumstances that affected their performance*, and have not been registered in another McMaster program or at another University during that time.

Students seeking reinstatement must complete the Reinstatement Request Form available at the Office of the Registrar. The completed form and the $100 fee must be submitted to the Office of the Registrar by June 30 for entry in September.

*The application must clearly demonstrate extraordinary circumstances which caused inadequate performance and indicate whether the circumstances surrounding their academic situation have been resolved. The application should also include relevant supporting documentation. Reinstatement cases will be carefully screened and the evidence considered will include the student's academic performance before and after admission to McMaster, as well as the nature of the reasons cited in the application letter and the accompanying documentation. Such exceptional cases will be considered on their merit. 

**Reinstatement is not guaranteed.**

Upon reinstatement, the Grade Point Average for a student is reset to 0.0 on zero units. If at any review after reinstatement the student's cumulative Grade Point Average falls below 3.5, the student will be required to withdraw from the University for a period of at least 12 months.

**Former Commerce Students From the Faculty of Business**

A student who was previously registered in a McMaster Commerce DeGroote undergraduate Business program, was in good standing and did not attend in the preceding year, but did attend another post-secondary institution must write to the Student Experience - Academic Office to seek readmission. The letter should describe the student's activities (academic and otherwise) since he/she was last registered. If five years have passed since the student was last registered at McMaster, he/she should consult the heading Readmission in the Admission Requirements section of this Calendar.

**Inquiries Regarding Academic Regulations**

A student seeking relief from the School of Business academic regulations must apply in writing to the Undergraduate Recruitment, Admissions, and Student Affairs Committee with appropriate documentation attached. Guidelines for such requests may be obtained from the Student Experience - Academic Office, in the DeGroote School of Business, Room 112.

**Commerce Internship Program**

This program is designed to provide students with an opportunity to engage in a career-oriented work experience with one host employer following the successful completion of Level III for a period of 12 - 16 months. Students compete for opportunities with participating companies through an application and interview process with employers directly. Applications to participate in the internship program will be accepted in the Fall semester (deadlines will be communicated in Commerce 3INO 21NO (formerly 31NO) and on the CPD website). As a prerequisite to participating in the internship program, students must register in and pass COMMERCE 3INO 21NO (formerly 31NO), a comprehensive, non-credit, ten-hour career development course. Only students in good standing with a minimum cumulative GPA of 7.0 at the end of Level II and successful completion of Level I Business, who have "passed" Commerce 3INO 21NO (formerly 31NO) and completed the mandatory workshops, will be eligible to participate in the Commerce Internship Program. Should a student's academic standing fall below a GPA of 7.0, or is no longer in good standing during the recruitment cycle, the student may be removed from CIP. Due to legal considerations, only students who are able to work full-time in Canada will be eligible to participate. Upon completion of the internship, students must return to campus full-time to complete their degree program.
After securing an internship, students must successfully complete a minimum twelve months of work experience, obtain satisfactory employer evaluation(s) and submit a detailed work term report prior to their return to campus. All internship students will be enrolled in Commerce 4IA0 (Internship Program: 12 Months) and/or Commerce 4IB0 (Internship Program: 16 months). Upon successful completion of the internship requirements, a notation including the name of the employer and dates of employment will be added to the student transcript. Commerce 4IA0 and Commerce 4IB0 will be evaluated as a pass/fail.

For more information, please contact Student Experience – Career & Professional Development in DSB-112 or at cip@mcmaster.ca.

Exchange Programs
There are a number of official exchange programs offered to undergraduate students registered in the School of Business. The countries involved include Australia, China, Denmark, England, France, Germany, Japan, the Netherlands, New Zealand, Norway, India, Ireland, Mexico, Singapore, and the United Kingdom. Official exchange programs offer students the most inexpensive means of studying abroad as students participating in these exchanges avoid the foreign student fees by paying fees to McMaster. All students must be in good standing with a Grade Point Average of at least 7.0 to be eligible to participate in an exchange. In most cases, students who participate in exchange programs go abroad for Level III of their program. Students are only permitted to take one exchange opportunity, regardless of whether it is a one or two term exchange. Information is available from Prof. M. Malik, Director, International Exchange Programs, in the DeGroote School of Business, Room 228 or from the Student Experience – Academic Office, DeGroote School of Business, Room 112.

Additional information may be found under International Study in the General Academic Regulations section of this Calendar.

Information concerning student exchanges can also be found in the Academic Facilities, Student Services and Organizations section of this Calendar under the heading International Student Services.

Inquiries can be directed to the office at:

International Student Services / MacAbroad
Gilmour Hall, Room 104
Telephone: (905) 525-9140, extension 24748

For the Honours Arts & Science and Business program (B.Arts.Sc.), see Arts and Science Program.
General Academic Regulations

Academic Commitments

Students should expect to have academic commitments Monday through Saturday but not on Sunday or statutory holidays. Students who require accommodations to meet a religious obligation or to celebrate an important religious holiday should make their requests as soon as possible after the start of term to their Faculty/Program office.

Student Academic Responsibility

In its commitment to helping students achieve their academic goals, McMaster University makes available numerous tools and resources, including the Undergraduate Calendar, advisement reports and academic advisors. However, students must assume certain responsibilities. They include:

- meeting admission requirements for a program
- applying to that program by the stated deadline
- selecting courses that meet the program requirements
- completing courses in an order that meets prerequisite requirements
- becoming familiar with and respecting University Sessional dates (see Sessional Dates), the General Academic Regulations and the Faculty/Program/School specific regulations as found in the appropriate section of this Calendar.

Experience has shown that students who do not follow these guidelines may experience academic consequences such as cancellation of registration in courses, completion of courses that are not counted towards their degree, or delayed graduation.

In addition to the responsibilities listed above, students are expected to:

- become familiar with and respect the Senate Policy Statements (see Senate Policy Statements section of this Calendar)
- keep their student account in good standing, paying all charges by their respective due dates
- be aware that changes to course load and program may affect eligibility for government and University aid and awards (e.g. OSAP, work programs, bursaries, scholarships, etc.). Please contact the Office of the Registrar, Student Financial Aid & Scholarships, if you have questions about changes to your eligibility
- consult with Student Accessibility Services in a timely manner to make the necessary accommodations for special needs.

Student Communication Responsibility

It is the student's responsibility to:

- maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- use the university provided e-mail address or maintain a valid forwarding e-mail address.
• regularly check the official University communications channels, including the Mosaic Student Centre. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student’s designated primary e-mail account via their @mcmaster.ca alias.
• accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.

**Academic Regulations**

The regulations which follow are the general regulations of the University. You should read both these general regulations and your Faculty regulations which may be more specific. They appear in the Faculty sections of this Calendar.

Since the Academic Regulations are continually reviewed, the University reserves the right to change the regulations in this section of the Calendar. This University also reserves the right to cancel the academic privileges of a student at any time should the student's scholastic record or conduct warrant so doing.

In the event there is a conflict between the program regulations and the general regulations in this chapter, the program regulations take precedence.

Faculties are authorized to use discretion in special situations by taking into account past practice, the spirit of the regulations, and extraordinary circumstances. Students who believe their situations warrant special consideration should consult the appropriate Office of the Associate Dean.

The Academic Regulations listed below are effective as of September 1993. These regulations apply to all undergraduate students admitted or readmitted to the University from September 1993 onward.

**University Regulations**

**Residence Requirements**

While most students will complete all their undergraduate work at McMaster University, the minimum requirements set out below apply to students who take part of their work at other institutions. In order to obtain any four- or five-level, first undergraduate degree, you must complete at least two of the levels (approximately 60 units of work) beyond Level I, including the final level, at McMaster.

To obtain a three-level, first undergraduate degree, you may satisfy the residence requirements either:

1. by completing the final level and at least one other level (a minimum of approximately 60 units of work) at McMaster University;
2. or
3. by completing the final level (approximately 30 units of work) at McMaster University, including at least 18 units of program-specific courses.

The work used to satisfy the residence requirements must be completed at McMaster University; work taken at another university on a Letter of Permission will not count toward the minimum residence requirements.

All the work for a second bachelor's degree must be completed at McMaster University.

**Enrolment**

**Policy on Access to Undergraduate Courses**

McMaster's policy on access to Undergraduate courses is designed to ensure that resources are properly managed while enabling students to enrol in required courses so that their program admission requirements and course requisites can be met, and that their program of study is not extended.

1. Enrolment capacities are set on all undergraduate courses taking into account enrolment projections along with resources, enrolment trends and type of course (required or elective).
2. If need exceeds approved capacity, enrolment capacities for courses will be reviewed and may be adjusted.

3. Faculties and Department Offices are responsible for determining which courses require seats to be reserved. These reserved seats must be managed so that students are able to complete program admission requirements, meet course requisites and enrol in courses required to meet their program of studies in a timely manner.

4. Where students are selecting from a list of required courses, access to a specific course is not guaranteed when there is another course available to meet a specific degree requirement.

5. The University reserves the right to change a student’s enrolment in classes should the need occur (e.g. low enrolment, urgent timetable changes, etc).

Enrolment:
The purpose of enrolment is to officially record your program and courses. Information on how to enrol is available online at: http://registrar.mcmaster.ca/category/enrol/. You must enrol in courses during the official registration period designated for each session or term. You are responsible for ensuring that your enrolment information is complete, and that your course selections meet the requirements of your degree. Academic counselling is available from your Faculty or Program Office to assist you in course selections.

Admission to Programs
Admission to and transfer between programs must be approved by the Office of the Associate Dean of your Faculty.

Selection of Courses
Before you select the courses you wish to take, please read the requirements for your program in the appropriate Faculty sections of this Calendar. You are responsible for ensuring that your course selection meets the requirements of your degree. If you fail to meet the program requirements, you will not be eligible to graduate. Select the courses required for your program; then select your electives.

Ensure that you have completed the courses which are listed as prerequisites, have completed or chosen courses that are listed as co-requisites and that permissions have been obtained, if required. If you do not have the course requisites, you will not be able to take the course selected.

Multi-Term Course Policy
Prior to Spring/Summer Term 2015:
All undergraduate courses had course codes of 4 alpha-numeric digits and were administered as a singular course (e.g. ENGLISH 2G06 CANADIAN LITERATURE).

Effective Spring/Summer Term 2015:
All undergraduate course codes will retain the 4 alpha-numeric digits. Courses that span more than one term (e.g. both Fall and Winter terms), will have the characters A and B added to the code. Therefore, all courses with an additional A/B suffix are multi-term courses. (e.g. ENGLISH 2G06A/B CANADIAN LITERATURE). The A/B S suffix (e.g. HTHSCI 3A15 A/B S) indicates that the course may be delivered as either a multi-term course or within a single term.

Neither Part A nor Part B of a multi-term course has academic credit or value independent of both parts being successfully completed. Students who drop or cancel the 'A' portion of a course are not eligible to receive academic credit for the 'B' portion (and vice-versa). Part A must always precede Part B and both must be taken sequentially within the same academic year. Upon completion of the first Term, the 'A' portion of the course will be included on the transcript with a grade designation of MT (Multi-Term). Final grades will not be determined until both A and B components have been completed.
The last day for adding or dropping as well as the last day for cancelling without failure by default for multi-term courses are reflected in the Sessional Dates.

Changes to Enrolment

The last day for adding or dropping courses is approximately one week after classes begin for each term. (please see the tables in the Sessional Dates section for the relevant dates for each term of the academic year.). After the above-mentioned period, you may withdraw from courses until the last day to withdraw without failure by default. Withdrawn courses will be shown on your transcript with a W notation. After this date, you will remain enrolled in courses whether or not you attend classes. Your transcript will show a grade of F for any course not successfully completed.

You are responsible for ensuring that your course selection meets the requirements of your degree. You should review your personal advisement report on the working day following each time you drop or add courses, and contact an Academic Advisor in the Office of the Associate Dean of your Faculty if you have questions. Changes to your course load may also affect your fees and your eligibility for scholarships and financial aid such as OSAP. Limit on Level I Courses: In most Faculties, you may not obtain credit in more than 42 units of Level I courses in a three-level program, or more than 48 units in a four-level program.

Eligibility for Awards

See Undergraduate Academic Awards chapter in this Calendar for more information.

Overload Work

If you wish to take more than the normal number of units prescribed for a Level, you may do so only with the permission of the Office of the Associate Dean of your Faculty. Normally, a Fall-Winter Average of at least 7.0 in the immediately preceding review period will be required if an overload is to be permitted. Additional academic fees will be assessed for overload work. For further information please visit http://www.mcmaster.ca/bms/student/.

Load in Spring/Summer Term

If you wish to take more than 12 units in the Spring/Summer term, or more than six units in either session of that term, you may do so only with the permission of the Office of the Associate Dean of your Faculty.

Repetition of Courses

Students may repeat courses that have been failed or for which credit has been obtained a number of times, with the exception of the students in the Faculty of Business who may only repeat courses with permission of the Student Experience – Academic Office (DSB 112) or for which they have failed. The grades for all attempts appear on the transcript and enter into the computation of the Grade Point Average. However, only one successful attempt will enter into the computation of credit earned towards your degree.

Auditing Courses

If you are a currently enrolled student in a degree program and you do not wish to have credit for a course, you may, with the approval of the Chair of the Department and the Office of the Associate Dean, audit the course. You must satisfy the prerequisite for the course, but will not complete assignments nor write the final examinations. You will not be permitted to enrol for credit in the course after the enrolment deadline for the term has passed. Please see http://www.mcmaster.ca/bms/student/ for any applicable fees.

Letters of Permission

If you are in good academic standing at McMaster and if you wish to attend another university to take courses for credit towards a McMaster degree, you must obtain permission ahead of time. To do this you must seek a Letter of Permission from the Office of the Associate Dean. This request can be initiated in
the Student Centre in Mosaic. Please take note of any conditions that might apply, including the requirement of a grade of at least C- for transfer credit. You should note that the grades obtained in courses taken at another university will not be included in the Grade Point Average. Full-time students taking courses on a Letter of Permission must continue to carry a full load at McMaster during the Fall and Winter terms if they wish to be considered for Undergraduate In-course Academic Awards; i.e. courses taken on a Letter of Permission do not count toward your load for purposes of academic awards.

Withdrawal from the University

If you wish to withdraw from the University, you must consult the appropriate Office of the Associate Dean. Your student identity card must be surrendered to the Office of the Associate Dean. Your course record will be handled as outlined above in Changes to Registration.

Transfer of Credit between Faculties

Transfer of credit between Faculties is handled by the Office of the Associate Dean to which you wish to transfer. It is possible that full credit may not be given at the time of transfer between Faculties and additional courses may need to be taken.

Calculation of Grade Point Average Following Reinstatement after Poor Academic Performance:

Effective September 1997, if you are reinstated at the University, your Grade Point Average will be reset to 0.0 on zero units, although you may (at Faculty discretion) retain credit for prior work. If you are reinstated, you will be on academic probation. You must complete a minimum of 60 units of work after reinstatement to be eligible for Graduation with Distinction or other recognition based on the Grade Point Average.

International Study

If you wish to engage in international study, you may do so either by participating in one of the formal exchange programs that exist between McMaster and a number of universities in other countries; by participating in one of the programs available through specific Faculties; or by independent study abroad.

Formal exchange programs are those in which McMaster has an agreement with another institution, involving a temporary exchange of students. As an exchange student, you enrol and pay your tuition fees, and supplementary fees at McMaster. No tuition is paid at the foreign institution. If you are interested in participating in a formal exchange program, you can obtain further information and an application form from the International Student Services Office. Applications are normally due mid-January for exchanges expected to begin the following September. Admission is by selection. A registration checklist is available to assist you in making all necessary arrangements.

McMaster also offers other programs which allow you to spend all or part of your third year of a four-year program at another institution. You enrol but do not pay tuition at McMaster. These programs are not available at universities with which McMaster University has a formal exchange agreement. For more information on these programs, please see your Academic Advisor or the International Student Services Office.

Students must recognize and accept the fact that in many countries of the world, especially the newly-emerging nations, change may be the only constant. There are no guarantees that certain courses will be offered or that housing will be as one might expect. Spending time on an exchange program or an independent study abroad program offers an opportunity to develop one's adaptability and resourcefulness in the face of new situations. McMaster University cannot be held accountable for unforeseen changes in the host country.
For information about programs and universities, please contact the International Student Services Office.

Academic Standing and Program Requirements Petitions for Special Consideration

**Academic Standing**

Academic standing is reviewed in May and August each year for students who

1. have attempted at least 18 units of work since the last review;
2. or
3. may be eligible to graduate at the next Convocation;

In the review of academic standing, three sets of decisions are made:

1. whether a student may graduate;
2. whether a student may continue at the University; and
3. whether a student may continue in a program.

**Minimum Requirements to Continue at the University**

All students must maintain a Grade Point Average (GPA) of at least 3.5 at each review to continue at the University. Under certain circumstances, as described below, students may be allowed to continue on academic probation for one reviewing period with a GPA of 3.0 to 3.4. If your GPA is less than 3.0, you may not continue at the University.

**Level I Registration and Academic Standing Requirements**

When you are admitted to McMaster University for a first degree, you will enrol in one of the following Level I programs: Arts and Science I, Business I, Integrated Business & Humanities I, Automotive and Vehicle Technology I, Biotechnology I, Process Automation Technology I, Chemical & Physical Sciences I, Computer Science I, Engineering I, Environmental and Earth Sciences I, Health Sciences I, Humanities I, Honours Integrated Science I, Honours Kinesiology I, Life Sciences I Mathematics and Statistics I, Medical Radiation Sciences I, Midwifery I, Music I, Nursing I, Social Sciences I, Studio Art I. If you enter the University without Advanced Standing being granted, you must normally attempt a full load of Level I work before proceeding to the work of higher levels.

If you are studying part-time, the Office of the Associate Dean has the discretion to permit you to take some of the work in the higher levels prior to having attempted the full load of Level I. Decisions will be made on an individual basis, according to the special circumstances that apply in the particular case. At any review during Level I before you complete the Level I work, as in the case of a part-time student, you must attain a GPA of at least 3.5 to continue at the University in good standing. If you attain a GPA of 3.0 to 3.4 you may remain at the University for one reviewing period, but will be placed on academic probation. You may be on academic probation only once during your University career. If your GPA is less than 3.0 you may not continue at the University.

At the review when you complete the Level I work, if you attain a GPA of at least 3.0 and have not previously been on academic probation, but fail to meet the admission requirements of any program, you may continue at the University for one additional reviewing period on academic probation. You will be enrolled in your original Faculty, and will be classified as a Level I transition student if your work may only qualify you to be considered for admission to a program in another Faculty. If, at the end of the next reviewing period, you again do not qualify for admission to a program, you may not continue at the University. If your GPA is less than 3.0 you may not continue at the University.

Students in Arts & Science I should refer to the Arts & Science Program regulations listed below. Health Sciences I, Nursing I and Midwifery I students should refer to the program regulations listed in the Faculty of Health Sciences section in this Calendar.
Minimum Requirements for Entering and Continuing in a Program Beyond Level I

Admission to the programs beyond Level I is based on performance in Level I. You must meet both the minimum requirements to continue at the University, as described above, and program-specific requirements of each Faculty, as described in this Calendar.

Arts & Science Program

B.Arts Sc. (Honours) AND B.Arts Sc. Programs
You must have a Grade Point Average (GPA) of at least 6.0 to continue in the program. If your GPA is from 5.5 to 5.9, you may remain in the program, but will be placed on program probation for one reviewing period. You may be on program probation only once.

If your GPA is 3.5 to 5.4, you must transfer to another program for which you qualify, or enrol in the Arts & Science Program as a transition student for one reviewing period. During that period you cannot take Arts & Science Program courses. At the end of that period you may apply for readmission to the Arts & Science Program.

If your GPA is 3.0 to 3.4, you will be placed on academic probation. You may continue in the program for one reviewing period as a transition student but cannot take Arts & Science Program courses. The purpose of this period is to prepare yourself for a program outside the Arts & Science Program. You may be on academic probation only once.

If your GPA is less than 3.0 you may not continue at the University.

School of Business

Business I
For specific admission requirements to Commerce II see Program Notes under the heading Programs in the School of Business section of this Calendar.

If you are not admitted to Commerce II at the end of Business I, you have the following options available to you.

If your cumulative Grade Point Average (GPA) is 3.5 or greater, although you may not continue into a Commerce program either now or in the future, you are still in good standing at the University. You may continue at the University in a program outside the School of Business or as a transition student in Business. To continue in a program outside the School of Business you must apply for admission to that program through the Office of the Associate Dean appropriate for that program. You should consult that office for more details.

If you are not admitted to another Faculty you may enrol in the School of Business as a transition student for one reviewing period. During that period you cannot take Commerce courses and you will not be eligible for consideration for admittance to Commerce II or re-admittance to Business I. The purpose of your registration as a transition student is to make yourself eligible for admission to a program outside the School of Business. If you have a cumulative GPA, Grade Point Average of 3.0 to 3.4, you will be on academic probation and may continue at the University for one reviewing period as a transition student in the School of Business but will not be permitted to take any Commerce courses. At the end of your probation period you will not be eligible for consideration for Commerce II or re-admittance to Business I. The purpose of the probation period is to make yourself eligible for a program outside the School of Business.

If you have a GPA cumulative Grade Point Average of less than 3.0 at the end of Business I you may not continue at the University either on a full-time or part-time basis.

Commerce II
Upon satisfactory completion of Commerce II, qualified students may continue in one of the following programs:
Honours B.Com. Program (Requirements for Students Entering in 2013-14 or Later):
You must have a cumulative Grade Point Average (GPA) of at least 5.0 to enter continue in the Honours B.Com. Program in Level III or IV or to continue in the Honours B.Com. Program. Once admitted to Honours B.Com., if your cumulative GPA is 4.5 to 4.9, you may continue in the Honours B.Com. Program, but will be placed on program probation. You may be on program probation for only one reviewing period (as specified in the Glossary section of this Calendar). If your GPA is a 3.5 to 4.4, you may transfer to the B.Com Program. If your GPA is less than 3.5, you may not continue at the University. Regardless of your cumulative GPA, if you receive more than six units of failure (in required or elective course work) after entry to Level II Commerce, you will not be permitted to continue in a program in the School of Business.

B.Com. Program:
You must have a cumulative Grade Point Average (GPA) of at least 4.0 to continue in the B.Com. Program. If your GPA is 3.5 to 3.9, you are permitted to continue in the B.Com. Program on program probation for one reviewing period (as specified in the Glossary section of this Calendar). If your GPA is less than 3.5, you may not continue at the University. Regardless of your CA GPA, if you receive more than six units of failure (in required or elective course work) after entry to Level II Commerce, you will not be permitted to continue in a program in the School of Business.

Integrated Business & Humanities
To be admitted to Level II of the Integrated Business & Humanities (IBH) program, students must have completed at least 24 units of the required Level I courses with a minimum cumulative Grade Point Average (GPA) of 5.0. In Level II and above, you must maintain a cumulative GPA of at least 5.0 to continue in the IBH program. If your cumulative GPA is 4.5 to 4.9, you may continue in the Integrated Business & Humanities program, but will be placed on program probation. You may be on program probation for only one reviewing period (as specified in the Glossary section of this Calendar). If your cumulative GPA is a 3.5 to 4.4, you must transfer to another program for which you qualify, or enrol in the IBH program as a transition student for one reviewing period. During that period you cannot take IBH program courses. The purpose of this period is to prepare yourself for a program outside the IBH program.
If your GPA is 3.0 to 3.4, you will be placed on academic probation. You may continue in the program for one reviewing period as a transition student but cannot take IBH program courses. The purpose of this period is to prepare yourself for a program outside the IBH program. You may be on academic probation only once.
If your GPA is less than 3.0 you may not continue at the University.
Regardless of your cumulative GPA, if you receive more than six units of failure (in required or elective course work) after entry to Level II, you will not be permitted to continue in the Integrated Business & Humanities program.
Specialized Minor in Commerce for Students Completing a Single Honours B.A. in Humanities

The Specialized Minor in Commerce for Humanities students is administered by the DeGroote School of Business. A maximum of 30 students will be admitted each year to this Specialized Minor.

Notes
1. For admission, Humanities students (Level 1) must complete an application for admission to the Minor by using the Service Request function in the Student Centre in Mosaic by April 30.
2. Students must also be admitted to a Single Honours B.A. in one of the following programs: Art History, Classics, Communication Studies, English, French, History, Justice, Political Philosophy and Law, Linguistics, Multimedia, Philosophy, or Theatre & Film Studies.
3. Students seeking the Specialized Minor in Commerce for Humanities must have completed ECON 1B03 with a grade of at least B-, and one of MATH 1M03 or ECON 1BB3.
4. Students must have a Grade Point Average of at least 6.0 to be considered for entry into the Minor.

Students planning to apply to the accelerated MBA program at McMaster are strongly encouraged to consult with MBA Admissions at the Ron Joyce Centre regarding admission requirements. In addition to meeting all other admission criteria students must complete, with a minimum grade of B-, the following courses:
- all three of ECON 1B03, ECON 1BB3, and MATH 1M03;
- all level 2 Commerce courses listed below;
- COMMERCE 3FA3, and 3MC3

Requirements
33 units total

6 units
- COMMERCE 1AA3 - Introductory Financial Accounting
- COMMERCE 1BA3 - Organizational Behaviour

18 units
From
- COMMERCE 2AB3 - Managerial Accounting I
- COMMERCE 2BC3 - Human Resource Management and Labour Relations
- COMMERCE 2FA3 - Introduction to Finance
- COMMERCE 2KA3 - Information Systems in Business
· COMMERCE 2MA3 - Introduction to Marketing
· COMMERCE 2QA3 - Applied Statistics for Business
· COMMERCE 2OC3 - Operations Management
· COMMERCE 3MC3 - Applied Marketing Management
· COMMERCE 3S03 - Management Skills Development

3 units
from
· HUMAN 4BU3 - Applied Arts and Commerce
· HUMAN 3LM3 or 4LM3 - The Art Of Leadership

6 units
· Level III or IV Commerce courses
Faculty of Engineering

ENGINEER 1C03 - Engineering Design and Graphics
3 unit(s)
Graphical visualization and communication; technical sketching, 2D and 3D computer-aided design; use of solid modelling software.
One lecture, one tutorial (two hours), one lab (three hours); first or second term
Prerequisite(s): Registration in any Engineering program
Antirequisite(s): ENGINEER 1C04, IBEHS 1P10

ENGINEER 1D04 - Engineering Computation
4 unit(s)
Development and analysis of simple algorithms. Implementation of algorithms in computer programming language. Design and testing of computer programs.
One lecture, one tutorial (two hours), one lab (three hours); first or second term
Prerequisite(s): Registration in any Engineering program
Antirequisite(s): COMP SCI 1MA3, 1MC3, 1SA3, COMPSCI 1TA3, IBEHS 1P10

ENGINEER 1P03 - Engineering Profession and Practice
3 unit(s)
Introduction to professional engineering including ethics, health and safety, roles and responsibilities to society, sustainability, engineering communication; design skills; team design projects.
Two lectures, one tutorial (two hours); first term
Prerequisite(s): Registration in any Engineering program
Antirequisite(s): ENGINEER 4HJ1, IBEHS 1P10

IBEHS 1P10 A/B - Health Solutions Design Projects I
10 unit(s)
Project-based integrated learning course using healthcare problems to teach design and engineering content. Topics in ethics and professionalism, health and safety, communication, visualization, computation, and materials introduced.
Three lectures, one lab (two hours), one tutorial (two hours); both terms
Prerequisite(s): Registration in Level I of IBEHS program
Antirequisite(s): ENGINEER 1C03, ENGINEER 1D04, ENGINEER 1P03

Chemical Engineering

Chem Eng 4A03 will not be taught in 2017-18 and ENG PHYS 3ES3 would be an alternative so the students are able to complete the Water-Energy Technologies (WET) Stream (this is optional not required)

- **Water-Energy Technologies (WET) Stream: Required Courses:** CHEMENG 4A03, OR ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected, and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.

Chemical Engineering and Management, Chemical Engineering and Management Co-op (B.Eng.Mgt.)
Admission to Level II Engineering Programs

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Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

Notes
1. Students may choose to follow a stream of recommended technical elective courses.
   - **Process Systems Engineering (PSE) Stream:**
     - **Required Courses:** CHEMENG 4C03, 4E03, 4G03, 4L02 (PSE laboratories completed). Other courses may be substituted with permission of the Department Chair.
   - **Polymer Materials and Manufacturing (PMM) Stream:**
     - **Required Courses:** CHEMENG 3Q03, 4B03, 4C03, 4L02 (PMM laboratories completed), 4X03, ENGINEER 2O03 (or MATLS 1M03). Other courses may be substituted with permission of the Department Chair.
   - **Water-Energy Technologies (WET) Stream:** Required Courses: CHEMENG 4A03 OR ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected) and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.
2. As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1EE0. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.
3. Level V Chemical Engineering and Management students interested in completing the Entrepreneurship Stream must apply to the Engineering and Management Program Office.

Chemical Engineering and Society, Chemical Engineering and Society Co-op, (B.Eng.Society)
PROGRAM DIRECTOR, ENGINEERING & SOCIETY
C. Churchill (Civil Engineering) B.Eng., M.Eng. (McMaster)

Admission to Level II Engineering Programs

Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

Notes
1. Students may choose to follow a stream of recommended technical elective courses.
• **Process Systems Engineering (PSE) Stream:**
  • **Required Courses:** CHEMENG 4C03, 4E03, 4G03, 4L02 (PSE laboratories completed). Other courses may be substituted with permission of the Department Chair.
  
• **Polymer Materials and Manufacturing (PMM) Stream:**
  • **Required Courses:** CHEMENG 3Q03, 4B03, 4C03, 4L02 (PMM laboratories completed), 4X03, ENGINEER 2003 (or MATLS 1M03). Other courses may be substituted with permission of the Department Chair.
  
• **Water-Energy Technologies (WET) Stream:** Required Courses: CHEMENG 4A03 OR ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected) and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.

2. As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1EE0. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.

3. A minimum of 18 units of focus elective courses is required for the program. (This does not include the six units of complementary studies elective in Level I.)

**Chemical Engineering, Chemical Engineering Co-op (B.Eng.)**

**Admission to Level II Engineering Programs**

Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

**Notes**

1. Students may choose to follow a stream of recommended technical elective courses.
   • **Process Systems Engineering (PSE) Stream:** Required Courses: CHEMENG 4C03, 4E03, 4G03, 4L02 (PSE laboratories completed). Other courses may be substituted with permission of the Department Chair.
   
• **Polymer Materials and Manufacturing (PMM) Stream:** Required Courses: CHEMENG 3Q03, 4B03, 4C03, 4L02 (PMM laboratories completed), CHEMENG 4X03. Other courses may be substituted with permission of the Department Chair.
   
• **Water-Energy Technologies (WET) Stream:** Required Courses: CHEMENG 4A03 OR ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected) and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.

2. As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1EE0. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.
Department of Chemical Engineering

Faculty of the Department of Chemical Engineering, as of January 15, 2016

CHAIR
Carlos Filipe

DISTINGUISHED UNIVERSITY PROFESSOR

PROFESSORS
Carlos Filipe/B.S. (Universidade Catolica Portuguesa), Ph.D. (Clemson)
Raja Ghosh/B.S., M.S. (Jadavpur), D.Phil. (Oxford)/Canada Research Chair
Vladimir Mahalec/Dipl. Ing. (Zagreb), Ph.D. (Houston)/Director, GMC Centre for Engineering Design
Prashant Mhaskar/B.Eng. (IT), M.S. (Louisiana State), Ph.D. (California-Los Angeles), P.Eng./Canada Research Chair
Robert H. Pelton/B.Sc., M.Sc. (Guelph), Ph.D. (Bristol)/Senior Canada Research Chair, F.R.S.C.
Heather Sheardown/B.Eng. (McMaster), Ph.D. (Toronto), P.Eng.
Christopher L. E. Swartz/B.Sc. (Cape Town), Ph.D. (Wisconsin), P.Eng./ArcelorMittal Dofasco Chair in Process Automation and Information Technology
Philip E. Wood/B.A.Sc. (Waterloo), Ph.D. (California Institute of Technology), F.C.I.C., 3M Fellow, P.Eng./Director, Engineering Level 1

ADJUNCT PROFESSORS
Mark-John Bruwer/B.Eng. (Canterbury), Ph.D. (McMaster)
Lyndon W.J. Jones/Dipl. Eng. (Aristotle), Ph.D. (Aston)
David McDonald/B.Eng. (Waterloo), M.Sc. (McMaster)
Marko D. Saban/Dipl. Ing., M.Sc., Ph.D. (Belgrade)
Guerino G. Sacripante/B.Eng., Ph.D. (McGill)
Wen-Jun Wang/B.Eng, M.Eng., Ph.D. (Zhejiang)

INDUSTRY PROFESSOR
George Liebermann/M.Sc., Ph.D. (Polytechnic Institute, Romania)

ASSOCIATE PROFESSORS
Thomas Adams II/B.S (Michigan State), Ph.D. (Pennsylvania)
Emily Cranston/B.Eng. (McMaster), Ph.D. (McMaster)
Todd Hoare/B.Eng. (Queen’s), Ph.D. (McMaster), P.Eng.
Kim Jones/B.A.Sc. (Waterloo), M.Sc. (Guelph), Ph.D. (Toronto)
Prashant Mhaskar/B.Eng. (IT), M.S. (Louisiana State), Ph.D. (California-Los Angeles), P.Eng./Canada Research Chair

ADJUNCT ASSOCIATE PROFESSORS
Theodora Kourtli/Dipl. Eng. (Chemical), Aristotel, Ph.D. (McMaster)
Niels Smoets/B.Sc., M.Sc., Ph.D. (Eindhoven)
Qiang Liu/B.S., MS., (University of Science and Technology, China), Ph.D. (Laval)
Yiliang Wu/B.Sc. (Sichuan), M.Sc. (University of Science and Technology, China), Ph.D. (Tokyo Institute of Technology)
Danielle Zyngier/B.Sc. (Rio de Janeiro), M.Sc. (Rio de Janeiro), Ph.D. (McMaster)

ASSISTANT PROFESSORS
Thomas Adams II/B.S (Michigan State), Ph.D. (Pennsylvania)
Emily Cranston/B.Eng. (McMaster), Ph.D. (McMaster)
Kevin Dunn/B.Eng. (Cape Town), M.Eng. (McMaster), P.Eng.
Charles-Francois de Lannoy/B.Sc. (McGill), Ph.D. (Duke)
Zeinab Hosseinidoust/B.Sc., M.Sc. (Sharif), Ph.D. (McGill)
Kamil Khat/B.S.E. (Princeton), M.Sc., Ph.D. (MIT)
David Latulippe/B.Eng., M.A.Sc., (McMaster), Ph.D. (Pennsylvania State)
Li Xi/B.S. (Zhejiang), Ph.D. (Wisconsin-Madison)

ADJUNCT ASSISTANT PROFESSORS
Benoit Chachuat/B.Eng. (ENGIES National Engineering School), M.Sc. (Louis Pasteur), Ph.D. (Lorraine National Institute of Technology)
Santiago Faucher/B.Eng. (Queen’s), Ph.D. (McMaster)
Niels Smoets/B.Sc., M.Sc., Ph.D. (Eindhoven)
Danielle Zyngier/B.Sc. (Rio de Janeiro), M.Sc. (Rio de Janeiro), Ph.D. (McMaster)

ASSOCIATE MEMBERS

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Chemical Engineering and Bioengineering, Chemical Engineering and Bioengineering Co-op (B.Eng.Biosci.)

Admission to Level II Engineering Programs

Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

Note

As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1EE0. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.

Requirements

Level II: 39 Units

18 units

- CHEMENG 2D04 - Chemical Engineering Principles I
- CHEMENG 2F04 - Chemical Engineering Principles II
- CHEMENG 2G03 - Problem Solving and Technical Communication
- CHEMENG 2O04 - Fluid Mechanics
- CHEMENG 2I03 - Measurements

3 units

- CHEM 1AA3 - Introductory Chemistry II

3 units

- BIOLOGY 1A03 - Cellular and Molecular Biology

6 units

- HTHSCI 2L03 - Anatomy and Physiology I: Communication
- HTHSCI 2LL3 - Anatomy and Physiology II: Homeostasis

6 units
- MATH 2Z03 - Engineering Mathematics III
- MATH 2ZZ3 - Engineering Mathematics IV

3 units

- approved complementary studies electives

Level III: 37-40 Units

31 units

- BIOLOGY 2EE3 - Introduction to Microbiology and Biotechnology
- CHEMENG 3A04 - Heat Transfer
- CHEMENG 3D03 - Chemical Engineering Thermodynamics
- CHEMENG 3G04 - Simulation, Modelling and Problem Solving
- CHEMENG 3K04 - Introduction to Reactor Design
- CHEMENG 3L02 - Intermediate Laboratory Skills
- CHEMENG 3M04 - Mass Transfer and Stagewise Operations
- CHEMENG 3E04 - Process Model Formulation and Solution
- CHEMENG 4T03 - Applications of Chemical Engineering in Medicine

3-6 units

- CHEM 2E03 - Introductory Organic Chemistry
  or both
- CHEM 2OA3 - Organic Chemistry I
- CHEM 2OB3 - Organic Chemistry II

3 units

- BIOCHEM 2EE3 - Metabolism and Physiological Chemistry
  or
- BIOLOGY 2B03 - Cell Biology
  or
- HTHSCI 2K03 - Cell Biology

Level IV: 37 Units (2016-2017 only)

22 units

- CHEMENG 3BK3 - Bio-Reaction Engineering
- CHEMENG 3BM3 - Bioseparations Engineering
- CHEMENG 3E04 - Process Model Formulation and Solution
- CHEMENG 3P04 - Process Control
- CHEMENG 4L02 - Advanced Laboratory Skills
- CHEMENG 4LL3 - Bio Laboratories
- CHEMENG 4T03 - Applications of Chemical Engineering in Medicine

3-units

- BIOCHEM 3G03 - Proteins and Nucleic Acids

3-units

- ENGINEER 4A03 - Sustainability and Ethics in Engineering
6 units
from
- CHEM 3I03 - Industrial Chemistry
- CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry
- CHEMENG 3Q03 - Introduction to Polymer Science

3 units
- approved complementary studies electives

Level IV: 36 Units (2017-2018 and onwards)

15 units
- CHEMENG 3BK3 - Bio-Reaction Engineering
- CHEMENG 3BM3 - Bioseparations Engineering
- CHEMENG 3P04 - Process Control
- CHEMENG 4L02 - Advanced Laboratory Skills
- CHEMENG 4LL3 - Bio Laboratories

3 units
- BIOCHEM 3G03 - Proteins and Nucleic Acids

3 units
from
- ENGINEER 4A03 - Sustainability and Ethics in Engineering

6 units
from
- CHEMBIO 3BM3 – Implanted Biomaterials
- CHEM 3I03 - Industrial Chemistry
- CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry
- CHEMENG 3Q03 - Introduction to Polymer Science

3 units
- STATS 3Y03 - Probability and Statistics for Engineering

3 units
- approved complementary studies electives

3 units
- approved technical electives from biosciences or bioengineering

Level V: 39-41 Units (2016-2017 and 2017-2018 only)

8 units
- CHEMENG 4N04 - Engineering Economics and Problem Solving
- CHEMENG 4W04 - Chemical Plant Design and Simulation
42-15-16 units

from
- CHEMENG 4A03 - Energy Systems Engineering
- CHEMENG 4B03 - Polymer Reaction Engineering
- CHEMENG 4C03 - Statistics for Engineers
- CHEMENG 4E03 - Digital Computer Process Control
- CHEMENG 4G03 - Optimization in Chemical Engineering
- CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
- CHEMENG 4M03 - Separations
- CHEMENG 4X03 - Polymer Processing
- CHEMENG 4Y04 – Senior Independent Project
- CHEMENG 4Z03 - Interfacial Engineering
- ENGINEER 4EX3A/B – Experiential Engineering Design

4 units
- CIVENG 4V04 - Biological Aspects of Wastewater Treatment

6 units
- approved technical electives from biosciences or bioengineering

3 units
- approved complementary studies electives

3-4 units
- Level III or IV technical electives from approved list A (Interdisciplinary engineering courses) or permission of the Department of Chemical Engineering

3-4 units
- Level III or IV technical electives from approved list A or B or permission of the Department of Chemical Engineering

Level V: 36-38 Units (2018-2019 onwards)

8 units
- CHEMENG 4N04 - Engineering Economics and Problem Solving
- CHEMENG 4W04 - Chemical Plant Design and Simulation

42-15-16 units

from
- CHEMENG 4A03 - Energy Systems Engineering
- CHEMENG 4B03 - Polymer Reaction Engineering
- CHEMENG 4C03 - Statistics for Engineers
- CHEMENG 4E03 - Digital Computer Process Control
- CHEMENG 4G03 - Optimization in Chemical Engineering
- CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
- CHEMENG 4M03 - Separations
- CHEMENG 4X03 - Polymer Processing
- CHEMENG 4Y04 – Senior Independent Project
- CHEMENG 4Z03 - Interfacial Engineering
- ENGINEER 4EX3A/B – Experiential Engineering Design
4 units
- CIVENG 4V04 - Biological Aspects of Wastewater Treatment

3 units
- approved technical electives from biosciences or bioengineering

3 units
- approved complementary studies electives

3-4 units
- Level III or IV technical electives from approved list A (Interdisciplinary engineering courses) or permission of the Department of Chemical Engineering

Chemical Engineering and Management, Chemical Engineering and Management Co-op (B.Eng.Mgt.)

Admission to Level II Engineering Programs

Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

Notes

1. Students may choose to follow a stream of recommended technical elective courses.
   - **Process Systems Engineering (PSE) Stream:**
     - **Required Courses:** CHEMENG 4C03, 4E03, 4G03, 4L02 (PSE laboratories completed). Other courses may be substituted with permission of the Department Chair.
   - **Polymer Materials and Manufacturing (PMM) Stream:**
     - **Required Courses:** CHEMENG 3Q03, 4B03, 4C03, 4L02 (PMM laboratories completed), 4X03, ENGINEER 2O03 (or MATLS 1M03). Other courses may be substituted with permission of the Department Chair.
   - **Water-Energy Technologies (WET) Stream:** Required Courses: CHEMENG 4A03 or ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected) and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.

2. As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1E00. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.

3. Level V Chemical Engineering and Management students interested in completing the Entrepreneurship Stream must apply to the Engineering and Management Program Office.

Requirements
Level II: 36 Units

18 units

- CHEMENG 2D04 - Chemical Engineering Principles I
- CHEMENG 2F04 - Chemical Engineering Principles II
- CHEMENG 2G03 - Problem Solving and Technical Communication
- CHEMENG 2O04 - Fluid Mechanics
- CHEMENG 2I03 - Measurements

3 units

- CHEM 1AA3 - Introductory Chemistry II

3 units

- COMMERCE 1AA3 - Introductory Financial Accounting

6 units

- ECON 1BB3 - Introductory Macroeconomics
- ECON 2X03 - Applied Business Economics

6 units

- MATH 2Z03 - Engineering Mathematics III
- MATH 2ZZ3 - Engineering Mathematics IV

Level III: 40 Units

25 units

- CHEMENG 3A04 - Heat Transfer
- CHEMENG 3D03 - Chemical Engineering Thermodynamics
- CHEMENG 3E04 - Process Model Formulation and Solution
- CHEMENG 3G04 - Simulation, Modelling and Problem Solving
- CHEMENG 3K04 - Introduction to Reactor Design
- CHEMENG 3L02 - Intermediate Laboratory Skills
- CHEMENG 3M04 - Mass Transfer and Stagewise Operations

3 units

- approved complementary studies electives

12 units

- COMMERCE 1BA3 - Organizational Behaviour (or 2BA3)
- COMMERCE 2AB3 - Managerial Accounting I
- COMMERCE 2FA3 - Introduction to Finance
- COMMERCE 2MA3 - Introduction to Marketing

Level IV: 34-39 Units (Effective 2016-2017)

7 units
- CHEMENG 2I03 - Measurements
- CHEMENG 3P04 - Process Control

3-4 units

from
- CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
- CHEMENG 4M03 - Separations
- CHEMENG 4T03 - Applications of Chemical Engineering in Medicine
- CHEMENG 4X03 - Polymer Processing

9-units

- COMMERCE 3FA3 - Managerial Finance
- COMMERCE 3MC3 - Applied Marketing Management
- COMMERCE 4QA3 - Operations Modelling and Analysis

3-units

- ENGINEER 4A03 - Sustainability and Ethics in Engineering

3-6 units

- CHEM 2E03 - Introductory Organic Chemistry
  or both
- CHEM 2OA3 - Organic Chemistry I and
- CHEM 2OB3 - Organic Chemistry II

3-units

from
- BIOCHEM 2EE3 - Metabolism and Physiological Chemistry
- CHEMENG 3Q03 - Introduction to Polymer Science
- CHEM 3I03 - Industrial Chemistry
- CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry

3-units

- ENGNMGT 4A03 - Innovation Driven Project Development and Management

3-4 units

- Level III or IV technical electives from approved list B or permission of the Department of Chemical Engineering

Level IV: 34-39 Units (Effective 2017-2018 onwards)

4 units

- CHEMENG 3P04 - Process Control

3 units

- STATS 3Y03 - Probability and Statistics for Engineering

3-46-8 units
Note: Only one course from List B (Chem Eng Sci/Math courses) can be taken over the course of the program.

9 units

- COMMERCE 3FA3 - Managerial Finance
- COMMERCE 3MC3 - Applied Marketing Management
- COMMERCE 4QA3 - Operations Modelling and Analysis

3 units

- ENGINEER 4A03 - Sustainability and Ethics in Engineering

3-6 units

- CHEM 2E03 - Introductory Organic Chemistry
- CHEM 2OA3 - Organic Chemistry I and
- CHEM 2OB3 - Organic Chemistry II

3 units

- CHEMBIO 3BM3 – Implanted Biomaterials
- BIOCHEM 2EE3 - Metabolism and Physiological Chemistry
- CHEMENG 3Q03 - Introduction to Polymer Science
- CHEM 3I03 - Industrial Chemistry
- CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry

3 units

- ENGNMGT 4A03 - Innovation Driven Project Development and Management

3-4 units

- Level III or IV technical electives from approved list B or permission of the Department of Chemical Engineering

Level V: 37-39 Units

10 units

- CHEMENG 4L02 - Advanced Laboratory Skills
• CHEMENG 4N04 - Engineering Economics and Problem Solving
• CHEMENG 4W04 - Chemical Plant Design and Simulation

6 units
• COMMERCE 2BC3 - Human Resource Management and Labour Relations
• COMMERCE 4PA3 - Business Policy: Strategic Management

6 units
from
• CHEMENG 3BK3 - Bio-Reaction Engineering
• CHEMENG 3BM3 - Bioseparations Engineering
• CHEMENG 4A03 - Energy Systems Engineering
• CHEMENG 4B03 - Polymer Reaction Engineering
• CHEMENG 4C03 - Statistics for Engineers
• CHEMENG 4E03 - Digital Computer Process Control
• CHEMENG 4G03 - Optimization in Chemical Engineering
• CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
• CHEMENG 4M03 - Separations
• CHEMENG 4T03 - Applications of Chemical Engineering in Medicine
• CHEMENG 4X03 - Polymer Processing
• CHEMENG 4Y04 – Senior Independent Project
• CHEMENG 4Z03 - Interfacial Engineering
• ENGINEER 4EX3A/B – Experiential Engineering Design

Note: Only one course from List B (Chem Eng Sci/Math courses) can be taken over the course of the program

3 units
• ENGNMGT 5B03 - Engineering and Management Projects
• ENGINEER 4ID3 - Addressing Social Problems Through Business, Engineering and the Social Sciences
• ENGNMGT 5EP3 - New Enterprise Capstone Project (for Entrepreneurship Stream)

6 units
• Commerce electives selected from Level III or IV Commerce,
or
• ENGNMGT 5E03 - Entrepreneurial Processes and Skills
• ENGNMGT 5EL3 - Leading Innovation
  (For Entrepreneurship Stream)

6-8 units
• Level III or IV technical electives from approved list A or permission of the Department of Chemical Engineering

Chemical Engineering and Society, Chemical Engineering and Society Co-op, (B.Eng.Society)

PROGRAM DIRECTOR, ENGINEERING & SOCIETY
C. Churchill (Civil Engineering) B.Eng., M.Eng. (McMaster)
Admission to Level II Engineering Programs

Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

Notes

1. Students may choose to follow a stream of recommended technical elective courses.
   - **Process Systems Engineering (PSE) Stream:**
   - **Required Courses:** CHEMENG 4C03, 4E03, 4G03, 4L02 (PSE laboratories completed). Other courses may be substituted with permission of the Department Chair.
   - **Polymer Materials and Manufacturing (PMM) Stream:**
   - **Required Courses:** CHEMENG 3Q03, 4B03, 4C03, 4L02 (PMM laboratories completed), 4X03, ENGINEER 2O03 (or MATLS 1M03). Other courses may be substituted with permission of the Department Chair.
   - **Water-Energy Technologies (WET) Stream: Required Courses:** CHEMENG 4A03 or ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected) and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.

2. As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1EE0. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.

3. A minimum of 18 units of focus elective courses is required for the program. (This does not include the six units of complementary studies elective in Level I.)

Requirements

**Level II: 36-39 Units**

18 units

- CHEMENG 2D04 - Chemical Engineering Principles I
- CHEMENG 2F04 - Chemical Engineering Principles II
- CHEMENG 2G03 - Problem Solving and Technical Communication
- CHEMENG 2I03 - Measurements
- CHEMENG 2O04 - Fluid Mechanics

3 units

- CHEM 1AA3 - Introductory Chemistry II

6 units

- MATH 2Z03 - Engineering Mathematics III
- MATH 2ZZ3 - Engineering Mathematics IV

6 units

- ENGSOCTY 2X03 - Inquiry in an Engineering Context I
- ENGSOCTY 2Y03 - Case Studies in History and Technology
3-6 units

- Engineering and Society focus electives

**Level III: 32-38 Units (2016-2017 only)**

20 units

- CHEMENG 2I03 - Measurements
- CHEMENG 3A04 - Heat Transfer
- CHEMENG 3D03 - Chemical Engineering Thermodynamics
- CHEMENG 3K04 - Introduction to Reactor Design
- CHEMENG 3L02 - Intermediate Laboratory Skills
- CHEMENG 3M04 - Mass Transfer and Stagewise Operations

3-6 units

- CHEM 2E03 - Introductory Organic Chemistry
  or both
- CHEM 2OA3 - Organic Chemistry I and
- CHEM 2OB3 - Organic Chemistry II

3 units

- STATS 3Y03 - Probability and Statistics for Engineering

3-6 units

- Engineering and Society focus electives

**Level III: 32-38 Units (2017-2018 on)**

20 units

- CHEMENG 3A04 - Heat Transfer
- CHEMENG 3D03 - Chemical Engineering Thermodynamics
- CHEMENG 3K04 - Introduction to Reactor Design
- CHEMENG 3L02 - Intermediate Laboratory Skills
- CHEMENG 3M04 - Mass Transfer and Stagewise Operations

3-6 units

- CHEM 2E03 - Introductory Organic Chemistry
  or both
- CHEM 2OA3 - Organic Chemistry I and
- CHEM 2OB3 - Organic Chemistry II

3 units

- STATS 3Y03 - Probability and Statistics for Engineering

6 units
- ENGSOCTY 3X03 - Inquiry in an Engineering Context II
- ENGSOCTY 3Y03 - Technology and Society

3-6 units
- Engineering and Society focus electives

Level IV: 36-40 Units (2016-2017 and 2017-2018 only)

12 units
- CHEMENG 3E04 - Process Model Formulation and Solution
- CHEMENG 3G04 - Simulation, Modelling and Problem Solving
- CHEMENG 3P04 - Process Control

69 units
from
- CHEMENG 3BK3 - Bio-Reaction Engineering
- CHEMENG 3BM3 - Bioseparations Engineering
- CHEMENG 4A03 – Energy Systems Engineering
- CHEMENG 4B03 – Polymer Reaction Engineering
- CHEMENG 4C03 - Statistics for Engineers
- CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
- CHEMENG 4M03 - Separations
- CHEMENG 4T03 - Applications of Chemical Engineering in Medicine
- CHEMENG 4X03 - Polymer Processing
- CHEMENG 4Z03 - Interfacial Engineering
- ENGINEER 4EX3A/B – Experiential Engineering Design

Note: Only one course from List B (Chem Eng Sci/Math courses) can be taken over the course of the program

6 units
from
- CHEMBIO 3BM3 – Implanted Biomaterials
- BIOCHEM 2EE3 - Metabolism and Physiological Chemistry
- CHEMENG 3Q03 - Introduction to Polymer Science
- CHEM 3I03 - Industrial Chemistry
- CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry

3-4 units
- Level III or IV technical electives from approved list B or permission of the Department of Chemical Engineering

6 units
- ENGSOCTY 3X03 - Inquiry in an Engineering Context II
- ENGSOCTY 3Z03 - Preventive Engineering: Environmental Perspectives

3-6 units
- Engineering and Society focus electives

Level IV: 33-37 Units (2018-2019 on)

12 units
• CHEMENG 3E04 - Process Model Formulation and Solution
• CHEMENG 3G04 - Simulation, Modelling and Problem Solving
• CHEMENG 3P04 - Process Control

69 units
from
• CHEMENG 3BK3 - Bio-Reaction Engineering
• CHEMENG 3BM3 - Bioseparations Engineering
• CHEMENG 4A03 – Energy Systems Engineering
• CHEMENG 4B03 – Polymer Reaction Engineering
• CHEMENG 4C03 - Statistics for Engineers
• CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
• CHEMENG 4M03 - Separations
• CHEMENG 4T03 - Applications of Chemical Engineering in Medicine
• CHEMENG 4X03 - Polymer Processing
• CHEMENG 4Z03 - Interfacial Engineering
• ENGINEER 4EX3A/B – Experiential Engineering Design

Note: Only one course from List B (Chem Eng Sci/Math courses) can be taken over the course of the program

6 units
from
• BIOCHEM 2EE3 - Metabolism and Physiological Chemistry
• CHEM 3I03 - Industrial Chemistry
• CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry
• CHEMENG 3Q03 - Introduction to Polymer Science

3-4 units
• Level III or IV technical electives from approved list B or permission of the Department of Chemical Engineering

3 units
• ENGSOCTY 3Z03 - Preventive Engineering: Environmental Perspectives

3-6 units
• Engineering and Society focus electives

Level V: 34-367 Units

10 units
• CHEMENG 4L02 - Advanced Laboratory Skills
• CHEMENG 4N04 - Engineering Economics and Problem Solving
• CHEMENG 4W04 - Chemical Plant Design and Simulation

6-7 units
from
• CHEMENG 3BK3 - Bio-Reaction Engineering
• CHEMENG 3BM3 - Bioseparations Engineering
• CHEMENG 4A03 - Energy Systems Engineering
CHEMENG 4B03 - Polymer Reaction Engineering
CHEMENG 4C03 - Statistics for Engineers
CHEMENG 4E03 - Digital Computer Process Control
CHEMENG 4G03 - Optimization in Chemical Engineering
CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
CHEMENG 4M03 - Separations
CHEMENG 4T03 - Applications of Chemical Engineering in Medicine
CHEMENG 4X03 - Polymer Processing
CHEM ENG 4Y04 – Senior Independent Project
CHEMENG 4Z03 - Interfacial Engineering
ENGINEER 4EX3A/B – Experiential Engineering Design

Note: Only one course from List B (Chem Eng Sci/Math courses) can be taken over the course of the program

6-8 units

- Level III or IV technical electives from approved list A (Interdisciplinary engineering courses) or permission of the Department of Chemical Engineering

Society:

3 units

- ENGSOCTY 4X03 A/B - Inquiry in an Engineering Context III

3 units

- ENGSOCTY 4Y03 - Society Capstone Design or
- ENGINEER 4ID3 - Addressing Social Problems Through Business, Engineering and the Social Sciences

6 units

- Engineering and Society focus electives

Chemical Engineering, Chemical Engineering Co-op (B.Eng.)

Admission to Level II Engineering Programs

Admission to Level II Engineering programs requires completion of all non-elective Engineering I courses with a minimum Grade Point Average (GPA) of 4.0. All programs have limited enrolment; should there be more applicants than the limiting number in any program, admission to that program will be based on a points system, computed as the product of the Fall-Winter Average and the number of units taken in the session (a minimum of 31 units will be used in the calculation). Students who do not meet the requirements to proceed to Level II in May will have a Pending flag put on their allocation. The Pending flag will be removed in August if the student completes the requirements over the summer.

In addition, admission to a B.Eng.Mgt. program requires the completion of ECON 1B03 with a minimum grade of 5.0; an interview may also be required.

Students admitted to a B.Eng.Society program are required to submit a statement indicating the educational objectives for the focus electives.

Students seeking admission to the Engineering and Management program, or the Engineering and Society program must first be admitted to the relevant department. Thereafter, they will be considered for admission to one of these two programs.

Notes

1. Students may choose to follow a stream of recommended technical elective courses.
   - Process Systems Engineering (PSE) Stream: Required Courses: CHEMENG 4C03, 4E03, 4G03, 4L02 (PSE laboratories completed). Other courses may be substituted with permission of the Department Chair.
• **Polymer Materials and Manufacturing (PMM) Stream: Required Courses:** CHEMENG 3Q03, 4B03, 4C03, 4L02, (PMM laboratories completed), CHEMENG 4X03. Other courses may be substituted with permission of the Department Chair.

• **Water-Energy Technologies (WET) Stream: Required Courses:** CHEMENG 4A03 OR ENG PHYS 3ES3, 4M03, 4L02 (WET laboratories completed), 4W04 (the designated project option must be selected, and one of ENGINEER 4V04 or CIVENG 4V04. Other courses may be substituted with permission of the Department Chair.

2. As well as completing the academic requirements as specified in this Calendar, students in a Co-op program must complete ENGINEER 1EE0. ENGINEER 2EC0 will be added to the academic record for each 4 month work term.

### Admission

See *Admission to Level II Engineering Programs.* (Above)

**Level II: 36 units**

18 units

- CHEMENG 2D04 - Chemical Engineering Principles I
- CHEMENG 2F04 - Chemical Engineering Principles II
- CHEMENG 2G03 - Problem Solving and Technical Communication
- CHEMENG 2I03 - Measurements
- CHEMENG 2O04 - Fluid Mechanics

3 units

- CHEM 1AA3 - Introductory Chemistry II

6 units

- MATH 2Z03 - Engineering Mathematics III
- MATH 2ZZ3 - Engineering Mathematics IV

3 units

- STATS 3Y03 - Probability and Statistics for Engineering

6 units

- approved complementary studies electives

**Level III: 38 units**

29 units

- CHEMENG 3A04 - Heat Transfer
- CHEMENG 3D03 - Chemical Engineering Thermodynamics
- CHEMENG 3E04 - Process Model Formulation and Solution
- CHEMENG 3G04 - Simulation, Modelling and Problem Solving
- CHEMENG 3K04 - Introduction to Reactor Design
- CHEMENG 3L02 - Intermediate Laboratory Skills
- CHEMENG 3M04 - Mass Transfer and Stagewise Operations
- CHEMENG 3P04 - Process Control

9 units

3-6 units from

- CHEM 2E03 - Introductory Organic Chemistry
or both

- CHEM 2OA3 - Organic Chemistry I and
- CHEM 2OB3 - Organic Chemistry II

3-6 units from

- CHEMBIO 3BM3 – Implanted Biomaterials
- BIOCHEM 2EE3 - Metabolism and Physiological Chemistry
- CHEMENG 3Q03 - Introduction to Polymer Science
- CHEM 3I03 - Industrial Chemistry
- CHEMBIO 2A03 - Introduction to Bio-Analytical Chemistry

Level IV: 37-40 units

10 units

- CHEMENG 4L02 - Advanced Laboratory Skills
- CHEMENG 4N04 - Engineering Economics and Problem Solving
- CHEMENG 4W04 - Chemical Plant Design and Simulation

3 units

- ENGINEER 4A03 - Sustainability and Ethics in Engineering

915-16 units

from

- CHEMENG 3BK3 - Bio-Reaction Engineering
- CHEMENG 3BM3 - Bioseparations Engineering
- CHEMENG 4A03 - Energy Systems Engineering
- CHEMENG 4B03 - Polymer Reaction Engineering
- CHEMENG 4C03 - Statistics for Engineers
- CHEMENG 4E03 - Digital Computer Process Control
- CHEMENG 4G03 - Optimization in Chemical Engineering
- CHEMENG 4K03 - Reactor Design for Heterogeneous Systems
- CHEMENG 4M03 - Separations
- CHEMENG 4T03 - Applications of Chemical Engineering in Medicine
- CHEMENG 4X03 - Polymer Processing
- CHEM ENG 4Y04 – Senior Independent Project
- CHEMENG 4Z03 - Interfacial Engineering
- ENGINEER 4EX3A/B – Experiential Engineering Design

Note: Only two courses from List B (Chem Eng Sci/Math courses) can be taken over the course of the program

3 units

- complementary studies electives

6-7 units

- Level III or IV technical electives from approved list A or B or permission of the Department of Chemical Engineering

6-8 units

- Level III or IV technical electives from approved list A (Interdisciplinary engineering courses) or permission of the Department of Chemical Engineering
Addendum for School of Interdisciplinary Science

1.0 CHANGES TO EXISTING PROGRAMS:

1.1 Honours Life Sciences (B.Sc.)

Admission Notes
1. Completion of BIOLOGY 1A03, 1M03, and either PSYCH 1F03 or 1X03, and 1XX3 is required by the end of Level II.
2. Completion of one of BIOPHYS 1S03, MEDPHYS 1E03, PHYSICS 1A03, 1B03, 1C03, 1L03 is required by the end of Level III. PHYSICS 1A03 or 1C03 (or PHYSICS 1B03) is a prerequisite for BIOLOGY 2A03 and, therefore, completion in Level I is recommended. PHYSICS 1A03 or 1C03 (or 1B03 or 1L03) is a prerequisite for LIFESCI 3J03. Effective September 2017, PHYSICS 1A03 or 1C03 will be required for admission.

Admission
Completion of any Level I program with a Grade Point Average of at least 5.0 including:
3 units from
- MATH 1A03 - Calculus For Science I
- MATH 1LS3 - Calculus for the Life Sciences I
9 units from the following courses, where an average of at least 6.0 (between the courses) is required
- BIOLOGY 1A03 - Cellular and Molecular Biology
- BIOLOGY 1M03 - Biodiversity, Evolution and Humanity
- PSYCH 1F03 - Survey of Psychology
- PSYCH 1X03 - Introduction to Psychology, Neuroscience & Behaviour
- PSYCH 1XX3 - Foundations of Psychology, Neuroscience & Behaviour
(See Admission Note 1 above.)
12 units from
- the Science I Course List (See Admission Notes above.)

Admission (Effective September 2017)
Completion of any Level I program with a Grade Point Average of at least 5.0 including:
3 units
- BIOLOGY 1A03 - Cellular and Molecular Biology
3 units
- CHEM 1A03 - Introductory Chemistry I
3 units from
- MATH 1A03 - Calculus For Science I
- MATH 1LS3 - Calculus for the Life Sciences I
6 units
- BIOLOGY 1A03 - Cellular and Molecular Biology
- CHEM 1A03 - Introductory Chemistry I
3 units from
- PHYSICS 1A03 - Introductory Physics
- PHYSICS 1C03 - Physics for the Chemical and Physical Sciences
3 units from
- BIOLOGY 1M03 Biodiversity, Evolution and Humanity
### Justification:

During the 2015-16 curriculum review cycle, the admission requirements for all Level 2 Life Sciences programs changed for students entering in September 2017 and two sets of admission requirements were included in the 2016-17 Undergraduate Calendar. This change marked the first time in which the Life Sciences 1 program recommendations (requirements) and the admission requirements to Level 2 Life Sciences programs would be somewhat different.

In spite of our best efforts to inform students of the impending changes, it was recently discovered that a significant number (>500) of Life Sciences 1 gateway students are not enrolled in the appropriate courses to satisfy the admission requirements for entry into Level 2 of any Life Sciences program for 2017.

Given this, we propose to amend the admission requirements to all Life Sciences programs, for September 2017 and 2018, for the following reasons:

- In fairness to the students, they were not looking for the change.
- The requirements are unusual compared to other Honours programs (a different course list is used).
- The Undergraduate Calendar (both print and on-line) is confusing as two sets of admission requirements are listed.
- In hindsight, we may not have clearly advertised these changes to the Level 1 students, during their registration period (in June/July).
- The “What to do in level 2” Program Fair does not happen until mid-March (at which time it is too late for students to amend their Winter Term course selection).

As indicated above, the slight relaxation/amendment allows students to select 9 units from the Science I course list (commonly used by other Life Sciences umbrella programs) instead of the more restricted list approved in 2015-16. This has been approved by the Faculty of Science, Academic Planning and Policy Committee.
Health Aging & Society

1.0 NEW COURSES:

1.1 COURSE ABBREVIATION & CODE COURSE TITLE

HLTHAGE 2GG3 - Mental Health and Society
3 unit(s)

An examination of mental health and illness from different social, cultural and historical perspectives, including consideration of changing notions of diagnosis, treatment and prevention.

Three hours (lectures and discussion); one term

Prerequisite(s): Registration in Level II or above

Justification:
HLTHAGE 2GG3 will replace HLTHAGE 2G03 due to HLTHAGE 2G03 having significant overlap with HLTHAGE 1CC3. Initially this was not anticipated to be problematic but once the new minor, The Social Studies of Mental Health and Addiction was introduced, this created a path for students to take HLTHAGE 1CC3 and then HLTHAGE 2G03 afterwards. This problem is rectified with now with the introduction of HLTHAGE 2GG3 and new and different content from that of HLTHAGE 1CC3.

2.0 COURSE DELETIONS:

2.1 HLTHAGE 2G03 - Mental Health and Society

Justification: see above

3.0 REVISIONS TO EXISTING PROGRAMS:
3.1 Minor in the Social Studies of Mental Health and Addiction

REQUIREMENTS
24 units total

3 units from
  · HLTH AGE 1CC3 (or HLTH AGE 2G03 if taken prior to Spring 2016) – Introduction to Mental Health and Illness

3 units from
  · HLTH AGE 1AA3 – Introduction to Health Studies
  · HLTH AGE 1BB3 - Aging and Society
  · SOCWORK 1AA3 - So You Think You Can Help? Introduction to Social Work I
  · SOCWORK 1BB3 - Reimagining Help: Introduction to Social Work II
  · SOCIOL 1C03 - Canadian Society: Social Problems, Social Policy, and the Law
  · SOCPSY 1Z03 – An Introduction to Social Psychology

3 units from
  · HLTH AGE 2GG3 (or if HLTH AGE 2G03 taken between June 2016 and August 2017) – Mental Health and Society

15 units from
  · Course List

3.2 This new course HLTHAGE 2GG3 will be added wherever HLTHAGE 2G03 was present as follows:

For Honours Social Psychology, HLTHAGE 2GG3 will be added to the Multidisciplinary Course List.

For the Minor in Justice Law & Order, HLTHAGE 2GG3 will be added to in the Multidisciplinary Course List.

For the Interdisciplinary Minor in Social Justice and Inclusive Communities, HLTHAGE 2GG3 will be added to in the Course List.
1.0 NEW COURSES:

1.1 COURSE ABBREVIATION & CODE  COURSE TITLE

SOCSCI 2BA3 – Introduction to Business Analysis for Social Sciences
3 unit(s)

The foundation of Business Analysis is planning, stakeholder analysis, structure and cultural awareness of an enterprise. Prepare for Business Analysis projects through needs analysis and business plan development using industry standard strategies such as project charter, interview and focus group techniques.

Three hours (lectures and discussion); one term

Prerequisite(s): Registration in Level II or above of a program in the Faculty of Social Sciences.

Justification:
SOCSCI 2BA3 will be a required course for the Affiliated Certificate in Business Studies. This new course will replace SOCSCI 2PF3 which will be last offered and phased out during the 2017-18 Fall/Winter terms.

1.2 Revisions to Notes

Courses for the Business Studies Certificate

- SOCSCI 2AC3 – Financial & Managerial Accounting for Social Sciences
- SOCSCI 2BU3 – Introduction to Business for Social Sciences
- SOCSCI 2EN3 – Entrepreneurial Training for Social Sciences
- SOCSCI 2HR3 – Human Resources Management for Social Sciences*
- SOCSCI 2MR3 – Introduction to Marketing for Social Sciences

One of:

- SOCSCI 2BA3 - Introduction to Business Analysis for Social Sciences
- SOCSCI 2PF3 – Personal Financial Management for Social Sciences