REPORT OF ACADEMIC STANDARDS COMMITTEE
Report #W2020–3; April 2020

In this report the Academic Standards Committee (ASC) brings to Senate its evaluation and recommendation on the following items:

- **PERIODIC PROGRAM REVIEW – Department of Aerospace Engineering, Faculty of Engineering and Architectural Science**
- **PERIODIC PROGRAM REVIEW – Department of International Economics and Finance, Faculty of Arts**
- **FACULTY OF COMMUNICATION AND DESIGN – Universities of Canada-Egypt Partnership proposal**
- **CHANG SCHOOL - Certificate review for Advanced Nursing Leadership and Management**
- **CHANG SCHOOL - Certificate modifications to Advanced Nursing Leadership and Management**
- **CHANG SCHOOL - New Certificate in Introduction to Community Services**
- **CHANG SCHOOL - New Certificate in Practical Data Science and Machine Learning**
- *For Information*: **Chang School Certificates – Revisions (February 2020)**

A. PERIODIC PROGRAM REVIEW – DEPARTMENT OF AEROSPACE ENGINEERING, FACULTY OF ENGINEERING AND ARCHITECTURAL SCIENCE

FINAL ASSESSMENT REPORT (FAR)
In accordance with the Institutional Quality Assurance Process (IQAP)**,** this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the undergraduate **Aerospace Engineering** program. The report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.

The Implementation Plan identifies who will be responsible for leading the implementation of the recommendations; who will be responsible for providing any resources entailed by those recommendations; and timelines for acting on and monitoring the implementation of the recommendations.

SUMMARY OF THE PERIODIC PROGRAM REVIEW OF THE AEROSPACE ENGINEERING PROGRAM
The Aerospace Engineering program submitted a self-study report to the Vice-Provost Academic on December 3, 2019. The self-study presented the program description and learning outcomes, an analytical assessment of the program, and program data including the data collected from a student survey along with the standard University Planning data tables. Appended were the course outlines for all core required and elective courses in the program and the CVs for all RFA faculty members in the Department of Aerospace Engineering and all other faculty who have recently taught core courses (required and/or elective).

Three arm's-length external reviewers, Dr. Peter Grant, Professor and Aerospace Major Chair, Faculty of Applied Science and Engineering at the University of Toronto, Dr. Regina Lee, Associate Dean of Research and Graduate Studies, Lassonde School of Engineering at York University, and Dr. Alexander Ferworn, Professor in the Department of Computer Science at Ryerson University, were appointed by the Dean of the Faculty of Engineering and Architectural Science from a set of proposed reviewers. They reviewed the self-study documentation and then conducted a site visit at Ryerson University on May 7 and 8, 2019.

The visit included meetings with the Provost and Vice-President Academic; Vice-Provost Academic; Dean, Faculty of Engineering and Architectural Science; Associate Dean FEAS undergraduate; Chair, Aerospace

Engineering; and the Associate Chair, Aerospace Engineering. The PRT also met with several members of the Department of Aerospace Engineering including staff, students, and faculty members, as well as with Faculty of Science Chairs from Mathematics, Chemistry, Physics and Computer Science, and the Chief Librarian. A general tour of the campus was provided, including a tour of the program's laboratory facilities and the library.

In their report, dated May 30, 2019, the Peer Review Team (PRT) provided feedback that describes how the Aerospace Engineering program meets the IQAP evaluation criteria and is consistent with the University's mission and academic priorities. The Peer Review Team (PRT) also noted that the Aerospace Engineering program is in high demand by students, and graduates of the program are in demand within the aerospace industry. The curriculum is in line with other aerospace departments within Canada and was recently accredited by the CEAB.

The main areas of strength identified by the PRT include:
- Students engaged in the program and in extracurricular student clubs that the program supports.
- The 'hands on' approach to curriculum, faculty instruction and the RIADI program.
- Well designed and executed laboratories, run by experienced and professional technical staff.
- Alignment with the experiential learning goal in Ryerson's strategic plan.

The PRT also identified areas for improvement, including the large size of first year service courses which negatively affect the learning experience; a lack of appropriate study space for students; incorporation of student feedback; on campus student safety; and the need for improved gender diversity.

The Chair of the Aerospace Engineering program submitted a response to the PRT Report on June 10, 2019. The response to both the PRT Report and the Program's Response was submitted by the Acting Dean of the Faculty of Engineering and Architectural Science on November 26, 2019.

The Academic Standards Committee completed its assessment of the Aerospace Engineering Program Review on February 13, 2020. The Committee indicated that a thorough, analytical and self-critical program review was conducted. The School integrated into the developmental plan feedback from students, alumni, employers and peer reviewers, and outlined a comprehensive plan for program enhancements moving forward.

The Academic Standards Committee recommends that the program continue, as well as provide a one-year follow-up report by June 30, 2021, as follows:

1. Information on the FEAS EDI Task Force mandate, membership, and activities;
2. Report on the status of the initiatives outlined in the Implementation Plan.

Presented to Senate for Approval: April 7, 2020

Start date of next Periodic Program Review: 2024-25

SUMMARY OF THE REVIEWERS' RECOMMENDATIONS WITH THE PROGRAM'S AND DEAN'S RESPONSES

RECOMMENDATION 1. Working closely with the First-year Engineering Office, class sizes for 1st year service courses should be capped at somewhere around 150 students if possible.
Department's Response: Large class sizes are common in the first year of the program. All first year classes, except AER 222, have the potential to be large (more than 150 students). The subjects of these courses are:

Mathematics, Chemistry, Physics, Computer Science, and Economics. The program agrees that large classes are detrimental to student learning. However, since these courses are managed by departments outside FEAS, the program must work through the Faculty to address such changes. The program will ask the Associate Dean of Undergraduate studies to work with service departments to lower class sizes.
Dean's Response: not specifically addressed.

RECOMMENDATION 2. The university as a whole should investigate new ways to generate appropriate study space. These spaces should have outlets.
Department's Response: With increasing enrollment in the university, more pressure will be placed on student study space. Ideally, study space dedicated to program students only would alleviate student concerns. The program will make a request through the Dean of FEAS to have more study space made available to program students. This would be a long-term goal since space for any purpose at Ryerson is in very short supply.
Dean's Response: The Faculty recognizes that space issues are one of the biggest threats facing our programs. The Department has developed a significant research facility at Downsview Airport (DAIR), which has helped alleviate some of the space stresses facing the Department. This facility is expected to continue to grow and is already a showpiece for the Department.

RECOMMENDATION 3. IT support for aerospace computing needs to be carefully examined in consultation with the Faculty level support staff. An alternative solution may be required for the suite of specialized software that are available only in the limited space with one technician.
Department's Response: The PRT recognizes that IT support for the program has remained unchanged over the past decade, even though student enrollment in the program has grown 40%. IT support is the one function of the program and the Aerospace Department that is under the most pressure. As artificial intelligence, big data analysis, and integrated engineering software platforms become the norm, pressure on IT capability will only increase. The program will request a new IT position that can support the undergraduate program and research needs of the Department of Aerospace Engineering.
Dean's Response: Needed ongoing investments will be made to ensure continued contribution to the discipline and community. Specific curricular development efforts will be made to improve experiences for greater interdisciplinarity and flexibility for students within the department, across the Faculty and university. Finally, proper staffing will support these goals in a reliable and sustainable manner.

RECOMMENDATION 4. A method should be developed for ensuring the student feedback is taken seriously by all faculty within the department and a clear message to the student is provided in implementing the solution.
Department's Response: The faculty course surveys done at the end of each course do not provide direct feedback on student experience. The program will consider developing its own survey with a free form written section for students to supply feedback. This survey can be developed in conjunction with the efforts currently underway in FEAS. The results of the survey can be compiled at the end of the Winter term and supplied to the Aerospace Curriculum Committee (ACC) along with results from the CEAB GA survey and Industrial Advisory Committee (IAC) review. The recommendations of the ACC involve program curriculum and course content. The ACC recommendations must be approved by the Department Council which has representation from the student body. In this manner, the students will be informed of program changes resulting from student surveys.
Dean's Response: It is a priority for the Faculty to develop a student-centered culture in all Departments. The Faculty has established an "all-in approach" to all Faculty activities which will continue to develop and enhance the student experience.

RECOMMENDATION 5. The department should continue to explore new ways to address gender diversity within the faculty and student body.
Department's Response: Approximately 16% of the undergraduate students are female in 2018-2019. This

number has risen from about 9% a decade ago. Progress is being made but it is slow. The point at which student choice can be influenced is while they are considering career options in high school. The female faculty in the program have visited high schools in the past, which may explain the rise in the number of female students. However, more can be done. The program along with FEAS should consider high school student competitions to make student aware of Aerospace as a career option. In the past, the program has run rocketry and radio-controlled aircraft competitions. In terms of the faculty compliment, the Department Hiring Committee (DHC) has been making an effort to actively encourage qualified female candidates to apply for existing faculty positions. It has been working with the Human Resources department to craft appropriate job postings to encourage diverse applicants. The DHC will continue to do so when additional positions become available. ***Dean's Response:*** not specifically addressed.

RECOMMENDATION 6. The program should try to incorporate emerging aerospace fields such as UAVS, autonomous systems, and AI in the curriculum as these fields mature.
Department's Response: This point made by the PRT reflects the rapidly changing engineering environment in aerospace. The program must incorporate these emerging fields to maintain its advantage as a leading edge engineering program. The ACC can create a subcommittee to investigate how these fields can be merged with the program. If these fields can be combined with integrated engineering software platforms and cloud based connectivity, a truly advanced, efficient, state-of-the-art educational experience would be available to students.
Dean's Response: The Department will review its program structure to limit duplication. The Department will also look at ways to include new technologies, such as unmanned aerial vehicles (UAVs) and artificial intelligence (AI). The Department's Developmental Plan includes a full curriculum review, which should address the PRT's recommendations.

RECOMMENDATION 7. The program should explore ways to increase the multi-disciplinary nature of the program perhaps by engaging students and faculty from other programs around the University.
Department's Response: The program has one potential pathway to engage students from other disciplines. The capstone courses could be reconfigured to do projects with large teams that utilize a number of disciplines to provide comprehensive solutions. This would require buy-in from other disciplines and a logistics framework to allow efficient interaction of team members. A competitive format can be used between teams to enhance productivity and innovation.
Dean's Response: refer to Dean's response to recommendation 6.

RECOMMENDATION 8: The program should create opportunities for community outreach which, in turn, would create opportunities for student engagement.
Department's Response: There are several possible pathways to enhance community outreach and student engagement. Mentioned previously in recommendation 5, high school visits and design competitions would create community engagement. Another pathway involves extra-curricular student teams. At present, a number of student teams exist within the aerospace undergraduate cohort that work to enter internationally sponsored design competitions. These teams are open to all willing student participants, and have always been multidisciplinary as a result. Greater support and encouragement by the program would satisfy this recommendation without significantly altering the program. A final pathway would be to create an open elective course focusing the impact of aviation and space exploration. Aerospace has a rich history and has broad community interest which can be used to create a liberal studies course with a wide appeal.
Dean's Response: The Faculty of Engineering and Architectural Science recognizes the value of the program to students, faculty and the public at large. As such, needed ongoing investments will be made to ensure its continued contribution to the discipline and community.

RECOMMENDATION 9: The program should seek higher visibility on campus and engage more members of the Ryerson community.

Department's Response: Greater visibility of artifacts clearly associated with the program will enhance its presence in the University community. One possibility is to use artifacts created by the student competition teams placed around campus to publicize program capability. Such artifacts could include aircraft created to enter the SAE Heavy Lift Competition, or rockets created to enter the Spaceport America Cup, or even the personal flying device in the to Go-Fly competition. Student teams are willing to display their entry after a competition is complete since entries in following years require completely new craft.

Dean's Response: Specific curricular development efforts will be made to improve experiences for greater interdisciplinarity and flexibility for students within the department, across the Faculty and university.

RECOMMENDATION 10: The program should continue to grow the CIP and RIADI programs so that all students have this opportunity for experiential learning.

Department's Response: The Cooperative Internship Program (CIP) and the Ryerson Institute for Aerospace Design and Innovation (RIADI) provide internships to students to enhance experiential learning and career readiness. In fact, the RIADI program is unique in the University and predated the cooperative program. These programs provide a tremendous benefit to student experience and career preparation. The program will make a greater effort to use its existing links with industry to create more internship opportunities.

Dean's Response: refer to Dean's response to recommendation 4 and 6.

IMPLEMENTATION PLAN

Priority Recommendation #1: *Working closely with the First-year Engineering Office to cap class sizes for 1st year at somewhere around 150 students if possible.*
Rationale: *The program agrees that large classes are detrimental to student learning. Reducing class sizes can be helpful in improving the first year students learning.*
Implementation Actions: • *The program will work through the Faculty to reduce class sizes, especially in first year to below 150.*
Timeline: *Department will send the request to the Associate Dean in Fall 2020*
Responsibility for **a) leading initiative:** *Associate Chair Undergraduate* **b) approving recommendation, providing resources, and overall monitoring:** *Faculty Dean*

Priority Recommendation #2: *Working with the Dean of FEAS to investigate new ways to generate appropriate study space for the program students.*
Rationale: Study space dedicated to program students would alleviate student study space concerns.
Implementation Actions: • *The program will continue to work through the Dean of FEAS to have more study space made available to program students.*
Timeline: *Long term due to the campus space limitation*
Responsibility for **a) leading initiative:** *Department Chair* **b) approving recommendation, providing resources, and overall monitoring:** *Faculty Dean*

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Priority Recommendation #3: *IT support for aerospace computing needs to be carefully examined in consultation with the Faculty level support staff.*
Rationale: *IT support is the one function of the Department that is under the most pressure. As artificial*

intelligence, big data analysis, and integrated engineering software platforms become the norm, pressure on IT capability will only increase.

Implementation Actions:

- *The program will request a new IT position that can support the undergraduate program and research needs of the Department of Aerospace Engineering*

Timeline: *Request will go to the Dean in Fall 2020*

Responsibility for
a) leading initiative: *Chair*
b) approving recommendation, providing resources, and overall monitoring: *Faculty Dean*

Priority Recommendation #4: *Developing a method to ensure the student feedback is taken seriously by all faculty within the department.*

Rationale: *The faculty course surveys done at the end of each course do not provide direct feedback on student experience. The program needs to develop its own survey and develop guidelines to improve the program using student surveys.*

Implementation Actions: *e.g.*

- *The program will develop its own survey with a free form written section for students to supply feedback.*
- *The results of the survey will be compiled at the end of each winter term and supplied to the ACC along with results from the CEAB GA survey and IAC review.*
- *ACC recommendations must be approved by the Department Council which has representation from the student body.*

Timeline: *2021-22 academic year*

Responsibility for
a) leading initiative: *ACC*
b) approving recommendation, providing resources, and overall monitoring: *Department Council*

Priority Recommendation #5: *Exploring new ways to address gender diversity within the faculty and student body.*

Rationale: *Though the percentage of female students are increased during the past decade, the program still need to do more to attract female students. Progress is being made but it is slow.*

Implementation Actions:

- *The program along with FEAS will visit high schools to make student aware of Aerospace as a career option.*
- *The program will run competitions such as rocketry and radio-controlled aircraft to attract female students.*
- *The Chair and DHC will make every effort to actively encourage qualified female candidates to apply for existing faculty positions for any new faculty position.*

Timeline: *Ongoing*

Responsibility for
a) leading initiative: *Department Chair, DHC, FEAS*
b) approving recommendation, providing resources, and overall monitoring: *Faculty Dean*

Priority Recommendation #6: *Incorporating emerging aerospace fields in the curriculum.*

Rationale: *The engineering environment in aerospace is rapidly changing. The program must incorporate the emerging fields to maintain its advantage as a leading edge engineering program.*

Implementation Actions:
• *The ACC will create a subcommittee to investigate how the new subjects can be merged with the program.*
• *The ACC will prepare the recommendation to the Department Council for approval.*
• *The Department gradually implements the approved changes to the program.*

Timeline: *Process will be initiated in 2020-2021 academic year*

Responsibility for

a) leading initiative: *ACC and Associate Chair*

b) approving recommendation, providing resources, and overall monitoring: *The Department Council*

Priority Recommendation #7: *Exploring ways to increase the multi-disciplinary nature of the program.*

Rationale: *Improving multi-disciplinary form of education will enhance productivity and innovation.*

Implementation Actions:

• *The capstone course coordinators will explore possibility of reconfiguring the projects to utilize students from other disciplines.*

Timeline: *Academic year 2020-2021*

Responsibility for

a) leading initiative: *Capstone Course Coordinators*

b) approving recommendation, providing resources, and overall monitoring: *Department Associate Chair*

Priority Recommendation #8: *Creating opportunities for community outreach and student engagement.*

Rationale: *To enhance community engagement and program visibility*

Implementation Actions:

• *The program along with FEAS will visit high schools to make student aware of Aerospace as a career option.*

• *The program will run competitions such as rocketry and radio-controlled aircraft to attract young students.*

• *The Department will give greater attention and support to extra-curricular student teams and encourage them to enter into national and internationally sponsored design competitions.*

• *The Department will create a liberal-studies course focusing on the impact of aviation and space exploration.*

Timeline: *Ongoing*

Responsibility for

a) leading initiative: *Department Chair*

b) approving recommendation, providing resources, and overall monitoring: *FEAS*

Priority Recommendation #9: *Seeking higher visibility on campus and engaging more members of the Ryerson community.*

Rationale: *This will enhance program visibility on campus and improve the multidisciplinary nature of the program.*

Implementation Actions:

• *The program will have higher participation in Ryerson Engineering Day*

• *The Department will place around campus artifacts created by the student competition teams to publicize the program capability.*

Timeline: Ongoing

Responsibility for

a) leading initiative: *Department Associate Chair*

b) approving recommendation, providing resources, and overall monitoring: *Department Chair*

Priority Recommendation #10: *Growing the CIP and RIADI programs.*
Rationale: *This will enhance students' experiential learning through internships.*
Implementation Actions: • *The program will make a greater effort to use its existing links with industry to create more internship opportunities through RIADI and CIP.*
Timeline: Ongoing
Responsibility for **a) leading initiative:** *CIP and RIADI Directors* **b) approving recommendation, providing resources, and overall monitoring:** *FEAS Dean*

Recommendation

Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the Periodic Program Review for the Department of Aerospace Engineering Bachelor of Engineering Degree Program - Faculty of Engineering and Architectural Science.*

B. PERIODIC PROGRAM REVIEW – DEPARTMENT OF INTERNATIONAL ECONOMICS AND FINANCE, FACULTY OF ARTS

FINAL ASSESSMENT REPORT (FAR)

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

The Implementation Plan identifies who will be responsible for leading the implementation of the recommendations; who will be responsible for providing any resources entailed by those recommendations; and timelines for acting on and monitoring the implementation of the recommendations.

SUMMARY OF THE PERIODIC PROGRAM REVIEW OF THE INTERNATIONAL ECONOMICS AND FINANCE PROGRAM

The International Economics and Finance program submitted a self-study report to the Vice-Provost Academic on January 17, 2020. The self-study presented the program description and learning outcomes, an analytical assessment of the program, and program data including the data collected from students, alumni and employers along with the standard University Planning data tables. Appended were the course outlines for all core required and elective courses in the program and the CVs for all RFA faculty members in the Department of Economics and all other faculty who have recently taught core courses (required and/or elective).

Three arm's-length external reviewers, Dr. Alok Johri, Department of Economics, McMaster University, Dr. Miquel Faig, Department of Economics, University of Toronto Mississauga, and Dr. Yuanshun Li, School of Accounting and Finance, Ted Rogers School of Management, Ryerson University, were appointed by the Dean of Arts from a set of proposed reviewers. They reviewed the self-study documentation and then conducted a site visit at Ryerson University on April 8 and 9, 2019.

The visit included meetings with the Provost and Vice-President Academic; Vice-Provost Academic; Dean, Faculty of Arts; Associate Dean of Arts, Undergraduate Studies; Associate Dean of Arts, Research & Graduate Studies; Chair, Department of Economics; and the Undergraduate Program Director, Economics. The PRT also met with several other members of the Department of Economics including staff, students, and faculty members, as well as with the Chief Librarian. A general tour of the campus was provided, including a tour of the Library and the Student Learning Centre.

In their report, dated May 24, 2019, the Peer Review Team (PRT) provided feedback that describes how the International Economics and Finance program meets the IQAP evaluation criteria and is consistent with the University's mission and academic priorities.

The main areas of strength identified by the PRT include the enthusiasm and collegiality of its faculty, staff, and students. Moreover, the thriving research culture in the Department, demonstrated by the rising number of publications and research grants, provides a strong foundation for the quality of the BA program. By now this program has a solid reputation and has proved that can attract good students and place them well. For this endeavor, the successful internship program and the linkages between the Department and the potential private and public employers are key. Other assets are the attractive location in downtown Toronto and the constructive alumni engagement.

The PRT also identified areas for improvement, including addressing the constrained resources available to the Department, a need to hire additional faculty and seeking ways to improve first-year student retention.

The Chair of the International Economics and Finance program submitted a response to the PRT Report on September 18, 2019. The response to both the PRT Report and the Program's Response was submitted by the Dean of the Faculty of Arts on January 15, 2020.

The Academic Standards Committee completed its assessment of the International Economics and Finance Program Review on February 27, 2020**.** The Committee indicated that a thorough, analytical and self-critical program review was conducted. The Department integrated into the developmental plan feedback from students, alumni, employers and peer reviewers, and outlined a comprehensive plan for program enhancements moving forward.

The Academic Standards Committee recommends that the program continue, as well as provide a one-year follow-up report by June 30, 2021**,** as follows:

1. Update on 2nd year student retention numbers;
2. Update progress on incorporation of cultural relevance and EDI in course content;
3. Report on the status of the initiatives outlined in the Implementation Plan.

Presented to Senate for Approval: April 7, 2020

Start date of next Periodic Program Review: 2023-24

SUMMARY OF THE REVIEWERS' RECOMMENDATIONS WITH THE PROGRAM'S AND DEAN'S RESPONSES
As proposed by the Reviewing Team:
RECOMMENDATION 1. Offer more competitive salaries to job market candidates. For the programs in Economics at Ryerson to develop their potential the Department needs to be able to attract strong new graduates in a highly competitive market.

Department's Response: The program agrees with the PRT's argument that low starting salaries present an important challenge in hiring top candidates. The program will collaborate with the Dean of Arts, VP Faculty Affairs, VP Planning and Provost in order to find solutions that would allow the university to offer starting salaries to new Economics faculty on par with starting salaries offered at comparable institutions.

Dean's Response: The Faculty of Arts and the VP Planning and Provost are well aware of the challenges that our relatively low starting salaries pose in relation to Economics and a few other disciplines. Creative solutions are welcome in the context of fiscal constraints and collective agreement restrictions.

RECOMMENDATION 2. Design a system to reward and recognize the research and the successful PhD supervisions accomplished by tenured faculty. This system of rewards should increase the productivity of the current faculty. This would partly address the urgency of expanding faculty size to satisfy the growth of the MA and the PhD programs.

Department's Response: The program will discuss with the Dean of Arts and the Dean of YSGS the possibility of designing such a system. The program would also like to note that the need of such a program would be less pressing in a department with a larger number of faculty members, as supervisory duties would be shared by a larger number of faculty, and teaching needs could be better accommodated to faculty's areas of expertise.

Dean's Response: While discussions are always helpful, it should be noted that the Dean of Arts recently eliminated the awarding of points for completed graduate supervisions, with accumulated points being redeemable for course release. As the Faculty of Arts moved to a reduction in course load to a standard load of 2+2, compensation for graduate supervisions were deemed unnecessary. Nonetheless, the Faculty of Arts cannot rule out the possibility that discussions with the Yeates School of Graduate Studies may lead to a creative solution to this issue.

RECOMMENDATION 3. Allow the Department to make the best possible use of the faculty complement it has. The shortage of tenure stream faculty can be alleviated by placing young and research active faculty to teach graduate courses and advanced undergraduate ones. Other instructors can successfully teach the less advanced courses.

Department's Response: The program will collaborate with the Dean of Arts, VP Academic and VP Faculty Affairs in finding ways to reduce the number of required and advanced program courses taught by non-tenure stream faculty. The program would like to note that, with a faculty size of 30 (Program Recommendation 3), the program would be able to assign both large introductory courses and most required and advanced program courses to tenure stream faculty. In the meantime, the program will study alternative delivery methods for the large introductory courses that could release some of the faculty assigned to teach those courses without impacting the student experience.

Dean's Response: In determining teaching assignments, the Department must consider the constraints of the RFA and the CUPE Collective Agreements with regard to class size. In addition, there is a great pedagogical benefit for first year students in having contact with tenure-stream faculty, allowing for greater engagement with the Department and the possible promotion of more advanced courses early on in the program. Achieving the proper balance of tenure-stream and non-tenure-stream faculty is a matter for discussion during teaching assignments.

RECOMMENDATION 4. Drop International in the program's name. The BA (International Economics and Finance) focusses issues related to the International/Global Economy and Finance. However, students learn as much economics as those in competing programs at other universities. Also, they do not learn much more international economic issues than those in competing program may learn. Finally, the "International" in the title was not helpful in finding jobs or entering in MA programs. Consequently, we propose to change the title to BA (Economics and Finance) and leave the focus on international issues for the description.

Department's Response: The program agrees with the PRT's recommendation.

Dean's Response: The PRT and the Department are in agreement that the word "international" should be dropped from the name of the program, although the Department originally proposed in the self-study the creation of two streams: International Economics and Financial Economics. If the "International Economics" stream is not sufficiently "international", what steps can be taken to ensure that it becomes so? Or is it simply best to remove the word "international"? The Dean of Arts Office considers that this is a decision for the Department to make, but would recommend consultation with the Admissions Office and Student Recruitment to evaluate the appeal of the resulting program name. How will the Department differentiate the two streams from competing programs in the GTHA and beyond?

Included in Reviewing Team list of recommendations, as proposed by the Program:
RECOMMENDATION 5. Split the BA (International Economics and Finance) into two programs, namely, the Bachelors in International Economics and the Bachelors in Financial Economics. Agree - We find this split to be reasonable. With it, students will have more flexibility to tailor the courses they take to their needs. We would, however, propose that the label of the stream "Bachelors in International Economics" be simply Bachelors in Economics (see recommendation 4 proposed by the team for the rationale).
Department's Response: Given the favorable opinion of the PRT on this recommendation, the program will propose to the university to change the name of the BA to Bachelors in Economics and to offer concentrations in International Economics and International Finance. The program will also liaise with other departments (Math, Computer Science) to explore the possibility of offering additional concentrations.
Dean's Response: The Dean of Arts office strongly endorses the creation of concentrations. A similar proposal for the division of the degree into International Economics and a new BA in Financial Economics was previously submitted to the Dean's Office in 2017 and was endorsed at the decanal level for consideration by the VPA's office. However, the VPA's office pointed out at that time that it would be premature to bring this forward as the Department was about to embark on the PPR process. It is encouraging to see that the PRT is also in favour of this curricular development. Expanding the concentrations by working with other departments such as Mathematics and Computer Science also has great potential. Dividing International Economics and Finance into two separate degree programs would necessitate a more complex process, requiring an LOI. The Department will have to weigh its options: Is there a great advantage to having two separate programs rather than separate concentrations within a single program? How would the proposed concentrations from outside the Faculty of Arts fit into the two programs? Would there be more or less flexibility for students moving from one program to another? What would the impact be for the administration of the mandatory internship? More discussion is necessary here.

RECOMMENDATION 6. Change admission requirements to the BA (International Economics and Finance) by raising the entering average from 70 percent to 75 percent and maybe dropping the high school math requirement. Disagree - It is important for programs to admit students who can complete them. If students in the 70 to 75 entering average have difficulties progressing, it is reasonable to modify the entering average grade as proposed. The elimination of the math requirement seems to go in the opposite direction. We recommend requiring a 75 % mark in the High School math courses so that the entering cohort has a better grasp of the math taught at the high school level.
Department's Response: Regarding High School marks, the program will consult with the Admissions Office to discuss the repercussions of setting the minimum High School entry average to 75%. The program will also discuss with the Admissions Office potential promotion strategies to attract higher average students who are committed to the program, which would improve first year retention. Regarding the entry math requirement, the program disagrees with the recommendation of the PRT: studies undertaken by the department show that the High School entering average is the best predictor of success in the program's first year required courses, whereas there is little correlation between students' performance and their math entry average (or the grade 12 math course taken.)

Dean's Response: It should be noted that entering averages generally reflect the degree's power of recruitment. Raising the average might necessitate a decrease in the size of the first-year cohort, which could have significant resource implications. The Economics department has worked for many years to provide remedial math training to students and consider that their training is more useful than high school math. They point out that their own studies show that the High School Entering average is the best predictor of success in the program. They find little correlation between success in High School math and success in the program. Raising the admission requirement to a Grade 12 Math course with a 75% average could significantly affect enrolments. On the other hand, if most Economics programs elsewhere require mathematics for admission, the lack of such a requirement might be perceived as a weakness in the program from a recruitment and reputational perspective. The competitor programs in TRSM have a similar requirement for a Grade 12 Math course, with preference given to MCV4U Calculus and Vectors. Changes to admissions requirements constitute a Category 3 Minor modification and require consultation at various levels. Significant discussion with Admissions will be needed to determine the best course of action here.

RECOMMENDATION 7: Increase faculty to 30 tenure stream professors. Agree - This is a reasonable medium-term goal in terms of faculty complement for a department that offers many undergraduate courses together with a large MA and a growing PhD program.

Department's Response: The program will collaborate with the Dean of Arts, VP Faculty Affairs, VP Planning and Provost in creating a 5-7 year hiring plan to achieve this medium-term goal, which is fundamental in maintaining the quality of our programs and the student experience.

Dean's Response: The Department currently has 23 tenure-stream faculty members, not including the Provost. From the Dean of Arts' perspective, while it is perfectly reasonable for the Department to aspire to such growth, any new hires, including replacement hires, would need to be justified by enrolment numbers in both service courses (i.e. open electives and Liberal Studies courses) and program courses at the undergraduate and graduate levels as well as by SRC deliverables. Typically, departments put forward their best case for new hires each year. The Department will need to justify the number of hires as well as the areas of research and teaching specializations required in order to increase its faculty complement.

RECOMMENDATION 8: Increase office space. Agree - This is a reasonable demand although we are aware of the severe space constraints at Ryerson. Our suggestion is to try to cluster faculty offices as much as possible in the interim.

Department's Response: The program embraces the PRT opinion and it will work with the Dean of Arts and Senior Advisor Space Planning to try to cluster faculty offices (outside of the second floor in the Jorgenson Building) as much as possible.

Dean's Response: This is a recommendation on which the PRT, the Department and the Dean of Arts Office all agree. The lack of space for offices and classrooms is a recurring issue at Ryerson. Contiguous office space is essential to collaborative work and securing it remains a priority for the Faculty of Arts. As new buildings appear on campus, the Dean of Arts Office will work to ensure that we use space to favour departmental collegiality and collaboration.

IMPLEMENTATION PLAN

Priority Recommendation #1: *Investigate incorporating concentrations within the current program.*
Rationale: *Following the global financial crisis, there has been increased demand for expertise in financial economics. This observation was reinforced with feedback from some employers in our internship program and from discussions with our Program Advisory Council. In addition, the feedback from our students over the years was that some of our students would like to take more financial economics courses in their upper year and other students prefer more international economics courses. To acquire the necessary expertise in any of these economics fields and to distinguish themselves from general economics majors, students should take*

nine to ten field-specific courses in financial economics or in international economics. Currently, our curriculum has twenty-four required courses and thus it is difficult for students to take extra field-specific courses. To meet this demand the Department had initially proposed that we split the Bachelor of Arts (International Economics and Finance) program into two programs, namely, Bachelors in International Economics and Bachelors in Financial Economics. However, following the reports from the PRT and Faculty of Arts, the Department has reconsidered splitting the Bachelor of Arts (International Economics and Finance) program into two programs and, as a first step, we will investigate incorporating concentrations within the current program.

Implementation Actions:
- *Develop concentrations within the Curriculum Committee*
- *Review with faculty*
- *Implement assessment/approvals process for integration of concentrations into curriculum*
- *Clearly communicate availability of concentrations and registration process to students.*
- *Develop any core elective courses required for the concentration, if any*
- *Monitor course availability*
- *Monitor student enrolments in concentrations*

Timeline: *2020-21 academic year with submission of proposal to VPA by June 30, 2021; commences Fall 2022*

Responsibility for
a) leading initiative: *Program Chair/Director*
b) approving recommendation, providing resources, and overall monitoring: *Faculty Dean, ASC*

Priority Recommendation #2: *As a result of* **Priority Recommendation #1** *we would investigate renaming our program from Bachelor of Arts (International Economics and Finance) to Bachelor of Economics and Finance.*

Rationale: *In the early 2000's the Bachelor of Arts (International Economics and Finance) program had 15 required courses whose content was international or finance in nature, in addition to 12 required economic theory and quantitative courses. Over the years we made 8 of these required international or finance courses electives. This was due to the recommendations made by the Peer Review Team for the 2006-2007 Periodic Program Review and as a result of harmonizing with the 1ˢᵗ Arts common platform in 2012. Thus, the international economics and finance nature of the initial Bachelor of Arts (International Economics and Finance) program has been watered down over the years. In addition, if we wish to include concentrations and have a required curriculum suitable for having double majors we would need to make a number of these required international or finance courses, electives. Thus, the program name would not be reflective of the new curriculum. Therefore, the Department would investigate renaming our program from Bachelor of Arts (International Economics and Finance) to Bachelor of Economics and Finance.*

Implementation Actions:
- *Review with faculty*
- *Implement approvals process for changing the program name*
- *Work with Admissions on marketing*

Timeline: *2020-21 academic year with submission of proposal to VPA by June 30, 2021; commences Fall 2022*

Responsibility for
a) leading initiative: *Program Chair/Director*
b) approving recommendation, providing resources, and overall monitoring: *Faculty Dean, Registrar, ASC*

Priority Recommendation #3: *Change the admission requirements to the Bachelor of Arts (International Economics and Finance) program by raising the entering average from 70 percent to 75 percent.*

Rationale: *For almost two decades the high school entering average has always being around 77 percent (the second lowest in Ryerson). This average would have increased if we had kept our first-year intake to about 90*

students as in 2009-2011. Instead, the registrar's office increased admissions to our program over the years and it is now 150 students. This low entering average has resulted in poor student retention after two years in the program which is later reflected in poor graduation rates. From Fall 2012 to Fall 2016 there was always a much higher correlation between our first-year students' Winter CGPA and their entering average grade than with the grade on any high school math course. The Department has co-responsibility with TRSM for the Economics and Management Science major in the Bachelor of Commerce in Business Management. The students in this major take the same core economics courses as those in the Bachelor of Arts (International Economics and Finance). Yet there is no problem with retention or graduation rates with Economics and Management Science students as their high school entering average is at least 84 percent. Therefore, the Department would like to change the admission requirements to the Bachelor of Arts (International Economics and Finance) program by raising the entering average from 70 percent to 75 percent and collaborate with Admissions in implementing an aggressive promotional campaign to attract students with higher high school averages to the program.

Implementation Actions:
- *Review with faculty*
- *Consult with the Registrar's Office*
- *Work with Admissions on designing appropriate marketing for the program*

Timeline: *2020-21 academic year with submission of proposal to VPA by June 30, 2021; commences Fall 2022*

Responsibility for
a) leading initiative: *Program Chair/Director*
b) approving recommendation, providing resources, and overall monitoring: *Faculty Dean, Registrar, ASC*

Priority Recommendation #4: *The remaining reviewer's recommendations involve obtaining extra resources that are critical for maintaining the high standard in all of our programs.*

Rationale: *A number of program weaknesses identified in the self-study involved resources in general, faculty size and offices. Since September 2008, we had a net increase of six tenure-stream faculty. Three new faculty were needed for the PhD in Economics program launched in September 2010, as it has twelve required PhD level courses like many other comparator programs. The remaining three new faculty were required to teach an extra 5,792 students (this enrollment growth was mostly due to the growth in the number of students in the Economics and Management Science major that we are co-responsible for with TRSM). Since three tenure-stream faculty cannot teach 5,792 students, it led to many CUPE 1 or 2 sections and very large class sizes.*

Implementation Actions:
- *Review with faculty*
- *Consult with the Dean of Arts and Vice-Provost Planning*
- *Work with Admissions on marketing*

Timeline: *2020-21 academic year with submission of proposal to VPA by June 30, 2021; commences Fall 2022*

Responsibility for
a) leading initiative: *Program Chair/Director*
b) approving recommendation, providing resources, and overall monitoring: *Faculty Dean, Vice-Provost Planning, Provost*

Recommendation

Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the Periodic Program Review for the International Economics and Finance Program, Department of Economics - Faculty of Arts.*

C. FACULTY OF COMMUNICATION AND DESIGN – Universities of Canada-Egypt Partnership proposal
Background - Anticipating Ryerson's forthcoming 2020-2025 Academic Plan, FCAD has embarked on an ambitious opportunity to immediately demonstrate Ryerson's Global Leadership and the goal of expanded Internationalization. Working with respected and trusted partners within the Middle East and North African (MENA) region, FCAD is proposing a bold initiative that would firmly establish Ryerson and FCAD creative based academic programming, within what has traditionally been an engineering and medicine dominant educational market. As an anchor partner within the Universities of Canada in Egypt (UCE) campus, in the new administrative capital in New Cairo, FCAD has been invited to provide a unique creatively-driven educational experience.

In 2018, the Egyptian Government ratified a new educational model that allows universities such as UCE to host key Canadian partner universities, with each Institution providing its own unique area of expertise. UCE provides the campus facilities and infrastructure, marketing and student recruitment, health, wellbeing, and student services under the guidance and direction of Canadian norms and standards, while the University partners themselves maintain total academic control of their respective program offerings, policies, and norms. Essentially allowing MENA students to work towards the completion and awarding of a Canadian degree within Egypt.

The University of Prince Edward Island has been the first Canadian partner to establish itself on the UCE campus, offering undergraduate degrees in Business, Computer Science, Sustainable Engineering and a Master's in Business Administration. Entering into UCE's second year of operation, student enrollment already exceeds 1,000 undergraduate and graduate students and with the addition of other Canadian Institutions such as the University of Windsor and the potential of FCAD and in the future, FEAS, will allow for unique suite programming for Egyptian and MENA students. As such, student enrollment is targeted to quadruple in the next several years.

As such, FCAD proposes to pursue a formal partnership with UCE in order to offer a select set of undergraduate degree programs beginning in September 2020, through the partnership with the Universities of Canada Egypt (UCE), at their campus in the New Administrative Capital, Egypt, which meets the needs and demands of a new generation of creative students in Egypt. The following programs would replicate the current Toronto campus offerings:
1. FCAD, RTA School of Media, BA – Media Production
2. FCAD, RTA School of Media, BA – Sport Media
3. FCAD, School of Fashion, BDes – Fashion

There are no proposed changes to the structure or the mode of delivery of the curriculum of the selected programs. This proposal only requests that the same program offerings be allowed to be offered in partnership with UCE and their logistical infrastructure, in Egypt. Faculty members hired in Cairo will build course material within the defined course sequence and structure, adapting course outlines to ensure contextual and cultural relevance of course content as appropriate.
Delivery of programs and courses will run 12 weeks per semester, with new academic cohorts starting in September of every year. Semesters will include Fall, Winter and Spring/Summer. Start dates and holidays will vary from the Canadian calendar due to variance in Egyptian secular and religious holidays. However, all efforts will be made to closely align Canadian and Egyptian student and operational calendars.

In the combined FCAD|UCE first year cohort, it is anticipated that MP, SM and Fashion will each have 50 students (150 students).

Academic governance, including applicable Senate Policies (see Appendix E), will remain vested to Ryerson through existing decanal structures. This will include establishing and empowering localized committees lead by

the FCAD|UCE Executive Director, the RTA MP, SM and Fashion Program Directors to form when required and under the guidance of Ryerson FCAD's relevant program Chairs and Dean. Further, this committee would liaise with pertinent Ryerson offices (e.g. the Office of Academic Integrity) to ensure a fully harmonized application of policies for Cairo-based students. All efforts will be made to ensure a fair, open and equitable process within Egypt, designed to mirror that of student experiences at Ryerson in Canada.

All classes will be taught in English and as per UCE Admissions policy, all students will require an overall IELTS Score of 6.5, or a TOEFL Score of 80+ which mirrors Ryerson's own English Proficiency requirements. Any adjustments to Ryerson's admission criteria/thresholds in Canada would be simultaneously adjusted for admission to study in Cairo.

Effect on the Undergraduate Degree Level Expectations (UDLEs) and program learning outcomes - There are no anticipated effects on UDLEs or program learning outcomes.

Changes that are the result of a previous periodic program review - The proposed changes were not generated through previous periodic program review (PPR) exercises. For future periodic program reviews, the Cairo offered programs will incorporate all program adjustments articulated through the Toronto-led PPR process, and these adjustments will be governed by the established processes and governance of the Toronto programs.

Additional resources needed - The partnership agreement will entrench clear obligations on the part of UCE in their campus development to ensure the requisite physical plant and equipment infrastructure. These expected resources include production studios for Fashion, RTA Media Production and RTA Sports Media. Technology "Cages" for loaned equipment to students such as laptops, cameras, lighting, and Judy's for the Fashion Department. Additional support systems will include library resources (both physical and digital as well as staffing), student services, cafeteria and student government, which will be shared among the UCE Canadian University partners, such as UPEI. The requisite partnership agreement would also outline the requirements for ongoing investment in the maintenance, updating and evolution of infrastructural support required to align with study conditions at Ryerson in Toronto as well as to reflect shifts in industry practice.

With respect to faculty and staff required for managing programming at the UCE campus, all faculty and staff will be recruited at the discretion of hiring committees as designated under the authority of the pertinent Ryerson Dean and actioned by local and Toronto based Departmental Hiring Committees (see Appendix C). Ryerson will retain full control of both the faculty and staff profiles sought and will have authority for all hiring decisions. As per UCE hiring policy, all faculty and staff will be employed on a contract basis under Egyptian Law. There is no tenure-stream or tenured positions.

An Executive Director (ED), with support from the Facilities Manager (FM), will manage the daily academic and operational needs of the programs, facilities, and partnerships (see Appendix B). The ED will report directly to the Dean of FCAD in Canada and the Chairs of RTA and Fashion will provide consultative support to the ED with respect to academic and operational management of their program offerings at FCAD|UCE. Program Directors will coordinate the Teaching Faculty and Teaching Assistants and will also coordinate with the Chairs of RTA and Fashion, alongside the ED, on the delivery of the academic programming. The facility, workshop/lab, IT Network, and administrative staff will be managed by the Facilities Manager.

As requested by our partners, a desired level of 50% or more of the faculty and staff are to be Canadian Citizens. Initial projected faculty and staff will be a complement of 15-20 Canadians, with additional increases as required. A faculty to student ratio will be negotiated with UCE as part of the future partnership agreement.

Recruitment of highly qualified educators and professionals for placement within Egypt will require specific targeting of existing sessional instructors who continue to spread their teaching practice across multiple institutions and near-to-term MFA, MA and PhD candidates. As with any potential International teaching assignment, these candidates will need to possess a desire to work internationally, seeking the challenges and rewards of being within a culture with which they may not be familiar. An ad hoc survey of potential core program and elective Lecturer candidates indicates there is a strong appetite to expand their opportunity for academic and academic administration career advancement through opportunities such as FCAD|UCE.

There is no intent to acquire Lecturers from existing RFA Faculty, or Staff from existing full time Ryerson staffing positions, however if RFA or Staff express a desire to partake in short-term or limited roles within FCAD|UCE, FCAD will address those opportunities on a case-by-case basis and within the Ryerson HR policy and procedures that allow for leave of absence or RFA member sabbaticals.

Comparison of the existing curriculum with the curriculum of the proposed program - There will be no changes to the core curriculum or program sequencing. However, the intent is to provide an abbreviated roster of offerings in the list of current popular electives regularly taken by FCAD students. If the partnership were to proceed, an element of the planning will be to coordinate with the UPO on the balance of electives to be offered to optimize student experience with the efficiency of implementation.

Rationale for changes to electives, including availability of electives - Pending the outcome of this process, FCAD would design a streamlined suite of Ryerson electives (open electives and liberal arts credits) from selected Table A/B courses. FCAD currently houses 11 liberal arts credits (6 of which were offered this year) and each of the programs under consideration of this proposal require a total of 6 liberal arts credits to be completed (in each case 3 Table A and 3 Table B).
As part of the detailed planning process, FCAD would seek consultation with additional faculties (most notably the Faculty of Arts) in order to identify additional liberal arts offerings that could be included for consideration of offering in Egypt. This would be guided by the observed top enrolments of current FCAD students at Ryerson. For example, in Appendix A attached, a list of potential courses that are consistently taken by FCAD students, and a list of Table A/B electives offered by FCAD. Where additional course offerings are identified that would involve an additional Ryerson faculty, the associated DHC structure would adjust to include representation by the pertinent Faculty (which would be negotiated by the relevant Deans if and when agreement on course offerings would be determined).

Additionally, there is an opportunity in the future to share electives between other partner institutions at the UCE Campus, such as UPEI. In such a case, a bilateral credit transfer agreement would be established between Ryerson and the partner institution with course equivalencies assessed by the pertinent School.

Please note that in the first year of program offerings at FCAD|UCE, Fashion & Media Production requires only one Table A lower Liberal Elective and Sports Media requires two

Description of each new or amended course, in calendar format - There are no new or amended course requirements. All courses offered at FCAD|UCE will mirror exactly those courses offered at Ryerson in Canada. However localized content changes might include such things as a focus on soccer as opposed to hockey in Sports Media, or modest fashion styles which reflect Egyptian cultural and societal sensibilities in Fashion Design.

Program balance - The program balance between core, open electives and liberal studies would remain the same as they are currently offered.

Timing, implementation and the strategy for communicating to students - No changes will be experienced by students already enrolled, save for the possibility of future optional global learning experiences.

Should this partnership model be approved, the opportunity for applying to earn a Ryerson degree in Egypt would be communicated to prospective students pre-application such that all details would be understood prior to enrollment (i.e. students offered admission to a putative Egypt-based offering would have applied with comprehensive detail as to the nature of this program relative to the Toronto-based offering).

Implications for external recognition and/or professional accreditation - For RTA, RTA Sports Media and Fashion, there are no professional accreditation reviews required.

View of the Program Advisory Council - There are no new or amended course requirements and so this proposal has yet to be tabled at a meeting of the Program Advisory Councils for the proposed Egypt offerings. If this committee recommends proceeding with the partnership discussion, the opportunity will be raised with the PACs for consideration at the next scheduled meeting of the RTA School of Media and the School of Fashion respectively.

Other programs affected by the changes - No other programs other than TRSM, which provides two core courses to the RTA BA in Sports Media, and liberal studies electives offered through the Faculty of Arts will be affected by this request.
With regards to the two core courses offered by TRSM, and similar to our approach with elective offerings, FCAD would work with TRSM to strike an adaptive DHC locally to support the offering of these required courses. Locally recruited faculty members would report to the FCAD leadership in place. Pending approval and successful implementation of programs detailed in this proposal, Ryerson may consider future programs also being submitted to this committee for consideration.

Appendix A:
Sample list of popular table A/B courses taken by FCAD students in Fall 2018, intended as a guide in determining which potential electives to offer in Egypt when moving forward.

Table A	Table B
ENG 112 Zap, Pow, Bang: Pop Lit	CMN 601 Visual Communication: A Critical Approach
MUS 106 The Architecture of Music	CRM 515 Gendering Justice
POL 128 Politics and Film	DST 500 A History of Madness.
RTA 180 Music and Film	ENG 505 Creative Writing
SOC 202 Popular Culture	ENG 610 The Language of Love, Sex and Gender
	GEO 509 Food, Place and Identity
	GEO 793 The Geography of Toronto
	HST 532 Elizabethan England
	HST 540 Espionage: A Modern History
	IRL 500 Modern and Contemporary Art, Design
	MUS 503 Social Issues in Popular Music
	MUS 505 Popular Music and Culture
	PHL 606 Philosophy of Love and Sex
	PHL 501 Oppression and the Critique of Power
	SOC 505 Sociology of Sport
	SOC 808 Sociology of Food and Eating
	SOC 902 Hollywood and Society

Sample list of FCAD table A/B courses available:
FCAD Table A Courses
IRL 100   Intro to World Art I: Pictorial Arts
IRL 200   Introduction to World Textile History
NPF 188 From Page to Screen
RTA 180 Music and Film
THL 100 Theatre and the Canadian Identity
RTA 406 Chinese Instrumental Music
RTA 441 Music of India
RTA 474 Gospel Music: Songs for the Spirit
RTA 484 Music of the African Diaspora
FCAD Table B Courses
IRL 500   Modern and Contemporary Art, Design
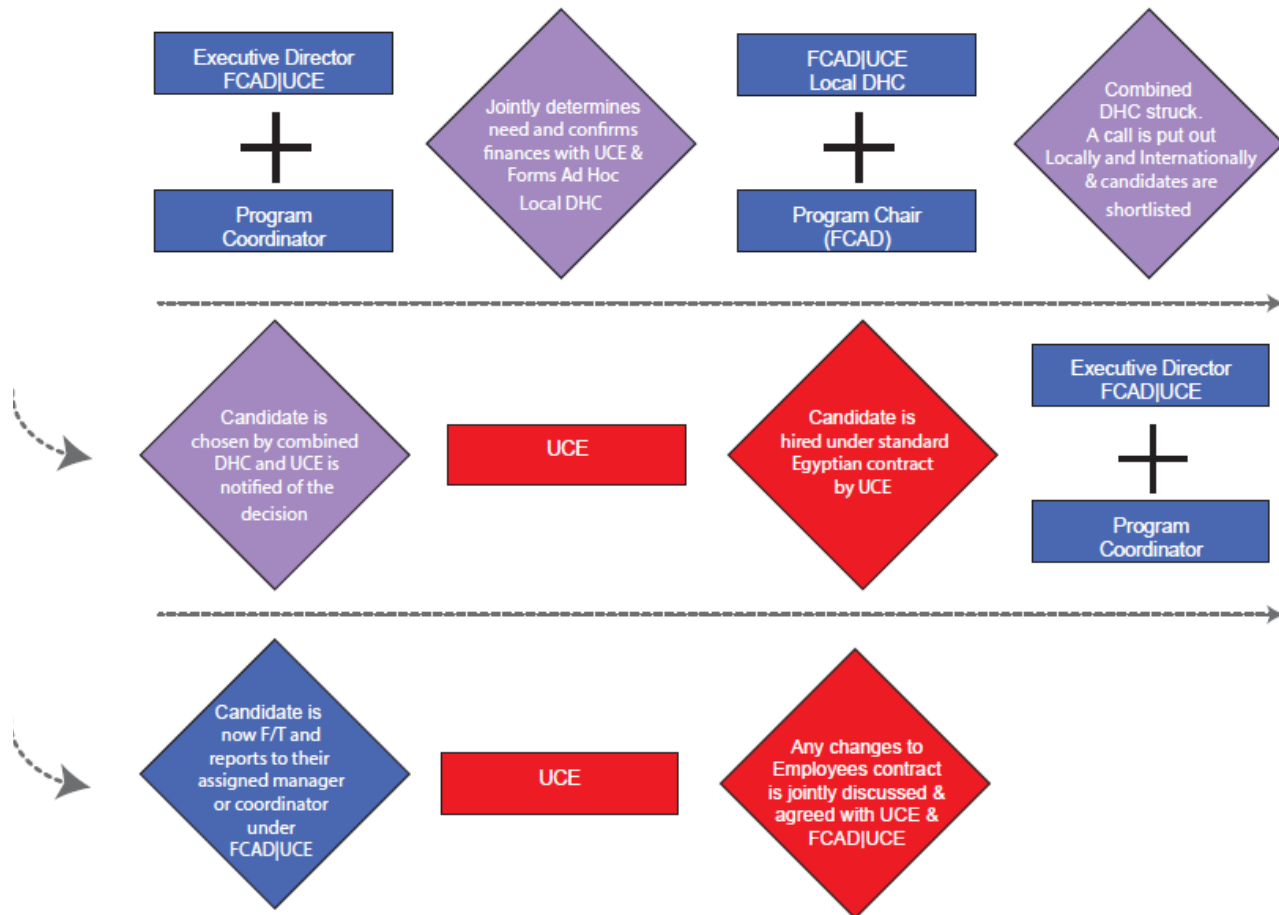RTA 530 Chinese Music

Appendix B:

Proposed Operational Reporting Structure for FCAD|UCE
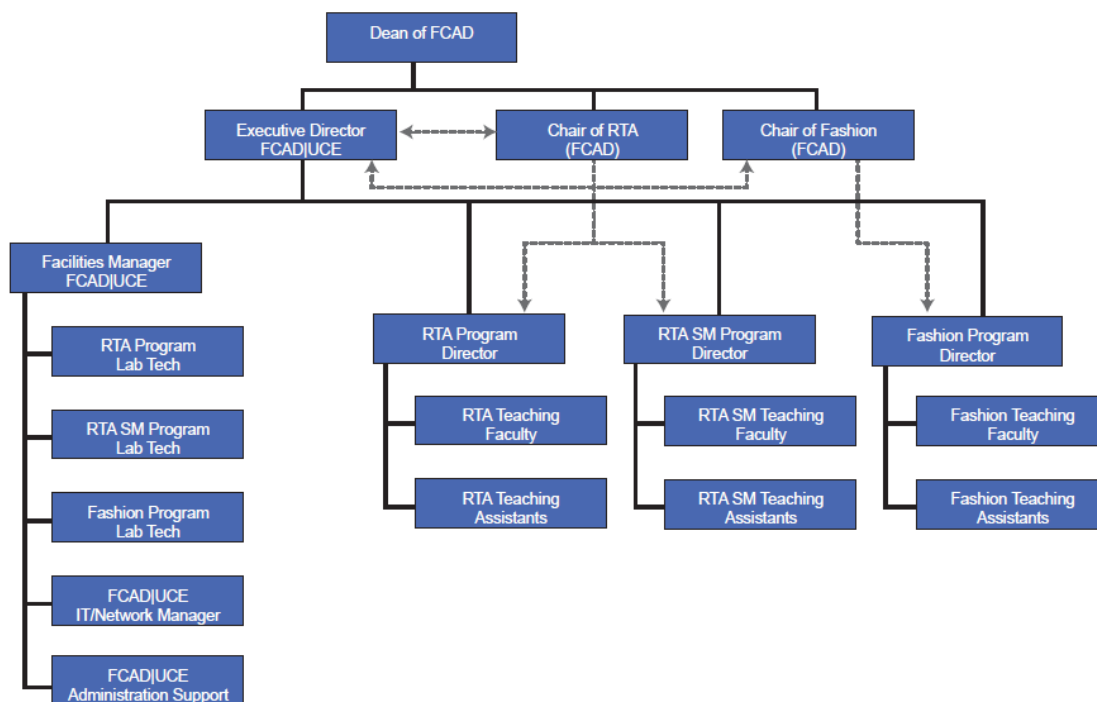
- Operational direction at the local level will fall under the direction of the Executive Director in accordance with Ryerson Senate Policies, the direction of the Dean of FCAD with guidance from Ryerson University FCAD Program Chairs.
- All academic programmatic authority still resides with the Ryerson University FCAD Program Chairs whose programs are being offered at FCAD|UCE and the Dean of FCAD in accordance with Ryerson Senate Policies.
- For each program offered, a Program Directors will coordinate daily operational and academic needs for the Teaching Faculty and Teaching Assistants.
- The Facilities Manager will manage staff associated with the operational coordination of the facilities, specialized labs, IT networks and administration.

Appendix C:

Proposed Faculty & Specialized Staff Hiring Process for FCAD|UCE

Executive Director FCAD|UCE + **Program Coordinator**

Jointly determines need and confirms finances with UCE & Forms Ad Hoc Local DHC

FCAD|UCE Local DHC + **Program Chair (FCAD)**

Combined DHC struck. A call is put out Locally and Internationally & candidates are shortlisted

Candidate is chosen by combined DHC and UCE is notified of the decision

UCE

Candidate is hired under standard Egyptian contract by UCE

Executive Director FCAD|UCE + **Program Coordinator**

Candidate is now F/T and reports to their assigned manager or coordinator under FCAD|UCE

UCE

Any changes to Employees contract is jointly discussed & agreed with UCE & FCAD|UCE

- There is a direct UCE request that more than 50% of the staff and faculty are Canadian Citizens.
- Please note that Faculty hired for FCAD|UCE will be non-tenured, teaching stream, contract employees.
- Ryerson FCAD and associated programs will have full control over candidate selection.
- All candidates and their selection and hiring processes will be subject to Ryerson's hiring policies and procedures.
- Ad hoc joint local and Ryerson DHCs will be formed when required to review and select candidates. When a candidate is selected, they will be put forward, along with a suggested hiring remuneration level, to UCE for final contract negotiations. When there is a contract agreement, the employee will then be managed operationally by FCAD|UCE.
- All employees will be subject to local cultural norms and values as well as Egyptian Employment Law.

Appendix D:

**Ryerson Policies Applicable to UCE Egypt Partnership**
Policy #	**Title**	**Notes**
1	Admission to Undergraduate Programs	Egyptian students would fall under Section 3.0
45	Governance Councils	Department/School Councils (D/SCs) and Undergraduate Program Councils (UPCs) will be based on local norms. Chairs of FCAD|UCE local councils will sit as members within D/SCs and UPCs of FCAD proper in Toronto.
46	Policy on Undergraduate Grading, Promotion, and Academic Standing ("GPA Policy")	Policy would remain the same
48	Undergraduate Academic Term	Policy in principle would remain the same however local norms would change specifically around holiday/start times.
60	Academic Integrity	The Executive Director will take on the role of Dean and the Program Director that of Chair locally. If no resolution is found then the situation is moved to the requisite FCAD Chair, then Dean, then Senate.
61	Student Code of Non-academic Conduct	The Executive Director will take on the role of Dean and the Program Director that of Chair locally. If no resolution is found then the situation is moved to the requisite FCAD Chair, then Dean, then Senate.
96	Approval of Candidates for Degrees, Diplomas and Certificates	Policy would remain the same
134	Undergraduate Academic Consideration and Appeals	The Executive Director will take on the role of Dean and the Program Director that of Chair locally. If no resolution is found then the situation is moved to the requisite FCAD Chair, then Dean, then Senate.
135	Final Examinations	Policy would remain the same
150	Accommodation of Student Religious, Aboriginal and Spiritual Observance	The Executive Director will take on the role of Dean and the Program Director that of Chair locally. If no resolution is found then the situation is moved to the requisite FCAD Chair, then Dean, then Senate.
159	Academic Accommodation of Students with Disabilities	A member of the FCAD|UCE staff will receive proper training from the Academic Accommodation Support Department in order to provide localized accommodation approvals. Local norms will dictate that AODA requirements when not represented within Egyptian policy/law will then be adopted to support similar consideration with students in Ontario.
162	Grade Reassessment and Grade Recalculation Policy	The Executive Director will take on the role of Dean and the Program Director that of Chair locally. If no resolution is found then the situation is moved to the requisite FCAD Chair, then Dean, then Senate.
166	Course Management Policy	Policy would remain the same

- In all cases, the policies as stated, with exception to local cultural norms and customs dealt with on a case-by-case basis, would remain and be exercised in the same manner as they would in Canada. An example of local cultural norms is the display of affection between non-family members within the public, such as hand holding or kissing. No matter your sexual orientation, religious denomination, or even your marriage status, outward signs of affection are considered taboo.
- The Dean of FCAD would assign the FCAD|UCE Executive Director as their proxy for all policy issues in Egypt with the exception of SAC specific cases.
- The FCAD Program Chairs would assign the FCAD Program Directors as their proxy for all policy issues in Egypt with the exception of escalation of specific cases.
- For Senate Policy 159, an FCAD|UCE Staff member(s) will require training and certification from the Ryerson Academic Accommodations Support Department to perform these services locally. However all existing Ryerson processes will be used by FCAD|UCE students.

Recommendation

Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the Universities of Canada-Egypt Partnership proposal – Faculty of Communication and Design.*

D. CHANG SCHOOL - Certificate review for Advanced Nursing Leadership and Management

A review of the current Certificate in Advanced Nursing Leadership and Management offered through the Daphne Cockwell School of Nursing and the G. Raymond Chang School of Continuing Education considered

several factors including student feedback, an environmental scan including industry trends and a comparator certificate/program analysis, and recent enrollment and completion data, to complete a SWOT analysis of the current certificate. Based on the resulting SWOT analysis, several recommendations are made that will increase the relevancy and value of a certificate for professionals wanting to build skills in the area of Community Engagement, Leadership, and Development.

The "Advanced Nursing Leadership and Management" certificate was launched in the Fall of 2012. The Certificate provides registered nurses with enhanced professional knowledge and skills to better position them to enact current or future leadership and management roles. This goal aligns with the Ryerson University and The Chang School missions to assist students in their achieving their career goals through quality accessible education.

The certificate is comprised of six courses:
• two required nursing courses providing a foundation in the LEADS framework and related concepts (CVNU360) and a final capstone course (CVNU370)
• one program planning and evaluation course (Group A, 4 options available)
• a choice of three electives chosen from a broad set of courses in leadership (Group B, 6 options) or management (Group C, 17 options).
The non-nursing elective courses (Groups A,B,C) are offered by other schools/departments across the university to leverage the expertise and experience of those schools/departments that teach specific leadership and management functions related to the LEADS framework. At the completion of the program, graduates will demonstrate the knowledge and skill associated with 'capabilities' as defined by the LEADS framework. These capabilities relate to Leading self, Engaging others, Achieving results, Developing coalitions, and System transformation. Students can select electives to match their interests, previous experience and career goals. Weekly assigned readings, activities and evaluation methods for the nursing courses have been devised to achieve the certificate goals and related learning outcomes. The elective courses complement and build on the core content of the nursing courses.

Since the launch of the program in the Fall of 2012, there have been a total of 92 students who have enrolled in the certificate, 42 of whom completed CVNU360, only 11 have completed the final course CVNU370 and only eight have graduated from the program. Most students take approximately three certificate courses then do not finish the certificate.
A comparator analysis revealed no other programs offered a nursing-specific focus to leadership and management education as most student cohorts are interdisciplinary. All of the part-time programs now offer an online delivery format. The program length ranges from four to twelve courses. The Michener Institute, while offering the fewest number of courses, is the only provider that does not incorporate a capstone or practicum experience.

The Ryerson certificate is the only program (of those reviewed) that uses the LEADS framework for its foundation although the McMaster University curriculum 'reflects both the Canadian Nurses Association's and the Canadian College of Health Service Executives' position on leadership' (the latter group endorses the LEADS framework). The Ryerson certificate also offers a broader selection of electives to match the student's interests, previous experience and career goals. For example, if a student has managerial experience but wants to develop leadership knowledge and skills, then selecting two electives within the leadership focus is possible.

SWOT Analysis

Strengths	- Online delivery format supports accessibility to students across Ontario and Canada - LEADS framework that underpins the curriculum is unique in certificate programs and continues to be relevant for health care leaders - Flexibility in course structure to permit individualized selection of electives to meet personal learning goals - Experiential learning through capstone course - Academic home for certificate is Nursing with longstanding partnership with The Chang School supports quality programming relevant to nursing professionals - Infrastructure to guide the program i.e. Program Manager with broad leadership network in healthcare, Academic Lead with teaching and research expertise in healthcare leadership, Curriculum Committee with membership from nursing and interdisciplinary faculty - Web conferencing used to engage students at specific time points in the capstone course - Assignments in the nursing courses align with certificate goals - Students' reasons for taking the courses/certificate align with certificate goals - Students satisfied with the program (although low number of responses to surveys) - Able to attract and maintain instructor for both nursing courses who is PhD prepared and has relevant practice knowledge of leadership and systems change.
Weaknesses	- Certificate length (6 courses) - Most students do not continue after completing 3 courses - Requirement for eligibility forms too time consuming for students - Despite an array of relevant course offerings being available, only a few of the list of electives are taken by certificate students
Opportunities	- Laddering with other existing certificates and course series to increase enrolment in the Leadership and Management certificate e.g. Gerontology, The Patient Experience, Patient Safety and Informatics and the new Interdisciplinary Program Management (need to permit students to be enrolled in more than one certificate program) - Student seeking master's degree and leadership roles requiring graduate degree, opportunity to explore if credits toward the Masters of Nursing program are possible - The program could fill gaps in their Masters' education i.e. if leadership and management not included in their program - Completing the certificate could provide an opportunity for student to increase their grades and thereby increase their chances for admission to graduate school - Need to consider the value proposition for students i.e. certificate is recognized and supports career goals - Demand for healthcare professionals to have leadership and management competencies remains high and a shortage of qualified and interested leaders is on the horizon due to pending retirements of current leaders
Threats	- Viability due to low enrolment - Nursing specific focus too limiting in terms of admission criteria, most students take interdisciplinary electives

	• More online options for leadership and management education specific to healthcare

Development Plan – The development plan priorities based on the findings of this review are:
• Reduce the number of required courses to 4 (2 required nursing courses, 2 electives)
• Reduced list of elective course options to reflect those most subscribed by students
• Enable laddering between this certificate and other relevant certificates and course series e.g. Gerontology Certificate (to match learning needs required in practice settings)
• Broaden eligibility requirements to include all regulated health disciplines with an undergraduate degree and students with a health services management undergraduate degree or equivalent.
• Change the name of the certificate to "Certificate in Advanced Nursing and Interprofessional Healthcare Leadership and Management" to reflect new admission criteria.
• Explore possibility of credits toward the Masters of Nursing program for completion of the certificate program.

Recommendation
Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the certificate review for Advanced Nursing Leadership and Management – Chang School.*

E. CHANG SCHOOL - Certificate modifications to Advanced Nursing Leadership and Management
From the launch of the Certification in Advanced Nursing Leadership and Management program in the Fall of 2012 to the present, there has been a total of 92 students who have enrolled in the certificate, and only 16 have graduated from the program. The recent Program Review let to the following proposed revisions to the certificate, together with a rationale for the changes:
1. Reduce the number of courses from 6 to 4 (2 required nursing courses, 2 electives): Stakeholders from the PAC meetings suggested that nurses are less likely to invest in a program of this length given that a master's degree is only two years long. They concluded that the nurses want to have their learning needs met in a shorter time frame.
2. Reduced list of elective course options to reflect those most subscribed to by students: An analysis of elective courses was done to determine the electives most frequently taken by certificate students. To streamline the certificate offerings, it was decided to include only these electives in the certificate but with the proviso that students could consult with the Academic Lead if they wanted to take other online electives offered by the Chang School that would meet their learning needs and the goals of the certificate.
3. To enable laddering between this certificate and other relevant certificates and course series, up to two courses could be counted toward the Leadership Certificate. This option will be clearly be communicated with students i.e. that they can only bring 50% of other courses into the leadership and management program certificate (2 courses).
4. Broaden admission requirements to include all regulated health disciplines with an undergraduate degree and students with a health services management undergraduate degree or equivalent: This strategy is intended to increase overall enrollment. To ensure that Registered Practical Nurses have the fundamental academic skills to be successful in the certificate courses, the eligibility criteria includes a recommendation that they need to have successfully completed at least two university courses that included a written assignment (minimum of a C average). Given that other regulated health disciplines beyond nurses have similar learning needs in order to obtain leadership roles in health care, the enrolment criteria were

extended to include this group. Only minor changes to the core courses will be required to reflect the revised eligibility criteria.

5. Change the name of the certificate to "Certificate in Nursing and Interprofessional Healthcare Leadership and Management" to reflect new admission criteria.

6. Explore the possibility of credits for completion of the certificate program toward the Masters of Nursing program.

Course-specific information
Course Additions (electives):
CINT 901   Gerontology
CINT 904   Health Promotion & Community Development
CVIN 150   Advancing the Patient Experience Practice
CVNU 322   Computer and Information Management in Nursing
CVNU 325   Nursing Informatics and Patient Safety

Course Deletions (electives):
CHIM 300   Managing Health Information Services
CHSM 305   The Management Cycle
CHSM 408   Program Planning and Evaluation
CHSM 437   Human Resources Management in Healthcare
CINP 902   Program Evaluation
CINP 915   Financial Management
CINT 911   International Community Development
CINT 920   Community Collaborations
CKPM 203   Planning and Scheduling
CKPM 209   Project Risk and Quality Management
CLAW 326   Law for Health Managers
CMHR 505   Organizational Behaviour II
CMHR 650   Management of Change
CMHR 721   Negotiation and Conflict Resolution
CMHR 741   Managing Interpersonal Dynamics and Teams
CMHR 841   Organization Theory and Design
CPPA 402   Program Planning and Evaluation
CSWP 934   Community Engagement Foundations
CSWP 936   Community Engagement Practices
CVNU 321   Financial Management

Current Certificate in Advanced Nursing Leadership and Management (six courses)
Required Courses:
CVNU 360   Advanced Leadership and Management
CVNU 370   Change and Innovation

Electives (select a total of four courses):
Electives – Group A: Program Planning and Evaluation (select one)
CHSM 408   Program Planning and Evaluation
CINP 902   Program Evaluation
CINT 900   Program Planning and Evaluation Strategies
CPPA 402   Program Planning and Evaluation

Electives – Group B: Leadership (select one or two)
CINT 905 Conflict Resolution in Community Services
CINT 907 Team Work for Community Services
CINT 911 International Community Development
CMHR 505 Organizational Behaviour II
CMHR 741 Managing Interpersonal Dynamics and Teams

Electives – Group C: Management (select one or two)
CHIM 300 Managing Health Information Services
CHSM 301 The Healthcare Systems
CHSM 305 The Management Cycle
CHSM 307 Principles of Long Term Care Service Del.
CHSM 437 Human Resources Management in Healthcare
CINP 915 Financial Management
CINT 920 Community Collaborations
CKPM 203 Planning and Scheduling
CKPM 209 Project Risk and Quality Management
CLAW 326 Law for Health Managers
CMHR 650 Management of Change
CMHR 721 Negotiation and Conflict Resolution
CMHR 841 Organization Theory and Design
CSWP 934 Community Engagement Foundations
CSWP 936 Community Engagement Practices
CTEC 210 Fundamentals of Project Management
CVNU 321 Financial Management

Revised Certificate in Nursing and Interprofessional Healthcare Leadership and Management (four courses)
Required Courses:
CVNU 360 Advanced Leadership and Management
CVNU 370 Change and Innovation

Electives (select a total of two courses):
Project Planning and Evaluation Courses
CINT 900 Program Planning and Evaluation Strategies
CTEC 210 Fundamentals of Project Management
Leadership and Management Courses
CHSM 301 The Healthcare System
CHSM 307 Long Term Care Service Delivery
CINT 901 Gerontology
CINT 904 Health Promotion & Community Development
CINT 905 Conflict Resolution in Community Services
CINT 907 Team Work for Community Services
CVIN 150 Advancing the Patient Experience Practice
CVNU322 Computer and Information Management in Nursing
CVNU 325 Nursing Informatics and Patient Safety

Other electives may be selected with consultation and permission of the Academic Lead e.g. CMHR850:
Coaching, Facilitation, and Internal Consulting; other Human Resource courses such as Recruitment and

Selection, Training and Development, Compensation, HR Planning, Occupational Health and Safety, Union Relations or other newly developed courses.

Implementation - Upon receiving approval, the proposed changes would be implemented in Fall 2020. Students currently enrolled in the certificate would be required to complete the certificate based on academic requirements stipulated at the time of registration into the certificate. Current students would graduate with a Certificate in Advanced Nursing Leadership and Management. Current students would have access to the new electives i.e. CVNU 325 Nursing Informatics and Patient Safety and CVIN 150 Advancing the Patient Experience Practice.

The certificate learning goals and outcomes will remain as originally designed but the course syllabi and objectives will be revised to reflect an intraprofessional (RN and RPN) and interprofessional focus. Minor changes to the online modules will also need to be made to reflect an intra and interdisciplinary cohort of students.

Communication to students regarding future offerings of the new certificate to include:
- Social media campaigns
- Exhibitor fairs e.g. RNAO
- Long term care facilities including City of Toronto homes for the aged

Recommendation
Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the certificate modifications to Advanced Nursing Leadership and Management – Chang School.*

F. CHANG SCHOOL - New Certificate in Introduction to Community Services
The proposed Certificate in Introduction to Community Services is intended to provide university-level education to individuals whose academic and/or career paths would be enhanced by developing a variety of skills for working in the Community Services Sector. All of the curricula currently exist for this proposed Certificate, which upon approval is scheduled to launch in fall 2020. The curriculum is interdisciplinary, and elective courses come from intersecting program areas.

Certificate Structure and Learning Outcomes - The Introduction to Community Services Certificate will consist of 4 courses of 39 hours each (156 hours in total) of university degree credit study. Uniquely positioned as an introduction to the Community Services area, the Certificate will provide a foundation in skills and academic knowledge to fulfil the role of a Community Services Sector worker. The key design feature of the proposed certificate is to minimize the required courses and maximize the electives available to students to best realize their professional aspirations and opportunities in the Community Services Sector. The Certificate, therefore, consists of one required course and three electives:

Required course:
CINT 920   Community Collaborations
Electives (Stream: Food Security)
CFNY 403   Food Security Concepts and Principles
CFNY 408   Urban Food Security (prerequisite: CFNY403)
CFNY 510   Indigenous Food Systems in Canada
Electives (Stream: Aging and Gerontology)

CINT 901   Gerontology: Critical Issues and Future Trends
CINT 930   Aging: From Cells to Society
CINT 945   Technology and Aging Populations
Electives (Stream: Community Engagement)
CSWP 934   Community Engagement Foundations
CSWP 936   Community Engagement Practices
(plus 1 general elective)
General Electives
CINT 904   Health Promotion and Community Development
CINT 905   Conflict Resolution in Community Services
CINT907   Team Work for Community Services
CVFS 401   Family Supports: Contemporary Family Issues
CPLE 795   Local Economic Development Fundamentals

Given the different stream opportunities this Certificate provides, the learning outcomes are specific to each stream yet meet each of the Certificate goals:
Food Security:
- Discover the roles of Community Services Sector workers in private sector organizations, government, and NGOs.
- Describe the unique challenges of creating food security in urban and indigenous settings.
- Describe current frameworks, processes and strategies for community collaborative work.
- Understand the contribution of income, employment, social assistance, urban planning, and food production and distribution systems to finding solutions to food insecurity.
- Work collaboratively with a variety of disciplines to assess needs, analyse case examples, problem solve, plan and evaluate community projects.
- Develop practice skills for working with diverse communities and engaging excluded groups.
- Identify issues in evaluating community collaborations such as the challenges in identifying indicators of success for the initiative.

Aging and Gerontology:
- Discover the roles of Community Services Sector workers in private sector organizations, government, and NGOs.
- Examine community services and infrastructure responsive to the needs of older adults.
- Describe current frameworks, processes and strategies for community collaborative work
- Understand the influence of Canadian and world demographic trends on community services for aging populations.
- Work collaboratively with a variety of disciplines to assess needs, analyse case examples, problem solve, plan and evaluate community projects.
- Examine key legal and ethical issues that impact aging populations in Canada.
- Identify issues in evaluating community collaborations such as the challenges in determining or defining indicators of success for the initiative.

Community Engagement:
- Discover the roles of Community Services Sector workers in private sector organizations, government, and NGOs.
- Describe community engagement and mobilization with respect to supporting and advocating for communities.
- Describe current frameworks, processes and strategies for community collaborative work.
- Identify theories of social support, empowerment, and community building.
- Compare and evaluate models, principles, and methods of community engagement.

- Work collaboratively with a variety of disciplines to assess needs, analyse case examples, problem solve, plan and evaluate community projects.
- Examine key issues and life experiences affecting contemporary families and community life and their relationship to the broader sociopolitical context.
- Examine community services and infrastructure responsive to the needs of Indigenous communities, older adults, children and youth.

Societal Needs and Target Group – There are ample and ever-increasing job opportunities for Community Service Sector workers based upon a field analysis in the Toronto region. While many students enrolled or recently graduated in undergraduate degrees in the arts and/or community services will or have acquired broad knowledge in their studies, they may lack the tools, skills and ability to translate this knowledge directly into work with individuals, groups and communities. This may pose barriers to finding employment in a relevant role upon graduation. As such, students that may be most interested in this certificate include: individuals with experience in the Community Services Sector, seeking additional training, as well as newer Canadians entering the workforce; mature students looking to change careers and/ or build their current or new skill sets; and, undergraduate students and recent graduates in the faculties of arts and community services wishing to focus their interest and educational goals within the Community Services Sector. The proposed certificate is unique from other similar program offerings as it offers a broader opportunity for customizing the program as well as laddering to other certificates. Further, our certificate can be completed entirely online.

Admission Criteria - Given certificate goals and learning outcomes, the admission criteria are appropriate to these goals and outcomes. The criteria are: OSSD with six Grade 12 U or M credits (including English), with a minimum average of 60 percent, or equivalent, or mature student status.

Academic Management and Governance - It is proposed that the academic home for the Certificate in Community Services be the office of the Dean of the Faculty of Community Services, which will ultimately assume responsibility for the Certificate. The academic homes for individual courses will be their academic schools/departments.

The certificate has a curriculum steering committee and a program advisory council. The combined structure of the two would include the current interdisciplinary advisory committee members: Associate Dean of Arts, Associate Dean of FCS and the Teaching Chair from FCS (or a designate from FCS). Other members would be Academic Coordinators for the 3 Certificate streams, the Academic Coordinator of the interdisciplinary studies courses, and the program director, CE, FCS.

Recommendation
Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the new Certificate in Introduction to Community Services – Chang School.*

G. CHANG SCHOOL - New Certificate in Practical Data Science and Machine Learning

A Certificate in Practical Data Science and Machine Learning is being proposed by Ryerson University's Department of Mechanical and Industrial Engineering in collaboration with The Chang School, effective Fall 2020. This Certificate is designed to meet the needs of professionals working or aspiring to work as data scientists or analysts, who seek upskilling in the fields of practical big data science querying and deep learning. This Certificate builds on the quantitative background gained from completing the Certificate in Data Analytics, Big Data and Predictive Analytics, industry experience; or equivalent.

Data analytics, big data, and predictive analytics domains are recognized as having significant and growing societal importance to organizational performance. Graduates of the proposed Certificate will fully contribute in Canada to:
- research and development of products and services communications with clients and customers
- commerce finance
- public utility and infrastructure law enforcement
- government institutions

This Certificate will provide students with a strong foundation in analytics, tools, and statistics. It will help students use data analytics, big data, and predictive analytics to optimize performance in fields like data warehousing, data management, IT, and more. It may provide students with the necessary credentials for career promotion or other professional enrichment.

The proposed Certificate in Practical Data Science and Machine Learning will cover practical application rather than theoretical knowledge, and will not overlap with the existing Data Science and Analytics Master's Program at Ryerson. The proposed Certificate will provide a good foundation for students who want to develop and improve their practical knowledge of data science and analytics. For learners who are looking for a career in business or industrial sectors, and do not have the resources to invest to earn a master's degree, this Certificate may be suitable for a candidate who wishes to enhance their specific skills that are focused and necessary to pursue their career.

The two prerequisite courses of the Data Science and Analytics Master's program, IND 123 and IND 110, are offered in the existing Certificate in Data Analytics, Big Data, and Predictive Analytics. The third prerequisite course for the Masters in Data Science and Analytics, CPS 305 Data Structures will be replaced by the new IND 830 Python Programming for Data Science course, which will be offered as a new course in the current Certificate in Data Analytics, Big Data, and Predictive Analytics program.

With respect to the Data Science and Analytics Master's program, the proposed certificate and its courses are not pre-requisites to apply for the Master's. The proposed certificate is for those individuals who wish to work professionally in the field of practical data science and machine learning.

Through the three years (2017, 2018 and 2019), 69 students have graduated from the Data Science and Analytics Master's Program at Ryerson. Out of these 69 students, 30 of them have taken and passed the course KME132/IND 123, 20 of them have taken and passed the course KCS110/IND110, and 13 of them have taken and passed the course CPS305.

At the end of this Certificate, students will be able to apply their knowledge and skills in order to develop and to execute advanced data science projects, effectively to communicate and to discuss their analyses and results.

Certificate Goals - The overarching goal of the Certificate is to teach adults the most current data science best practices to effectively manage data derived from multiple sources with a variety of non-aligned data structures and inconsistent data semantics, including the state-of-the- art machine learning techniques and deep neural networks which allow for maximizing generalization power and minimizing expected loss.

The three main goals of this program are:
1. To deliver effective and applicable education in the areas of "Advanced Machine Learning" and "Deep Learning".

2. To provide applied and practical knowledge of data mining, ensemble models, and neural networks through our courses in "Practical Approaches in Machine Learning" and in "Practical Deep Learning".
3. To apply various algorithms, methods, approaches and techniques to real-world big data with an individual-based, advanced data analytics project course.

Curriculum Structure and Learning Outcomes - The proposed Certificate consists of four required courses:

- **IND 719** Big Data Analytics Tools (Department Consent) [Degree Level Status]
  This course is an introduction to learning big data tools such as Hadoop and advanced SQL techniques. Students will gain a clear understanding of Hadoop concepts and technologies landscape and market trends. They will construct SQL queries of moderate to high complexity to retrieve data from a relational database. Note: Tools taught Hive, Pig, Oozie, LAMBDA, Gigraph and GraphLab. This course is taught in a computer lab.

- **IND 840** Practical Approaches in Machine Learning (Pre-requisites: MTH 642) [Degree Level Status]
  This course covers major ideas and principles underlying current practices of data mining. It starts with what machine learning is, where it can be used and different kinds of knowledge representations that are involved. Then, the course spans advanced techniques of data mining, at the lowest and most detailed levels. Finally, the course is wrapped up by covering techniques of "ensemble learning," which combine the output from different learning techniques. On each topic, examples in Python are provided as lab materials. This course is taught in a computer lab.

- **IND 850** Practical Deep Learning (Pre-requisites: IND 840) [Degree Level Status]
  This course is an introduction to deep learning, building foundations of neural networks and doing practical deep learning on AI Platform. Topics cover basics in neural networks as well as convolutional and recurrent neural networks. It focuses on building deep learning applications on AI Platform. This course is taught in a computer lab.

- **IND 860** Advanced Data Analytics Project (Pre-requisites: IND 850) [Degree Level Status]
  The course addresses different aspects of data analytics, but may tackle problems from an advanced perspective and use rigorous machine learning methods, including deep learning, ensemble techniques or causal inference methods. The course aims to provide an efficient and effective foundation in the applied data analytics domain. An individual designed and implemented project is delivered to show skills and solve a real-world problem. This course is taught in a computer lab.

The courses in this proposed Certificate program instruct adult learners in the Python programming language and Artificial Intelligence (AI) Platforms in order to give them practical, hands-on, technical skills and to enable them to implement their own analytic approaches to querying Big Data, unstructured data, visual data, social media data, semi-structured data and disparate data sets.

The learning outcomes of the four required courses meet the goals of this Practical Data Science and Machine Learning Certificate by building practical, hands-on technical proficiency and analytical skills in the most practical data science and machine learning domains. The Program learning outcomes of the proposed Certificate are:

1. Develop a comprehensive understanding of big data and its industrial and sectoral applications. [IND 719]
2. Work with the Hadoop platform and selected main big data tools to further extend knowledge on big data. [IND 719]
3. Develop an understanding on Apache Hive to query data stored in various databases and file systems that integrate with Hadoop. [IND 719]
4. Develop an understanding on Apache Spark to efficiently execute streaming and machine learning on big data.
    [IND 719]
5. Apply machine learning algorithms to improve traditional AI- based approaches. [IND719]

6. Develop a comprehensive understanding of what machine learning involves to provide practical real-world applications. [IND 840]
7. Develop an understanding of the fundamental concepts and techniques in data science with applications on big data through an AI Platform. [IND 850]
8. Know how to build complex models for big data to better represent domains under study. [IND 840]
9. Apply Bayesian networks to provide advanced decision making through probabilistic decision network. [IND 840]
10. Build ensemble learning models for big data using multiple machine learning algorithms to obtain better predictive performance. [IND 840]
11. Build core knowledge of deep learning on structured, semi- structured and unstructured big data through an AI Platform. [IND 850]
12. Develop an understanding of utilizing convolutional neural networks for implementing image classification. [IND 850]
13. Develop an understanding of employing recurrent neural networks for implementing sentiment analysis. [IND 850]
14. Apply practical machine learning algorithms to frame a research problem in a way that could be addressed using AI- based approaches. [IND 860]
15. Use relevant tools and visualization software to address the problem under study. [IND 860]
16. Replicate state-of-the-art studies to highlight similarities as well as differences. [IND 860]
17. Build a solid foundation on How and When to use an AI-based approach. [IND 860]
18. Communicate the findings of the research effectively in both written and oral presentations. [IND 860]

In consultation with the various stakeholders, there is unanimous agreement that the Certificate's curriculum structure and course content are optimal as they reflect the nature of the continuing education providers' market, in the sense that most Certificates at other university CE institutions in North America and in the GTA require the satisfactory completion of a minimum of three (3) or four (4) required courses to earn a Certificate. The four Certificate courses have pre-requisites that are courses in the existing Certificate in Data Analytics, Big Data and Predictive Analytics (Figure 1).

Development Plan - The course IND 719 already exists. The courses IND 840, IND 850, and IND 860 commenced development (including video lectures) in Spring/Summer 2019. Together, all courses will meet pedagogical criteria for currency, for equity, diversity and inclusion and for the most up-to-date best applied practices and approaches, to be ready for delivery commencing Fall 2020.

Societal Needs and Target Group - The proposed Certificate directly addresses the societal need, in Canada and globally, for highly trained technical and analytics experts in Practical Data Science. It is expected that the increased demand by employers for Data Scientist and Data Analyst professionals in multiple sectors of the economy, resulting in significant labour market shortages worldwide, will be answered by the offer of this Certificate.

Additionally, graduates of this Certificate have been recognized by the INFORMS association to meet the educational requirements to take the INFORMS CAP exam. According to Business News Daily and Chief

Information Officer Magazines, the INFORMS CAP has been named as one of the best big data certifications for 2019[1,2].

Since writing the CAP also requires practical experience, its applicants need to hold either a bachelor's degree or a master's degree with 3 years of professional analytics experience. In addition to CAP practical requirements, Microsoft Certified Solutions Associate (MCSA) Certificate requires their applicants to pass an exam in analyzing big data using "R" and another advanced data science exam using Azure Machine Learning technology.

In order to help in satisfying the educational requirement to take to the CAP and passing the MCSA exams, we are proposing the new Certificate in Practical Data Science and Machine Learning which consists of 4 courses. This proposed Certificate, along with the successful completion of our already existing Certificate, which ladders to the proposed one, would meet these advanced requirements.

Admission Criteria - It is recommended that applicants have the following:
- Certificate graduate status in the Certificate in Data Analytics, Big Data and Predictive Analytics, or equivalent; OR
- Mature Student Status.

Undergraduate students wishing to pursue a continuing education Certificate program should be aware of possible restrictions; please refer to Curriculum Advising for complete details. To be approved to take the proposed Certificate, students contact the Program Director at a2brism@ryerson.ca.

The second admissions pathway, Mature Student status, will be such that Mature Students can have their official post-secondary academic transcripts evaluated to determine if transfer credits may be granted for prerequisite course requirements.

Academic Management and Governance - The academic home for the Certificate in Practical Data Science and Machine Learning is the Industrial Engineering Program within the Department of Mechanical and Industrial Engineering in the Faculty of Engineering and Architectural Science. Administrative support is the responsibility of The Chang School of Continuing Education. Routine matters, both academic and administrative, are the responsibility of the Academic Coordinator together with The Chang School Program Director.

This Certificate is governed by the provisions of Senate Policy No. 76 with respect to the composition and functioning of the Certificate's Standing Curriculum Committee. The Industrial Engineering Department Council residing in the Department of Mechanical and Industrial Engineering and the Chair approved this Certificate's courses and this Certificate on April 5, 2019.

The Certificate's Curriculum Committee and Program Advisory Council approved this Certificate proposal document on October 4, 2019. Chang School Council approved the Certificate proposal on February 12, 2020. FEAS Dean Duever, Chang School Interim Dean Anger and Chang School Dean Hepburn supported submitting this proposal document to Academic Standards.

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[1] Business News Daily (April 10, 2019). Best Big Data Certifications. Available from: https://www.businessnewsdaily.com/10754-best-big-data-certifications.html

[2] CIO. (May 16, 2019). A7 data analytics certifications that will pay off. Available from: https://www.cio.com/article/3209911/certifications/big-data-certifications-that-will-pay-off.html

Recommendation
Having satisfied itself of the merit of this periodic program review, the Academic Standards Committee recommends: *That Senate approve the new Certificate in Practical Data Science and Machine Learning – Chang School.*

H. *For Information*: CHANG SCHOOL CERTIFICATES - REVISIONS (February 2020)
      i. Certificate in Data Analytics, Big Data and Predictive Analytics: Required course deletions; course additions; changes in prerequisites
      ii. Certificate in Disaster and Emergency Management: Certificate title change
      iii. Certificates in Public Administration and Governance, Levels 1 and 2: Certificate title changes
      iv. Certificate in Disaster and Emergency Management: Course title change
      v. Certificate in English Literature and Popular Culture: Course addition and deletions (electives)

Respectfully Submitted,

Kelly MacKay, Chair for the Committee

ASC Members:
Charmaine Hack, Registrar
Donna Bell, Secretary of Senate
Kelly MacKay, Chair and Vice-Provost Academic
Anita Jack-Davies, Office of the Vice President, Equity and Community Inclusion
Bettina West, Director, Curriculum Quality Assurance
Ann Marie Singh, Faculty of Arts, Criminology
Dale Smith, Faculty of Arts, English
Gavin Adamson, Faculty of Communication and Design, Journalism
Robert Clapperton, Faculty of Communication and Design, Professional Communication
Thomas Tenkate, Faculty of Community Services, Occupational & Public Health
Ian Young, Faculty of Community Services, Occupational & Public Health
Jurij Leshchyshyn, Faculty of Engineering & Architectural Science, Architectural Science
Donatus Oguamanam, Faculty of Engineering & Architectural Science, Mechanical & Industrial Engineering
Miranda Kirby, Faculty of Science, Physics
Farid Shirazi, Ted Rogers School of Management, Information Technology Management
Mary Han, Ted Rogers School of Management, Entrepreneurship and Strategy
May Yan, Library
Linda Koechli, Chang School of Continuing Education
Dalia Hanna, Chang School of Continuing Education
Jacob Circo, Student
Karlee Reece, Student