DURHAM COLLEGE OF APPLIED ARTS AND TECHNOLOGY
PUBLIC MEETING OF THE BOARD OF GOVERNORS
AGENDA

Date: Wednesday, December 11, 2019, 6:00 p.m.

Location: DC Boardroom, Gordon Willey Building, A-144

Learn More Series: Supporting Inclusion and Human Rights on Campus (4:30 pm to 5:15 pm) in the DC Boardroom, A144

Pages

1. **CALL TO ORDER**

2. **INTRODUCTION OF GUESTS**

3. **ADDITIONS/DELETIONS TO THE AGENDA**

4. **CONFLICT OF INTEREST DECLARATIONS**

5. **PRESENTATIONS**

    5.1   Journalism - Mass Media Faculty-Led Classroom Abroad (D. Harder and students)

6. **CHAIR'S REPORT**

7. **CO-POPULOUS GOVERNORS' REPORT**

8. **CONSENT AGENDA**

    The following items will be addressed through the Consent Agenda unless specifically removed for separate attention, by request.

    Recommendation
    That all items listed under the heading of consent agenda be adopted as recommended.

    8.1   Approval of the Public Minutes of the Board of Governors Meeting of October 9, 2019   4 - 11

    Recommendation
    That the public minutes of the Board of Governors meeting of October 9, 2019 be approved as read.

9.4   Program Update: Sustainable Systems and Energy Audits - E. Popp
        (verbal)

9.5   Federal Election Update - P. Garrett   80 - 82

        <u>Recommendation</u>
        It is recommended that the Durham College Board of Governors:
        That Report BOG-2019-98, providing an update on the 2019 federal
        election, be received for information.

9.6   Strategic Planning Update - P. Garrett (verbal)

9.7   Clarification of Intent re Time Limited Committee with Ontario Tech   83 - 91
        University - I. DeJong

        Motion carried at the October 9, 2019 Board meeting:

        "That a time limited Committee be formed, with membership from the
        Durham College Board of Governors to include Ivan DeJong and Jim
        Wilson, to meet with two members of Ontario Tech University's Board to
        identify strategies to improve the relationship and report back."

10.   UPCOMING EVENTS

- Holiday Closure - December 24 to January 2

- Turkey on a Bun - December 17, 11:30 a.m., South Village Dining Hall

- Board Strategic Planning Session - January 16, 5:30 p.m., Global
  Classroom

11.   MOVE TO IN-CAMERA SESSION

12.   ADJOURNMENT

DURHAM COLLEGE OF APPLIED ARTS AND TECHNOLOGY
BOARD OF GOVERNORS REGULAR MEETING
DRAFT PUBLIC SESSION MINUTES

Date: Wednesday, October 9, 2019

Location: DC Boardroom, Gordon Willey Building, A-144

Members Present: Ivan DeJong, Chair of the Board
                  Suzanne Beale
                  Elizabeth Cowie (entered the meeting at 6:01 p.m.)
                  Kevin Griffin
                  Kristi Honey
                  Michele James, Vice-Chair of the Board (entered the meeting at 6:05 p.m.)
                  Gail Johnson Morris
                  Bart Lucyk
                  Debbie McKee Demczyk
                  Kenneth Michalko
                  Heather Quantrill
                  Gary Rose
                  Steve Stewart
                  Vasu Sukhija
                  Jim Wilson

Members Absent: Robert Lanc
                  Don Lovisa

Staff Present: Scott Blakey, Chief Administrative Officer
                      Andre De Freitas, AVP & Registrar, Strategic Enrolment Services
                      Linda Flynn, AVP, Office of Development and Alumni Affairs
                      Peter Garrett, Manager, Strategic Reporting and Government Relations
                      Barbara MacCheyne, Chief Financial Officer
                      Meri Kim Oliver, Vice-President, Student Affairs
                      Elaine Popp, Vice-President, Academic
                      Melissa Pringle, Corporate and Board Secretary
                      J. Tolmie, AVP, IT Services

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1. CALL TO ORDER

With quorum present, the meeting was called to order at 6:00 p.m.

The Chair welcomed Vasu Sukhija, student governor to his first board meeting and recognized Kristi Honey as a returning Governor.

2. INTRODUCTION OF GUESTS

The Chief Administrative Officer introduced the following guests:

- Stephanie Ball, Executive Dean, School of Justice and Emergency Services & School of Interdisciplinary Studies
- Laurie Marshall, faculty, School of Justice and Emergency Services
- Madison Carter, student
- Sylvie Cook, student
- Faris Lehn, General Manager, DCSI
- Natalie Bartley, Executive Chairperson, DCSI
- Andre De Freitas, Associate Vice-President/Registrar Student Affairs

3. ADDITIONS/DELETIONS TO THE AGENDA

None.

4. CONFLICT OF INTEREST DECLARATIONS

None.

5. PRESENTATIONS

5.1 Durham College's Access to Justice Hub

The Executive Dean, School of Justice and Emergency Services/School of Interdisciplinary Studies, L. Marshall, faculty, School of Justice and Emergency Services and students Sylvie Cook and Madison Carter presented an overview of the Access to Justice Hub, a 5-year pilot project to promote access to justice to low-income and precariously employed residents of Durham Region. The four components of the Hub include legal and social services, an education centre, a research centre and community integration. The students described their practical experience working with "energy files", helping seniors who have fallen victim to door-to-door sales. The students are involved with the cases from start to finish by interviewing clients, conducting research, preparing claims and going to court.

The Board questioned Sylvie Cook and Madison Carter.

5.2 Update on Durham College Students Inc.

F. Lehn, General Manager and N. Bartley, Executive Chairperson presented an update on Durham College Students Inc., highlighting the functions of the association and their 2019-2020 priorities which include rebuilding their brand, improving student spaces and investigating a student run hospitality service. The team also spoke to their commitment to the DC community to be transparent, to use membership fees efficiently and in a way that benefits all students, to efficiently manage the services of DCSI and to be a trusted partner to the College.

The Board questioned F. Lehn and N. Bartley.

6. CHAIR'S REPORT

As part of the Chair's report, the Chair reported on the following:

- Governors were asked to complete and submit their annual confidentiality form;
- Governors were encouraged to RSVP for the platform party for fall convocation on October 30, 2019;
- Governors were reminded of the importance of declaring conflicts as outlined in the Ministry Binding Policy Directive on Conflict of Interest.

The Chair also asked for volunteers to form a retreat planning committee. Governors Quantrill, Honey and Beale volunteered.

Additionally, the Chair reflected on his goals for the coming year which included leading the Board with integrity, compassion and respect. Other aspirations, as noted by the Chair, was becoming more comfortable with fundraising and fostering a better relationship with Ontario Tech University.

As a way to foster a better relationship with Ontario Tech University, the Chair proposed a Committee comprised of himself and Jim Wilson to meet with two members of Ontario Tech University's Board to discuss strategies for enhanced collaboration.

Moved by Governor Wilson
Seconded by Governor James
"That a time limited Committee be formed, with membership from the Durham College Board of Governors to include Ivan DeJong and Jim Wilson, to meet with two members of Ontario Tech University's Board to identify strategies to improve the relationship and report back." CARRIED

7.   CO-POPULOUS GOVERNORS' REPORT

Governor Wilson provided the co-populous report, highlighting the following events:

- On September 6, 2019 a mini pow wow was organized by DC and Ontario Tech University and was widely attended;
- On October 4, 2019 there was a event to recognize the restoration of Northern Dancer's grave;
- Ontario Tech recently hosted its first basketball game; and,
- The annual Campus Cup event was held on September 3, 2019.

8.   CONSENT AGENDA

The Board requested Item 8.3, 'Durham College Students Inc. 2018-2019 Audited Financial Statements' be pulled from the agenda and moved to the in-camera agenda.

Moved By Governor Honey
Seconded By Governor Griffin
"That all items listed under the heading of consent agenda be adopted as recommended, except Item 8.3." CARRIED

8.1   Approval of the Public Minutes of the Board of Governors Meeting of June 19, 2019

That the public minutes of the Board of Governors meeting of June 19, 2019 be approved as read.

8.2   Report of the Governance Review Committee - September 9, 2019

That all actions taken at the September 9, 2019 meeting of the Governance Review Committee be adopted as recommended and the minutes be approved as read.

8.3   Durham College Students Inc. 2018-2019 Audited Financial Statements

That Report BOG-2019-65, providing Durham College Students Inc.'s 2018-2019 Audited Financial Statements, be received for information.

8.4   Durham College Students Inc. 2019-2020 Operating Budget

That based on BOG-2019-75, Durham College Student Inc.'s 2019-2020 operating budget, be received for information.

8.5 Durham College Foundation By-law

That based on Report BOG-2019-67, the revised by-law for the Durham College Foundation be approved.

8.6 Program Advisory Committee Semi-Annual Report (October 2019)

That Report BOG-2019-76, providing the Program Advisory Committees semi-annual reports be received for information.

8.7 President's Report - June to September 2019

That BOG-2019-66, providing an update on the President's activities and significant college initiatives from April to June 2019, be received for information.

8.8 Revised Board of Governors Meeting and Events Calendar for 2019-2020

That based on BOG-2019-68, the revised Board Meeting and Events Calendar for 2019-2020 be approved.

8.9 Ancillary Fee Protocol 2019

That based on Report BOG-2019-72, the changes to the Ancillary Fee Protocol be approved.

8.10 Revised Sexual Violence Policy

That based on Report BOG-2019-74 the College's revised Sexual Violence policy be approved.

8.11 Sexual Violence and Harassment Action Plan: Annual Board Report

That Report BOG-2019-84, presenting the data required by the Sexual Violence and Harassment Plan Act (Bill 132), be received for information.

9. DISCUSSION ITEMS

9.1 Fall 2019 Domestic and International Enrolment Update

The Vice-President, Academic and Associate Vice-President/Registrar, Strategic Enrolment Services provided an update on domestic and internal enrolment for fall 2019, noting that as of Day 10 the College had confirmed a total of 11,839 students of which 9,838 were domestic and 2,001 were international students. It was also reported our international students represent over 70 countries, with the top sending countries being India, Sri Lanka, Jamaica, Vietnam and China.

The Board questioned the Vice-President, Academic and the Associate Vice-President/Registrar, Strategic Enrolment Services.

Moved By Governor Rose
Seconded By Governor Quantrill
"That Report BOG-2019-73, providing an enrolment update for fall 2019 at day 10 of classes, be received for information." CARRIED

9.2   Government Relations and Federal Election Update

The Manager, Strategic Reporting and Government Relations provided a government relations and federal election update, noting the College strives to remain non-partisan and provides equal access to all parties.

The Board questioned the Vice-President, Student Affairs and the Manager, Strategic Reporting and Government Relations.

Moved By Governor Lucyk
Seconded By Governor Johnson Morris
"That Report BOG-2019-70, providing an update the 2019 federal election, be received for information." CARRIED

9.3   Update on Strategic Planning Process for 2020-2023

The Manager, Government Relations provided an update on the strategic planning process for 2020-2023, noting the team had collected data through an online survey that was open to all stakeholders and through a series of input sessions. The data collected will be presented to the Durham College Leadership Team for discussion at their upcoming retreat.

9.4   Strategic Mandate Agreement 3.0

The Vice-President, Academic and the Chief Financial Officer presented an overview of Strategic Mandate Agreement 3.0 (SMA3), noting the third round of SMAs involves significant performance based funding comprised of an enrolment envelope (core operating grant based on enrolment and governed by an enrolment corridor mechanism), a differentiation envelope (based on achievement of performance targets) and special purpose grants (to address system priorities). The Vice-President, Academic and Chief Financial Officer also reviewed the ten performance metrics, how the metrics will be implemented and potential funding implications.

The Board questioned the Vice-President, Academic and the Chief Financial Officer.

9.5 First Business Plan Update for 2019-2020

The Manager, Strategic Reporting and Government Relations presented the first business plan update for 2019-2020, noting the majority of activities for the 22 objectives were tracking well for completion with 14 items completed to date, and the remaining items are on track for completion.

Moved By Governor Wilson
Seconded By Governor Stewart
"That Report BOG-2019-71, providing the first update on the 2019-2020 Business Plan, be received for information." CARRIED

9.6 Public-Private Partnerships

The Vice-President, Academic and Chief Financial Officer presented an update on the issue of public-private partnerships, highlighting the recent articles in the Toronto Star regarding international students. The Vice-President, Academic and Chief Financial Officer also noted the government has lifted the moratorium on public-private partnerships and the sector is working with the government to develop a policy. The Chief Financial Officer noted that Durham College has made the strategic decision not to participate in a public-private partnerships and is being strategic about its international recruitment.

The Board questioned the Vice-President, Academic and Chief Financial Officer.

10. UPCOMING EVENTS

The following events were highlighted:
- Global CyberLympics 2019 - October 26, 2019
- Fall Convocation Ceremonies, Tribute Communities Centre - October 30, 2019
- Fall Open House - November 2, 2019
- Higher Education Summit - November 30 to December 2, 2019

11. MOVE TO IN-CAMERA SESSION

Durham College By-law No. 1. provides for the Board of Governors to address, in-camera, items of corporate business respecting human resources or litigation matters, confidential items covered under the Freedom of Information and Protection of Privacy Act and, items that the Board deems to be confidential to the College.

Moved By Governor Johnson Morris
Seconded By Governor Cowie
"That the Durham College Board of Governors move in-camera after a short recess."
CARRIED

The meeting recessed at 7:57 p.m. and reconvened in-camera at 8:07 p.m.

The Board of Governors rose from the in-camera session at 8:21 p.m.

During the in-camera session, the Board discussed recommendations from its Standing
Committees and the issue of executive compensation.

11.   ADJOURNMENT

Moved by Governor Cowie
"That the October 9, 2019 meeting of the Durham College Board of Governors be
adjourned." CARRIED

The meeting adjourned at 8:21 p.m.

Public Report

Report Number: BOG-2019-90

To: Board of Governors

From: Don Lovisa, President

Date of Report: November 29, 2019

Date of Meeting: December 11, 2019

Subject: President's Report – October to November 2019

Purpose

The purpose of this report is to provide an update on the President's activities and significant college initiatives from October to November 2019.

1.   Our Students

DC Lords men's baseball team win national championship
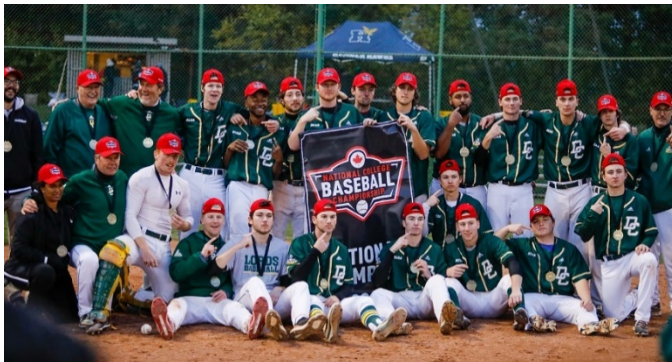
The Durham Lords men's baseball team claimed the National College Baseball Championship gold medal on October 26 in Toronto, defeating the Thompson River Wolfpack in an exciting extra-inning contest, 2-1.The win marks the second national championship in program history, previously claiming the Canadian Intercollegiate Baseball Association national title in 2011.

DC hosts 13 international teams on campus for Global Cyberlympics

On October 26, in partnership with The Regional Municipality of Durham, DC co-hosted the Global Cyberlympics at its Oshawa campus, welcoming 13 international teams from North and South America, Asia, Australia, Europe and Africa. Organized by EC-Council and SiberX, with assistance from DC's AI Hub, this is the first time that the highly competitive ethical hacking competition has been held in Canada.

Future students explore DC at Fall Open House

On November 2, DC opened its doors to prospective students and their families and friends at the Oshawa and Whitby campuses and Pickering Learning Site for the college's annual Fall Open House.

The event gave 2,900 visitors the opportunity to explore DC's facilities, take guided tours and learn more about student support services and the college's more than 140 full-time programs as well as hundreds of continuing education offerings.

A winning weekend for Durham Lords men's soccer and rugby teams

The Durham Lords celebrated national and provincial championship wins on November 9 and 10, securing gold in both the 2019 Canadian Collegiate Athletic Association (CCAA) men's soccer national championship and the Ontario Colleges Athletic Association (OCAA) men's provincial rugby championship.

Kicking off the weekend, the Lords hosted the men's soccer national championship and captured their first gold medal in program history, defeating the Vancouver Island University Mariners 3-2 in the championship final in front of a home crowd in Oshawa, Ont. The Lords previous men's soccer national medal came exactly a decade ago when they previously served as host for the prestigious event, capturing the CCAA bronze in 1999.

DC recognizes student achievement at 2019 Fall Convocation

On October 30, more than 1,100 Durham College students received their credentials during Fall Convocation. Friends, families, college employees and special guests celebrated the post-secondary achievements of graduates, encouraging them to continue reaching for their goals and accomplishing great things.

Guest speakers at each ceremony were Adam Hare and Melissa Farrow.

DC students and professor take home People's Choice Award at all-female culinary competition

Last month, DC professor Tanya Heck and second-year students Amira Elgindy and Arlinda Prenaj from DC's Culinary Management program, won the Up and Coming Chef's Challenge at the annual Eat to the Beat charity event.

Competing against teams from other colleges, DC placed first, winning the People's Choice Award for their team's roasted beet and panzanella salad made with feta cheese, heirloom tomato, red onion, basil, honey, garlic and micro-greens – all grown, harvested and produced at DC's Whitby campus.

Throughout the competition, DC's talented team of female chefs received great reviews and feedback from taste-testers, who were impressed that all ingredients used in the dish came directly from DC's fields, greenhouses and apiary.

2.   Our Business

Bistro '67 named one of 50 Best Restaurants for Vegetarians in Canada

For the second time in two months, Bistro '67, has been recognized by OpenTable – last month for its breathtaking views, and this month as one of 50 Best Restaurants for Vegetarians in Canada.

In the Durham Region, Bistro '67 was the only restaurant to make the top 50 list, and was one of 29 restaurants across Ontario to be selected.

DC celebrates opening of Energy Innovation Centre and completion of geothermal field

On October 22, we celebrated the completion of our geothermal field and grand opening of the Energy Innovation Centre (EIC), which together leverage clean, sustainable underground thermal energy for the heating and cooling of the college's Gordon Willey building.

DC helps launch Canadian College Consortium for Cannabis

DC has partnered with four Canadian colleges and a national advocacy body to form the Canadian College Consortium for Cannabis, an entity that will serve as a first-of-its-kind in the post-secondary sector.

DC is joined by NorQuest, Niagara and Okanagan colleges and Collège communautaire du Nouveau-Brunswick (CCNB) as founding members. A sixth seat will go to Colleges and Institutes Canada (CiCan).

DC strengthens collaborations in Ireland

On November 5, I travelled to Dublin, Ireland to meet with our partners at TU Dublin and Ontario Tech University. As members of the Centre for Higher Education Research, Policy and Practice (CHERPP), Durham College signed a memorandum of understanding in which the three institutions agreed to continue to promote inter-institutional research collaborations, joint publications, joint conferences and faculty, staff and student mobility focused on exploring higher education policy and practice in the two nations and more broadly.

The 2-day trip was packed with informative meetings and presentations by students and faculty. DC will be hosting the Higher Education in Transformation (HEIT) conference in May 2020. The HEIT Symposium brings together practitioners, researchers and policy-makers who are working to reinvent and reinvigorate higher education.

Durham College attends Ontario College Information Fair

On October 23 and 24, DC staff and faculty attended the Ontario College Information Fair to help show prospective students how they can launch their career at DC. The college

fair brings colleges from all over Ontario together, so that students can speak with staff from each institution and decide which program and school is best for them. Staff from strategic enrollment services and faculty from almost every school helped keep the DC booth buzzing all day long.

3.   Our People

Celebrating our People at the Annual Employee Appreciation Evening

The Employee Awards of Excellence are presented annually to one permanent full-time or part-time employee in each of the administrative staff, faculty, and support staff groups, in recognition of outstanding contributions to Durham College.

The awards provide colleagues across the three award categories with high-profile recognition to the entire college community. Recipients will have demonstrated excellence in different ways - depending on the nomination category - including teaching and learning, outstanding leadership, customer service and interpersonal skills, departmental and organizational knowledge, and professionalism while adhering to the college's mission, vision, and values.

This year's recipients of the 2019 Employee Awards of Excellence were:

- Justin Christie, web media specialist, Communications and Marketing
  Support staff

- Kris Felstead, professor and program coordinator, School of Media, Art & Design
  Faculty

- Sue Moore, manager, Academic Operations, Whitby campus
  Administrative staff

DC students and faculty travel to Guatemala to support the United Nation's Sustainable Development Goals

On Friday, October 4, students and faculty from the School of Media, Art & Design travelled for ten days to rural regions of Guatemala as part of a new digital storytelling program, called Youth United 2030, contributing to the United Nation's Sustainable Development Goals (SDGs).

The program is being delivered in partnership with a Canadian charity, Students Offering Support (SOS), which has facilitated youth service-learning programs throughout Latin America since 2008.

DC student, alumnus and faculty member travel to Rome, Italy for health care technology conference

DC's health care programs were well represented on the world stage last month when a DC student, alumnus and faculty member traveled to Rome, Italy to speak at the Third International Clinical Engineering and Health Technology Management Congress, organized by the International Federation of Medical and Biological Engineering.

From the Bachelor of Health Care Technology Management (BHCTM) program, second-year student Jessica Metcalfe presented her poster "Student point-of-view: healthcare technology management, a layman's definition" in the Education, Certification, and Training session, while faculty member Abdelbaset Khalaf spoke in two sessions on the development of health care management technology, one of which was featured as a conference highlight.

4.   Our Community

Durham College encourages young women to see themselves in science, technology and skilled trades.

On October 22 and 23, DC hosted more than 600 Grade 7 and 8 students from across Durham Region and Northumberland County for the second annual conference, Expand the Possibilities: Young Women in Science, Technology and Trades.

The two days of exploration and inspiration aimed to better connect girls with careers in the traditionally male-dominated fields of science, technology and skilled trades. Each day of the conference included a keynote presentation and a series of hands-on workshops held in the college's industry-grade facilities and innovative learning spaces.

DC continues to support local autoworkers through transition

DC hosted the government of Ontario, on October 23 as Minister of Labour, Training and Development, the Honourable Monte McNaughton announced the opening of the Unifor/GM Oshawa Action Centre. The centre will be a resource for employees to access employment guidance and job search support, referrals to service providers and computers and the internet.

DC has been working with GM, the provincial government and education partners over the past months, developing resources to support impacted auto-sector workers through this transition. A resource-filled, college-supported website has been created to provide these workers access to post-secondary and government resources and offerings from regional partners and employers to help them in their next steps.

Class of 1979 Reunion

On October 19, I was joined by Linda Flynn and the graduating class of 1979 for a wonderful celebration at the Officer's Mess in Oshawa. The first ever graduating business class at DC, this group reunited for the first time in many years. We were honoured to have been invited to attend and say a few words about how far Durham College has come since their graduation.

DC students create wayfinding tool for Oshawa Valley Botanical Gardens

DC, with TeachingCity Oshawa, was proud to announce the launch of new Augmented Reality (AR) technology to encourage the community to explore and learn about the Oshawa Valley Botanical Gardens.

The community can now use their smartphone cameras, to scan Quick Response (QR) codes placed on signage throughout the park to learn about the park, points of interest and utilize a navigation guide between landmarks. Students researched, designed and created the AR platform as part of a TeachingCity partnership with the City of Oshawa and the DC's Office of Research Services, Innovation and Entrepreneurship and School of Media, Art and Design.

![Colleges Ontario / Collèges Ontario logo]

Dec. 4, 2019

Summary of the Committee of Presidents meeting
Dec. 1, 2019

Decision items:

Pre-budget submission

The Committee of Presidents (COP) approved a draft of the sector's submission to the province for the 2020 Ontario Budget.

The submission's theme is "the future of work." The submission has targeted funding requests to improve college education, including recommendations for new investments into mental health services on college campuses and for capital investments to improve energy efficiency.

Colleges Ontario will incorporate the feedback from presidents and present a final version to COP in January. The Ontario government is expected to table its 2020 budget in the spring.

Public-private partnerships

The presidents voted to reconvene the sector's task force on public-private partnerships to review its policy document for the sector that was previously approved by COP. The decision follows the ministry's announcement last month of a new policy for public-private partnerships.

Colleges and Universities Minister Ross Romano announced the government's new policy at a news conference last month at St. Lawrence's Brockville campus.

The minister announced Ontario has lifted its moratorium on partnerships and is allowing colleges to enter new agreements to deliver programs to international students. Six colleges currently have partnerships with private trainers.

In preparation for such an announcement, the sector's task force had created a policy document for colleges that addressed issues such as managing overall enrolment levels and ensuring the quality of all programs is protected.

As a followup to the minister's announcement, presidents voted to have the task force review its recommendation that each college cap its enrolment under such partnerships at a maximum of 3,000 students for two years. The ministry and colleges will be reviewing the partnerships in two years' time.

The task force will provide to COP at its next meeting in January.

1

Discussion items:

Stand-alone nursing degrees

Presidents received an update on the ongoing advocacy for stand-alone nursing degree programs at colleges.

The sector continues to urge the government to adopt changes that allow qualified colleges to deliver nursing degree programs that are independent of any university partners. Currently, any college offering nursing degrees must have a university partner.

Experts from the colleges recently met with Laurie LeBlanc, the new Deputy Minister of Colleges and Universities. Linda Franklin, the president and CEO of Colleges Ontario, said it was an excellent meeting. As well, she said a number of cabinet ministers support the colleges' proposal.

Discussions with key ministers and government officials will continue in the coming months.

National strategy on micro-credentials

Linda Franklin, the president and CEO of Colleges Ontario, spoke about a proposal to work with colleges and regional associations across Canada on a national strategy on micro-credentials.

She said a number of colleges have established micro-credentials and there is growing interest in them among governments and business leaders. She said a national strategy with a defined set of principles and an implementation approach could ensure a full suite of programs is created that aligns with the evolving economy. COP supported the idea of a national initiative, cautioning the work must be done well but also quickly as micro-credentials are becoming an urgent issue.

LinkedIn contract

Presidents discussed whether the Ministry of Colleges and Universities should renew a contract with LinkedIn that provides post-secondary students with free access to courses on LinkedIn Learning, formerly known as Lynda.com.

The partnership was established three years ago to help college and university students get free access to LinkedIn courses that provide further training to prepare students for their careers.

Colleges Ontario will consult with colleges to get their feedback on whether the arrangement was beneficial to students.

2

Accreditation

Presidents were advised the vice-presidents, academic, will examine whether the sector should create an accreditation model for public colleges.

This idea was first considered in 2016. To promote greater awareness of Ontario's high standards for public college programs, the Ontario College Quality Assurance Service (OCQAS) could award a three-year or five-year "accredited" status to any college that is successfully reviewed.

The model would build on the quality-assurance reviews currently done by OCQAS.

When the proposal was discussed three years ago, presidents were concerned the process could become expensive and unwieldy. The presidents voted in 2016 to defer a decision for three years while a test run of the audit process is conducted at each college.

The vice-presidents, academic, will examine the results and provide presidents with recommendations in March on whether to proceed with an accreditation model.

Long-term advocacy on future of workers

Presidents discussed a long-term advocacy strategy to promote awareness of how college graduates are pivotal to Ontario's efforts to strengthen the workforce.

In the past, Ontario's colleges have led provincial and national conversations on skills shortages through the promotion of key reports by the Conference Board of Canada and a report by former Seneca president Rick Miner, called "People without Jobs, Jobs without People," that framed the skills mismatch issue for provincial and federal leaders.

Linda Franklin, the president and CEO of Colleges Ontario, said much of the discussion now is about the future of work and how it will be changed by AI, robotics and other innovations.

Up to now, she said most of the discussion has been led by businesses championing policies to help businesses grow. She said it will be equally important that the future workforce has the expertise to succeed and colleges should lead the discussion on how to ensure that happens.

She said Colleges Ontario will explore options to have a third party produce a discussion paper on the future of workers, in consultation with the colleges and other key players. The document will provide a jumping off point for community engagement by colleges and possibly their MPPs. It may also be used to generate media coverage.

COP supported this approach and recommended the work include a review of the federal government's Future Skills activities, the Business Council of Canada's paper, "A better future for Canadians," and other relevant research including work from the business community. There was also a suggestion to include representatives from the colleges' program advisory committees in the consultations.

3

Public Report

Report Number: BOG-2019-91

To: Board of Governors

From: Don Lovisa, President

Date of Report: November 18, 2019

Date of Meeting: December 11, 2019

Subject: Provincial Key Performance Indicators (KPIs) – 2018-2019 Results

1. Purpose

To provide the Board of Governors with the results of the annual provincial Key Performance Indicator (KPI) data released on September 25, 2019.

2. Recommendation

That Report BOG-2019-91 concerning the KPI data for the release year 2018-2019, be received for information.

3. Background

Every year the provincial government assesses college performance in five key areas:

- Student satisfaction KPI
  - Paper-based survey completed by current students
- Graduate employment KPI
  - Telephone survey completed by last year's graduates
- Graduate satisfaction KPI
  - Telephone survey completed by last year's graduates
- Employer satisfaction KPI
  - Telephone survey completed by employers of last year's graduates
- Graduation rate KPI
  - Calculated by the college annually and includes those who graduated within a window of approximately twice the program length

Each year, Durham College analyzes and benchmarks KPI results, compiling an "Institutional Snapshot" as well as various KPI reports for individual programs and service/facility areas. This analysis is used to identify strengths and key areas for improvement.

4.   Discussion/Options

4.1   Results

Durham College's high-level results for each of the five KPIs are presented in charts 1 through 5. Each chart presents the 2018-19 results for the system KPI, Durham College KPI, and the 2017-18 Durham College KPI along with the respective margins of error. In addition, the charts also present the highest and the lowest results in the system for the year 2018-19.

Charts 1 and 2 present KPI results for Student and Graduation Satisfaction

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Chart 1:

Student Satisfaction

	2018-19		2017-18
	System	Durham	Durham
Margin of Error	+/- 0.2%	+/- 0.9%	+/- 1.0%
System High	83.0%		
System Low	72.4%		

Chart 2:

Graduate Satisfaction

|	2018-19		2017-18
	System	Durham	Durham
Margin of Error	+/- 0.2%	+/- 2.3%	+/- 2.1%
System High	87.0%		
System Low	75.6%		
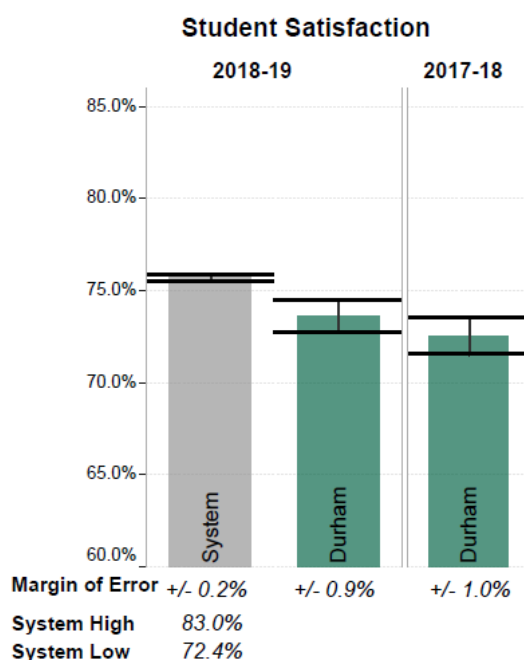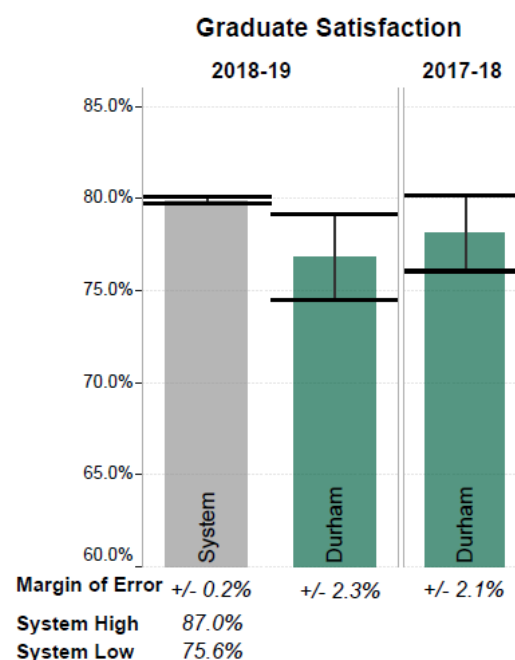
Note: For Student Satisfaction and Graduate Satisfaction, results reflect the proportion of students who indicated they were satisfied or very satisfied. System highs and lows exclude Boréal and La Cité.

Durham College's 2018-19 KPI results for Student and Graduate Satisfaction are comparable to the prior year results with reference to the margins of error. The overlap in the college's margins of errors for this year and the prior year indicates that the variances are not statistically significant.

- Student Satisfaction (73.6%) for the college trended upwards. In particular, the college results trended upwards for over 90% (20 of 22) of the academic aspects measured.

- Graduate Satisfaction (76.8%) for the college trended downwards after an increase last year.

- A signficant percentage of students indicated they were neither satsified not dissastified for Student Satisfaction (20.5%) and Graduate Satisfaction (15.6%).

Charts 3 and 4 present KPI results for Graduate Employment Rate and Employer Satisfaction.

Chart 3:

Graduate Employment Rate

	2018-19	2017-18
	System	Durham	Durham
Margin of Error	+/- 0.2%	+/- 2.6%	+/- 2.5%
System High	90.3%		
System Low	78.1%		

Chart 4:

Employer Satisfaction

	2018-19	2017-18
	System	Durham	Durham
Margin of Error	+/- 0.6%	+/- 9.7%	+/- 8.6%
System High	100.0%		
System Low	78.6%		
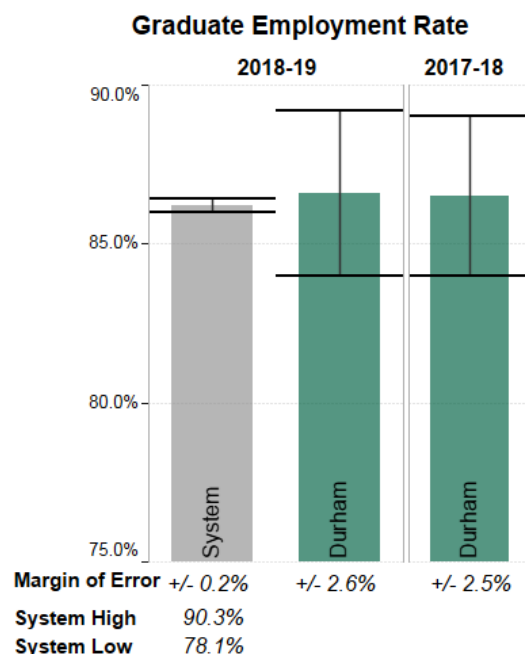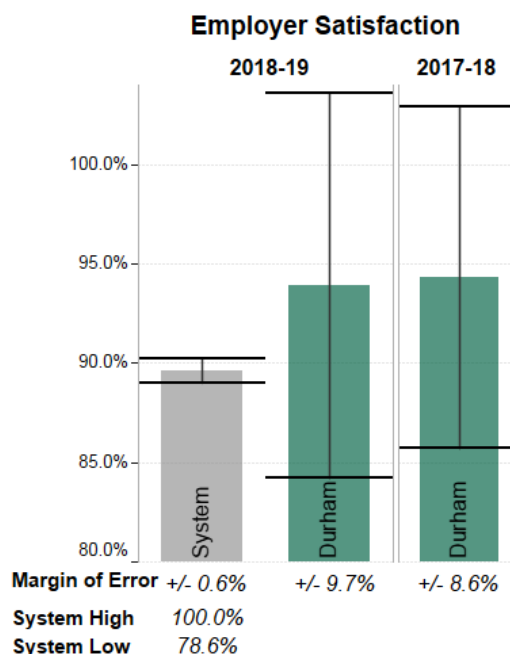
Note: For Employer Satisfaction, results reflect the proportion of students who indicated they were satisfied or very satisfied. Graduate Employment reflects the proportion of graduates who were available for employment and who were employed. System highs and lows exclude Boréal and La Cité.

Durham College's KPI results for Graduate Employment Rate and Employer Satisfaction are comparable to the system KPI results for 2018-19 as well as the college results from prior year with reference to the margins of error. The overlap in the margins of errors indicates that the upwards and downward variances in the college performance, or the variances between the college and the system are not statistically significant.

- Graduate Employment (86.6%) for the college continues to trends upwards.

- Employer Satisfaction (93.9%) for the college trended downwards.

Chart 5 presents KPI results for Graduation Rate.

Chart 5:
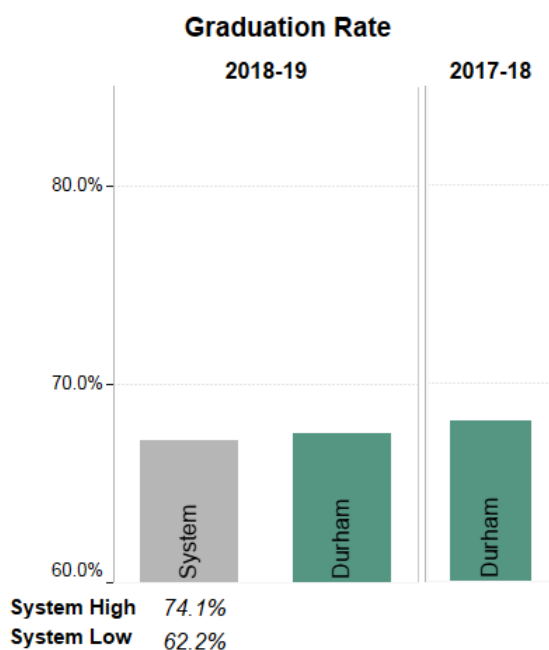
Graduation Rate is calculated by the college in accordance with the Ministry of Colleges and Universities (MCU) Graduation Rate KPI Calculation and Reporting for the 2018-19 Reporting Year Operating Procedure. System highs and lows exclude Boréal and La Cité.

Durham College's KPI Graduation Rate continues to be slightly higher than the system KPI Graduation Rate. For the year 2018-19

- Graduation Rate (67.5%) for the college was higher than the system average (67.2%) but trended downwards by 0.6% from last year.

4.2   Next Steps

Similar to 2017-18, there were significant delays in the release of the KPI 2018-19 data by the Ministry of College and Universities; hence the regular schedule of analysis and reporting was delayed but has been completed. Several high-level strategic reports were developed for leadership and a KPI Program Report Card Dashboard developed to share the results with Durham College employees.

We will continue to focus on building our strengths and to undertake an analysis of the data to develop strategies for further improvement. For the academic programs, program teams will use the results from the 2018-19 KPI Program Report Card Dashboard to create action plans documented in the subsequent 2019-20 Annual Program Review (APR) and will monitor the plans throughout the course of the next academic year with a clear expectation for improvement.

For the KPI 2019-20 cycle, provincial government is expected to continue with the administration of the KPI Graduate and Employer survey to provide relevant assessments for graduate outcomes. However, it is unlikely that the provincial government will continue with the administration of the KPI Student Satisfaction and Engagement survey. Currently, various Ontario Colleges of Applied Arts and Technology are consulting on collaboration opportunities to continue with some form of common student satisfaction and engagement survey over the coming year.

We will continue to provide KPI results to the Board on an annual basis each April/May.

5.   Financial/Human Resource Implications

Capital and/or other resources required to implement improvement strategies are factored into decisions on capital expenditures. Strategies designed to improve the student experience have and will continue to be factored into future budget and planning decisions.

6.   Implications for the Joint Campus Master Plan

There are no implications for the joint campus master plan.

7. Implications for Ontario Tech University

Although only Durham College students completed the KPI student satisfaction questionnaire, the results and trends for some of the service/facility areas reflect satisfaction with campus services that support both institutions.

8. Relationship to the Strategic Plan/Business Plan

This report relates to the "Our Students" pillar of the Strategic Plan, and the goal to provide students with the best possible learning experiences by continuing to assess various aspects of student learning experiences, and the related graduate and employment outcomes.

Public Report

Report Number: BOG-2019-87

To: Board of Governors

From: Dr. Elaine Popp, Vice-President, Academic

Date of Report: **November 27, 2019**

Date of Meeting: December 11, 2019

Subject: New Program of Instruction: Honours Bachelor of Artificial Intelligence

1.   Purpose

To seek approval from the Board of Governors for the following post-secondary program of instruction for September 2021 intake:

Honours Bachelor of Artificial Intelligence

- Credential: Honours Bachelor Degree
- Duration: Eight Semesters
- School:
    - School of Business, IT and Management

2.   Recommendation

It is recommended to the Durham College Board of Governors:

That in accordance with Report Number BOG-2019-87, the proposed Honours Bachelor Degree program of instruction listed below be approved:

- Honours Bachelor of Artificial Intelligence

3.   Background

The Honours Bachelor of Artificial Intelligence program, with an emphasis on machine learning (ML) and deep learning, provides graduates with the specialized knowledge, skills and abilities required to succeed in the growing field of artificial intelligence (AI).

Graduates of the program will have a firm grounding in the theory, principles, and practices of data management and data integration. This will include the evaluative skills to determine the inputs to AI-based systems, and the data visualization and user interaction design skills to present system outputs to users.

The program provides a strong foundation in computer science, mathematics, and statistics to ensure the effective use of AI and ML algorithms, techniques, and tools. The breadth of modern AI techniques, algorithms, and tools together with the systematic ways for selection based on the characteristic of each business problem, are emphasized. Graduates gain experience in designing and deploying AI solutions using industry-standard platforms, tools, and packages.

The program will equip graduates with the ability to determine the context and constraints for the design and implementation of AI-based systems with a strong foundation in business analysis and requirements engineering. It also emphasizes project management as well as critical and analytical thinking skills. Solving complex real-world problems through the lens of legal, social, and corporate responsibility, and delivering measurable business value are the cornerstones of this program as it prepares graduates to be integral members of cross-functional teams designing and developing advanced AI-driven solutions.

Graduates will be prepared to successfully gain employment as AI, data or ML engineers, data analysts, and data analytics developers. With additional education or experience, graduates can be considered for the roles of a data scientist or ML researcher. Graduates of the program will have the knowledge and skills to pursue further graduate study in AI or related fields.

As per the Ministry of Training, Colleges and Universities' Minister's Binding Policy Directive 3.0, Programs, Framework for Programs of Instruction, the Board of Governors is responsible for approving programs of instruction the college will offer.

It is the role of the Durham College Board of Governors to ensure that programs of instruction are developed and implemented, and are consistent with provincial program standards where they exist. It is also the responsibility of the Board to ensure that all new and modified post-secondary programs of instruction lead to one of the following credentials: Durham College Certificate, Ontario College Certificate, Ontario College Diploma, Ontario College Advanced Diploma, Ontario College Graduate Certificate or Bachelor Degree.

The Board will submit to the ministry the degree submission for consent and undergo a quality assurance review by the Postsecondary Education Quality Assessment Board (PEQAB) to ensure that the submission meets the degree-level standard identified in the Credentials Framework, as well as all of PEQAB's standards and benchmarks ensuring rigour and capacity to deliver the degree.

We confirm that Durham College is in compliance with all Minister's Binding Policy Directives as noted above, for this new program of instruction.

4.   Discussion

The environmental scan prepared by the Institutional Research and Planning team in the Office of Research Services, Innovation and Entrepreneurship, indicates AI has the potential to be a key driver of global economic growth in the near future. There is an anticipated shortage of AI talent in Canada and worldwide. While there is plenty of focus on the impact of AI on the labour market as a whole, the AI field itself offers many career opportunities that support the development, operation and maintenance of AI applications.

In North America, the economic gains from AI are expected to reach $3.7 trillion or 14.5% of GDP growth by 2030. North America will see the fastest growth in the near term, given its current lead in AI technologies, applications, and market readiness. However, China will likely begin to catch up by the mid-2020s given its accelerating AI investments (PwC, 2017).

Investments in Canada's AI industry are steadily growing. In the first half of 2017, AI attracted $162 million in investments, which was the highest amount of funding in Canada in the past five years (Green, 2018). This includes $102 million invested in Montreal's Element AI from U.S. investors (CTV News, 2017), and $5 million in seed funding for Toronto-based Integrate.ai (Integrate.ai, 2017). By 2025, the Canadian market for AI related products is expected to reach $127 billion (Green, 2018).

Ontario is an established hub for AI development and has attracted major investments from the public and private sectors, and is recognized globally for its leadership in AI. The province is home to more than 300 AI-enabled firms and attracted over $1 billion in investments in September 2018 alone (Invest in Ontario, 2019). Ontario's AI start-ups apply ML to more than 15 sectors, from media and advertising, to professional services, healthcare, agriculture and software. Toronto has the largest concentration of AI firms in Canada, with at least 150 start-ups and established firms exploring applications for AI across a broad range of industries. Google, Thomson Reuters, TD Bank Group, Shopify and 26 other companies have committed a combined total of more than $80 million over ten years to support Toronto's Vector Institute (Vector Institute, 2019).

Durham College is uniquely positioned to offer students real-world experience in AI through the Durham College Hub for Applied Research in Artificial Intelligence for Business Systems (AI Hub). The AI Hub offers small- and medium-sized enterprises (SMEs) access to technical expertise, state-of-the art facilities and learning platforms, and students who are emerging leaders in their fields to uncover business insights and implement intelligent and autonomous solutions to increase their companies' productivity and growth.

AI is transforming the ways in which business systems, consumer interactions and devices are being developed and used. By building upon Canada's established lead in AI scientific research, DC's AI Hub aims to ensure this emerging and vital competitive advantage for business can be understood, developed and adopted by SMEs.

Durham College currently delivers diploma and advanced diploma programs in computer programming and computer programming analysis, a graduate certificate in information systems security, and recently diversified its offerings with two graduate certificates; one in Data Analytics for Business Decision Making (2018) and the second in Artificial Intelligence Analysis, Design and Implementation (2019) through the School of Business, IT & Management. The addition of an Honours Bachelor of Artificial Intelligence degree program complements the suite of technology-based programs. All of these programs have regional and local community supports in place through well-established and active Program Advisory Committees (PACs) and/or field placement providers.

A career in AI can be realized within a variety of settings including finance, education, healthcare, manufacturing and transportation. Occupations range from those responsible for building and managing platforms for ML projects (Machine Learning Engineer), to those charged with collecting, analyzing, and interpreting large, complex datasets (Data Scientist). There are a wide variety of competencies that support a career in AI, including mathematical and analytical skills, computer programming expertise, knowledge of computer languages and cloud applications, as well as broader business and communication skills. It takes many team members to make AI work, allowing for specialization in any number of areas.

The proposed program, Honours Bachelor of Artificial Intelligence, is designed to provide professional competencies that link the technical, analytical, project, legal and ethical aspects of AI. Graduates will possess the knowledge and skills to effectively use AI and ML algorithms, techniques and tools to solve complex real-world problems and to deliver measureable business value. They will be ready to become integral members of cross-functional teams designing and developing advanced AI-driven solutions.

The proposal for the new Honours Bachelor of Artificial Intelligence, Honours Bachelor Degree, will be submitted to the Postsecondary Education Quality Assessment Board in December 2019.

References
CIFAR (2017) Pan-Canadian Artificial Intelligence Strategy. https://www.cifar.ca/ai/pan-canadian-artificial-intelligence-strategy

CTV News. (2017) Montreal startup Element AI scores US$102 million in financing to expand. https://www.ctvnews.ca/business/montreal-startup-element-ai-scores-us-102-million-in-financing-to-expand-1.3458459

Green Technology Asia Pte Ltd. (2018) The Canadian AI Ecosystems: A 2018 Profile. http://www.greentechasia.com/wp-content/uploads/2018/02/Canada-AI-Ecosystem-2018-Profile-Summary-Report-Greentech-Asia.pdf

Integrate.ai. (2017) Press Release: Integrate.ai raises $5m seed round from Georgian partners. https://www.integrate.ai/news/2017/2/8/press-release-integrateai-raises-5m-seed-round-from-georgian-partners

Invest in Ontario. (2019) Where Artificial Intelligence Lives. https://www.investinontario.com/artificial-intelligence-ontario?utm_expid=93876644-1.q4oDtQ1ITEac4d9H8wr38w.1&utm_referrer

PwC. (2017) Sizing the prize: PwC's Global Artificial Intelligence Study: Exploiting the AI Revolution. https://www.pwc.com/gx/en/issues/data-and-analytics/publications/artificial-intelligence-study.html

Vector Institute. (2019) Vector Institute: Driving excellence in machine learning and deep learning. https://vectorinstitute.ai/wp-content/uploads/2019/02/vector-institute-information-deck-2019m02d13.2.pdf

5. Financial/Human Resource Implications

The New Program Summary attached provides a projected nine-year budget with account of all capital and human resource requirements.

6. Implications for the Joint Campus Master Plan

There are no implications for the joint campus master plan.

7. Implications for Ontario Tech University

There are no anticipated implications for Ontario Tech University resulting from the implementation of this new program recommendation.

Pathway opportunities at Ontario Tech University will be considered in the future for graduates of the proposed program.

8. Relationship to the Strategic Plan/Business Plan

Strategic Mandate Agreement (SMA)
As outlined in the 2017-2020 SMA, Durham College will continue to launch market-driven programs and continue its plan to develop degrees. The proposed Honours Bachelor of Artificial Intelligence program aligns with the SMA in:
- area of strength and expansion – Business computer and Technology miscellaneous.

Academic Plan
The Durham College 2017-2020 Academic Plan ensures the college is ready to respond to constantly changing student populations' expectations, employer needs, professional practices and workplace technologies. The proposed Honours Bachelor of Artificial Intelligence program responds to the changing needs of employers, broader industry and our community. Specifically, the development of the proposed program focuses on Goals 1 and 4:
- ensuring exceptional quality in our academic programs through the development of new programs including degrees; and
- intensifying and strengthening the college's applied research agenda.

Strategic Plan
This proposed new degree program aligns to several objectives identified in the college's 2017-2020 Strategic Plan, including:
- Deliver high-quality programs to help students develop a wide range of career-ready skills.
- Offer quality programs, services and systems that modernize, support and grow our business.
- Develop new programs and services to meet the evolving demands of the job market and our students.

General Program Information

Proposed Program Title:	Honours Bachelor of Artificial Intelligence
Proposed Credential:	Honours Bachelor Degree
Academic Dean:	Kevin Baker, Executive Dean, School of Business, IT & Management
MTCU Code:	
Proposed implementation:	2021
Year 1 enrolment:	20
Number of Semesters:	8
Total hours:	1680 + 420 (WIL) = 2100
Number of new FT faculty:	4 (1 FT PhD; 1 PT PhD; 2 PT MSc)
Program delivery methods:	Classroom
Laptop required:	No
New or renovated space requirements:	No
Total capital costs:	Year 1: $160,000
Proposed Tuition:	Year 1: $6872.67

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1. Approval Stages

The following approval stages have been assessed for this program:
- Labour Market
- Student Demand
- New Program Proposal Document reviewed by the Associate Dean, Centre for Academic and Faculty Enrichment
- Presented to the Program Proposal Review Committee as an information item – November 13, 2019
- Approved by Vice-President, Academic
- Reviewed and approved by President

2. Program Overview

2.1 Program Description

The Honours Bachelor of Artificial Intelligence program, with an emphasis on machine learning (ML) and deep learning, provides graduates with the specialized knowledge, skills and abilities required to succeed in the growing field of artificial intelligence (AI).

Graduates of the program will have a firm grounding in the theory, principles, and practices of data management and data integration. This will include the evaluative skills to determine the inputs to AI-based systems, and the data visualization and user interaction design skills to present system outputs to users.

The program provides a strong foundation in computer science, mathematics, and statistics to ensure the effective use of AI and ML algorithms, techniques, and tools. The breadth of modern AI techniques, algorithms, and tools together with the systematic ways for selection based on the characteristic of each business problem, are emphasized. Graduates gain experience in designing and deploying AI solutions using industry-standard platforms, tools, and packages.

The program will equip graduates with the ability to determine the context and constraints for the design and implementation of AI-based systems with a strong foundation in business analysis and requirements engineering. It also emphasizes project management as well as critical and analytical thinking skills. Solving complex real-world problems through the lens of legal, social, and corporate responsibility, and delivering measurable business value are the cornerstones of this program and it prepares graduates to be integral members of cross-functional teams designing and developing advanced AI-driven solutions.

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2.2   Career Outcomes

Graduates will be prepared to successfully gain employment as AI, data or ML engineers, data analysts, and data analytics developers. With additional education or experience, graduates can be considered for the role of a data scientist or ML researcher. Graduates of the program will have the knowledge and skills to pursue further graduate study in AI or related fields.

2.3   Vocational Program Learning Outcomes

Vocational program learning outcomes must be consistent with the requirements of the Credentials Framework for the proposed credential. The graduate of the program has reliably demonstrated the ability to:

1. Evaluate data requirements and technical approaches for building an artificial intelligence solution by using systems analysis to align to business and client concerns.

2. Analyze and evaluate the nature and quality of input data to prepare data for selected machine learning algorithms.

3. Build machine learning models by evaluating input data and identifying features that meet the needs of the project.

4. Evaluate technical performance metrics, feasibility, legal, privacy, security, and explainability requirements for each design to select the socially responsible, best performing, and technically appropriate artificial intelligence solution for a business problem.

5. Design and develop simulated environments according to project specifications for testing the effectiveness of machine learning models.

6. Evaluate and provide justification for machine learning model outputs by referencing algorithmic explainability and prediction interpretability to ensure transparency and accountability.

7. Utilize data visualization techniques and user interaction designs to create communication materials for artificial intelligence solutions, products, and user experiences for a variety of stakeholders.

8. Adhere to ethical frameworks and legal guidelines to ensure the integrity, confidentiality, and compliance in the delivery of artificial intelligence solutions and recommendations.

9. Collaborate as part of an interdisciplinary team to coordinate project deliverables by applying professional communication, teambuilding and leadership skills, and project management methodologies, tools, and techniques.

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10. Develop software systems using modern programming languages, techniques, and tools for deployment on different platforms.

11. Develop strategies to pursue continuing education and professional development opportunities to enhance research skills and knowledge, and skills in the field.

2.4 Admission Requirements

- OSSD Minimum combined average of 65%
- Grade 12U English
- Grade 12U mathematics (recommended: Calculus and Vectors; or Advanced Functions)
- Four other 12U credits

3. Program of Study

Semester 1
3.1 Course Title: Introduction to Artificial Intelligence
Course Code:
Prerequisites/Equivalents: N/A
Course description: The course introduces students to artificial intelligence (AI) as a subfield of computer science and presents ideas and techniques for designing intelligent systems. Students study the core AI topics of knowledge representation and reasoning, learning, search, and planning. For each such topic, students learn about the related issues and challenges and corresponding solutions. The course also teaches the history of AI by discussing the dominant schools of thought, including symbolic AI and connectionist, probabilistic, and evolutionary approaches.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.2 Course Title: Statistics
Course Code:
Prerequisites/Equivalents: N/A
Course description: The course introduces students to probability and statistics as the core foundations of many artificial intelligence (AI) and machine learning approaches (ML) and techniques. Students will learn descriptive statistics for understanding data sets, statistical inference, estimation and sampling, probability and probability distributions, confidence intervals, formulating and testing hypotheses, regression and correlation.
Instructional Setting: Lecture
Total Hours (Semester): 42

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3.3 Course Title: Introduction to Information Systems
  Course Code:
  Prerequisites/Equivalents: N/A
  Course description: In this course, students are introduced to information systems, their types, structure, and uses in organizations. Students will use business analysis to explore existing information systems and opportunities for their improvement, and identify and analyze the impact of new or modified information systems on organizations. The course will focus on the socio-technical issues related to the development and use of information systems in complex business environments. Opportunities, benefits, and challenges of using artificial intelligence (AI) and machine learning (ML) in information systems will be explored.
  Instructional Setting: Lecture
  Total Hours (Semester): 42

3.4 Course Title: Introduction to Computer Programming
  Course Code:
  Prerequisites/Equivalents: N/A
  Course description: This course introduces students to the fundamentals of computer programming, focusing on the structured and object-oriented programming paradigms. Students learn about problem solving approaches and strategies for software development and gain practical experience in writing computer programs using modern programming languages and software development tools. The course focuses on elementary data types and data structures, control flow, modularization, algorithm design, program documentation, testing and debugging.
  Instructional Setting: Lecture
  Total Hours (Semester): 42

3.5 Course Title: Non-Core Breadth Elective
  Course Code:
  Prerequisites/Equivalents: N/A
  Course description:
  Instructional Setting: Lecture
  Total Hours (Semester): 42

Semester 2
3.6 Course Title: Introduction to Data Science
  Course Code:
  Prerequisites/Equivalents: N/A
  Course description: The course is an introduction to the discipline of data science as a systematic approach to the extraction of knowledge from large amounts of data using scientific methods, algorithms, processes, and systems. Students explore the pipeline for data science activities from data collection to statistical data analysis and ending with communication and visualization of results to the relevant stakeholders. For each activity in the pipeline, the drivers, challenges, and major implementation techniques and tools are explored.

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Instructional Setting: Lecture
Total Hours (Semester): 42

3.7 Course Title: Discrete Math
Course Code:
Prerequisites/Equivalents: N/A
Course description: This course introduces students to discrete structures that are the backbone of computer science and underpin many artificial intelligence (AI) methods and algorithms. Students will learn about abstraction and its use in computer science and will also explore the theory and practical applications of topics including: set theory, relations and functions, combinatorics (enumeration, combination, and permutation), and logic and proofs.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.8 Course Title: Linear Algebra
Course Code:
Prerequisites/Equivalents: N/A
Course description: This course is an introduction to linear algebra which provides the mathematical foundation for many approaches used in artificial intelligence (AI), thus equipping students with the skills and knowledge to better understand and utilize AI and machine learning (ML) algorithms, tools, and techniques. The course covers the mathematical objects such as scalars, vectors, matrices, and tensors. Students also learn about systems of linear equations, matrix transformations, and determinants.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.9 Course Title: Programming for Artificial Intelligence
Course Code:
Prerequisites/Equivalents: Introduction to Computer Programming, Introduction to Artificial Intelligence
Course description: This course introduces students to designing, developing, and testing artificial intelligence (AI) applications, including the fundamentals of handling data input, processing and analysis, and output. Students learn to use algorithms and tools for data preparation, statistical data processing, matrix operations, optimizations, and visualizations.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.10 Course Title: Non-Core Breadth Elective
Course Code:
Prerequisites/Equivalents: N/A
Course description: Click or tap here to enter text.
Instructional Setting: Lecture
Total Hours (Semester): 42

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Semester 3

3.11 Course Title: Introduction to Machine Learning
Course Code:
Prerequisites/Equivalents: Programming for Artificial Intelligence, Statistics
Course description: In this course, students are introduced to the field of machine learning (ML), focusing on the fundamental problem of developing systems that can perform tasks without explicit instructions, by learning from experience. The course covers approaches, techniques, and algorithms for ML and explains the conditions under which they are most appropriate. Both supervised and unsupervised ML algorithms are discussed. Students also learn about the issues and practical aspects of ML implementations by using modern tools and frameworks.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.12 Course Title: Calculus
Course Code:
Prerequisites/Equivalents: N/A
Course description: The course introduces students to some of the most important mathematical notions and methods for representing and analyzing continuous change, with applications in computer science, statistics, and artificial intelligence (AI). Students will obtain the knowledge for building quantitative models of various real-world phenomena and for measuring and analyzing the rates of change of modeled quantities. Topics covered in this course include functions and limits, differentiation, and integration.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.13 Course Title: Data Structures and Algorithms
Course Code:
Prerequisites/Equivalents: Discrete Math
Course description: The course introduces students to the theory and practice of designing and analyzing algorithms for solving typical real-world problems and the data structures for processing and manipulating data in computer programs. The course covers algorithms (sorting, searching, divide and conquer, greedy, graph-based) and the methods for evaluating their complexity. Students learn many types of data structures (including lists, trees, queues, stacks, etc.) used in today's software systems and algorithms for efficient manipulation. Upon completing this course students will be able to determine the best data structures to use for solving particular problems.
Instructional Setting: Lecture
Total Hours (Semester): 42

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3.14 Course Title: Ethics and Privacy in Artificial Intelligence
Course Code:
Prerequisites/Equivalents: N/A
Course description: The course introduces students to ethics and privacy in the context of the design and use of artificial intelligent (AI) based systems. Students will learn about the issues and risks related to data collection, processing, and storage, obtaining consent for using personal data, and the use of AI-generated insights. Techniques and processes for dealing with these issues will also be discussed. Additional topics covered will include biases, fairness, accountability, and transparency.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.15 Course Title: Non-Core Breadth Elective
Course Code:
Prerequisites/Equivalents: N/A
Course description:
Instructional Setting: Lecture
Total Hours (Semester): 42

Semester 4

3.16 Course Title: Machine Learning - Classification
Course Code:
Prerequisites/Equivalents: Introduction to Machine Learning, Calculus
Course description: This course teaches classification, one of the most widely used techniques in machine learning (ML), with a broad array of applications, including risk assessment, ad targeting, medical diagnosis, and spam detection. Students learn important algorithms used in classification by focusing on the core techniques, which are widely used in the real world to get state-of-the-art performance. This course will cover algorithms including Decision Trees, K nearest neighbours, Naïve Bayes, Logistic Regression, and relevant metrics (Accuracy, Recall, Precision, F1 Score). Students will gain practical experience with these approaches by developing their own models for solving real-world problems.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.17 Course Title: Machine Learning - Regression
Course Code:
Prerequisites/Equivalents: Introduction to Machine Learning, Linear Algebra
Course description: This course teaches regression, one of the most important and broadly used tools in machine learning (ML), statistics, and data science. Regression has many applications in diverse areas ranging from finance to biology. Students will study making predictions from data by learning the relationship between features of input data and some observed, continuous-valued response. This course will cover many algorithms including Simple Linear Regression, Multiple Regression, Polynomial Regression, and relevant

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cost functions (RSS, MSAE). Students will gain knowledge of methods and systems for implementing regression for solving real-world problems.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.18 Course Title: Data Management
Course Code:
Prerequisites/Equivalents: Introduction to Computer Programming, Data Structures and Algorithms
Course description: This course introduces techniques and tools for storing, retrieving, and analyzing structured, semi-structured, and unstructured data, including numerical data, text, images, etc. Students gain experience in using modern database management systems, data modeling techniques, and data manipulation and querying languages. The course also introduces students to the concept of and techniques for handling big data.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.19 Course Title: Systems Analysis and Design
Course Code:
Prerequisites/Equivalents: Introduction to Information Systems
Course description: The course introduces students to approaches to systems analysis and design methods for designing information and other types of software systems to help organizations improve their operations. Students are exposed to the development lifecycle and phases of systems, and to various systems development methodologies, such as iterative and agile. The course focuses on investigating, analyzing, modeling, and documenting requirements for software systems using traditional and agile methods. Subsequently, students learn software design and modeling methods and design patterns.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.20 Course Title: Non-Core Breadth Elective
Course Code:
Prerequisites/Equivalents: N/A
Course description:
Instructional Setting: Lecture
Total Hours (Semester): 42

Semester 5
3.21 Course Title: Introduction to Artificial Neural Networks
Course Code:
Prerequisites/Equivalents: Linear Algebra, Introduction to Machine Learning
Course description: The course introduces students to artificial neural networks (ANNs) and their use in modern machine learning (ML) for tasks such as classification in many application domains. Students study the foundations of neural networks including neurons, activation and error functions, neural

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network types and architectures, back propagation and gradient descent. Also covered is the history and origins of the connectionist school of artificial intelligence (AI).
Instructional Setting: Lecture
Total Hours (Semester): 42

3.22 Course Title: Data Visualization
Course Code:
Prerequisites/Equivalents: Introduction to Computer Programming
Course description: This course teaches data visualization tools and techniques for representing various types of data graphically. Students will learn to use tools and techniques to visualize predictions or recommendations for artificial intelligence (AI) based systems. Emphasis will be placed on considering the users' context, objectives, and other characteristics to produce clear and efficient data visualizations that foster their accessibility, understandability, and usability.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.23 Course Title: Human-Computer Interaction
Course Code:
Prerequisites/Equivalents: N/A
Course description: In this course, students learn methods, techniques, and tools for designing interactions between software systems and their human users. Techniques for building user interfaces are discussed, including gathering requirements, creating prototypes, and evaluating multiple interface alternatives. The course introduces the principles of perception and cognition and lays the foundation for visual design to effectively organize, solicit, and present information.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.24 Course Title: Societal and Legal Issues in Artificial Intelligence
Course Code:
Prerequisites/Equivalents: Introduction to Information Systems
Course description: This is an introduction to the social and legal issues surrounding the use of artificial intelligence (AI) based systems. Students explore how the introduction of AI affects individuals in their private lives, at work, and in society at large. The course also discusses the legal and compliance issues that come to the forefront as more and more AI-driven systems are deployed in various domains, including legislation and regulations, the liability of creators for the actions of AI-based systems, and human oversight.
Instructional Setting: Lecture
Total Hours (Semester): 42

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3.25 Course Title: Non-Core Breadth Elective
  Course Code:
  Prerequisites/Equivalents: N/A
  Course description:
  Instructional Setting: Lecture
  Total Hours (Semester): 42

Semester 6

3.26 Course Title: Machine Learning – Clustering and Dimensionality Reduction
  Course Code:
  Prerequisites/Equivalents: Introduction to Machine Learning, Linear Algebra
  Course description: The course introduces students to clustering - one of the most high-impact and widely used machine learning (ML) tools. Students learn the purpose of using clustering for automatically discovering structure in data, such as uncovering groups of similar customers or products. In this course, students learn about the methods and techniques for dimensionality reduction - which is used to improve the performance and execution speed of ML systems by reducing the number of attributes for processing. Students obtain knowledge of approaches, techniques, and tools for implementing clustering and dimensionality reduction for achieving real-world objectives.
  Instructional Setting: Lecture
  Total Hours (Semester): 42

3.27 Course Title: Computer Vision
  Course Code:
  Prerequisites/Equivalents: Calculus, Linear Algebra, Introduction to Computer Programming
  Course description: The course introduces students to the domains of computer vision and image processing. Students learn the fundamental topics, such as image formation, image classification, feature detection and matching, motion estimation and tracking, boundary detection, and scene understanding. The course provides the background needed for students to utilize advanced artificial intelligence (AI) based techniques in a variety of applications of computer vision in many business contexts.
  Instructional Setting: Lecture
  Total Hours (Semester): 42

3.28 Course Title: Natural Language Processing
  Course Code:
  Prerequisites/Equivalents: Programming for Artificial Intelligence, Statistics
  Course description: In this course, students are introduced to the area of natural language processing (sometimes referred to as computational linguistics), which is the study of computing systems capable of processing, understanding, and communicating in human language. The topics include language modeling, syntactic parsing, discourse analysis, among others.

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Typical applications, such as information extraction, machine translation, automatic summarization, and interactive dialogue systems will be discussed.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.29 Course Title: Research Methods
Course Code:
Prerequisites/Equivalents: N/A
Course description: The course introduces students to the research process and main activities, including hypothesis formulation and data collection, and analysis, literature review, etc. within quantitative, qualitative, and mixed methods approaches to research. Students will gain knowledge and skills required for critically evaluating published research, conducting their own research projects, and understanding the importance of research ethics and its integration into the research process.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.30 Course Title: Non-Core Breadth Elective
Course Code:
Prerequisites/Equivalents: N/A
Course description:
Instructional Setting: Lecture
Total Hours (Semester): 42

3.31 Field Placement
Total Hours: 420 (between Semester 6 and 7)

Semester 7
3.32 Course Title: Advanced Neural Networks: Deep Learning for Sequential Analysis
Course Code:
Prerequisites/Equivalents: Introduction to Artificial Neural Networks, Natural Language Processing
Course description: The course introduces students to methods in deep sequential learning, including recurrent neural networks (RNNs), a class of modern artificial neural networks (ANNs) aimed at processing sequential data. The course introduces the problems of vanishing and exploding gradients as well as that of long-distance dependencies in sequential processing while offering corresponding solutions. Students focus on the theoretical and practical aspects of various types of sequential architectures (i.e., various types of RNNs and transformer architectures) and study their applications, including those in natural language processing (such as language translation, automatic captioning, handwriting and speech recognition), log/sensor analysis, and time series anomaly detection.
Instructional Setting: Lecture
Total Hours (Semester): 42

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3.33 Course Title: Advanced Neural Networks: Deep Learning for Spatial Analysis

Course Code:

Prerequisites/Equivalents: Introduction to Artificial Neural Networks, Computer Vision

Course description: This course is an introduction to convolutional neural networks (CNNs), a deep neural network architecture. CNNs are commonly used for processing images and other two-dimensional data. The course will explore image classification, (medical) image analysis, object detection, object localization, segmentation, and other computer vision tasks. Students will study the typical CNN architectures, including YOLO, ResNet, variants of VGG, and the Siamese network.

Instructional Setting: Lecture

Total Hours (Semester): 42

3.34 Course Title: Deploying Artificial Intelligence Systems

Course Code:

Prerequisites/Equivalents: N/A

Course description: The course focuses on deploying artificial intelligence (AI) systems into production environments. Students learn about on-premise and cloud deployment options, cloud platforms and tools and their applicability for running AI applications, systems management infrastructure, and building data pipelines. Security, performance, scalability, and related issues are also discussed.

Instructional Setting: Lecture

Total Hours (Semester): 42

3.35 Course Title: Project Management

Course Code:

Prerequisites/Equivalents: N/A

Course description: Students are introduced to project management (PM) concepts and principles covering the entire project life cycle, from project initiation and definition, work breakdown structures, scheduling, budgeting and controlling resources, and project quality assurance. Students acquire experience with project risk assessment, cost/benefit analysis, and techniques for delivering projects on budget and on schedule. The course emphasizes PM in software development, focusing on complexities and uncertainties due to the need to solve novel problems using combinations of advanced technologies.

Instructional Setting: Lecture

Total Hours (Semester): 42

3.36 Course Title: Non-Core Breadth Elective

Course Code:

Prerequisites/Equivalents: N/A

Course description:

Instructional Setting: Lecture

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Total Hours (Semester): 42

Semester 8

3.37 Course Title: Reinforcement Learning
Course Code:
Prerequisites/Equivalents: Introduction to Machine Learning, Introduction to Artificial Neural Networks
Course description: This course is an introduction to the field of reinforcement learning (RL). RL is primarily concerned with understanding how a software agent learns to behave in an environment to maximize the reward. Students explore methods, algorithms, and theoretical and practical aspects of RL, including exploration and generalization, the definition of state space, action space, dynamics, rewards, on-policy and off-policy learning, value iteration and policy iteration for RL.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.38 Course Title: Special Topics: Agile Artificial Intelligence
Course Code:
Prerequisites/Equivalents: Deploying Artificial Intelligence Systems, Project Management
Course description: This is a special topics course intended to cover advanced topics in artificial intelligence (AI). For this year, the course is "Agile Artificial Intelligence". The course focuses on introducing students to methods and tools for developing AI systems in a nimble way when dealing with frequently changing and/or incompletely specified requirements as well as complex business problems requiring novel solutions. Students will study approaches for highly iterative rapid prototyping, development, deployment, and assessment of AI systems. The application of agile software engineering methods as well as continuous delivery and DevOps to the development of AI systems is also explored.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.39 Course Title: Business Application of Artificial Intelligence
Course Code:
Prerequisites/Equivalents: N/A
Course description: This course introduces students to contemporary themes and current topics related to business applications of artificial intelligence (AI). Students learn about established and emerging use cases and value propositions in the organizational context that are associated with AI. This course introduces students to value engineering, which maps AI capabilities to business impact. Students learn about AI-supported improvements in metrics, key performance indicators, and critical success factors for businesses.
Instructional Setting: Lecture
Total Hours (Semester): 42

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3.40 Course Title: Capstone Project
Course Code:
Prerequisites/Equivalents: Systems Analysis and Design, Deploying Artificial Intelligence Systems, Data Visualization
Course description: The capstone project course gives students the opportunity to apply the theoretical and practical knowledge and skills gained throughout the program to a challenging project in the area of artificial intelligence (AI). The course is designed to put students in charge of a project of interest to them and will cover project topic selection, proposal submission, analysis of a business problem and requirements, design and development of a system to solve that problem, and the demonstration of the project outcome. In addition to relying on students' software design and development abilities, the course requires students to demonstrate communication, critical thinking and problem solving, project management, research, ethics, professionalism, and other relevant skills and qualities.
Instructional Setting: Lecture
Total Hours (Semester): 42

3.41 Course Title: Non-Core Breadth Elective
Course Code:
Prerequisites/Equivalents: N/A
Course description:
Instructional Setting: Lecture
Total Hours (Semester): 42

4. **Strategic Alignment**

   4.1 Strategic Fit
   The proposed program aligns with a number of objectives/goals found within the college Strategic Mandate Agreement, Academic Plan, and Strategic Plan.

   Strategic Mandate Agreement
   The proposed graduate certificate aligns with Durham College's 2017-2020 Strategic Mandate Agreement (SMA).

   Program Areas of Strength
   3. Business Computer
   10. Technology miscellaneous

   Program Areas of Expansion
   1. Business computer
   5. Technology miscellaneous

   Academic Plan

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In addition, this new program aligns to objectives identified in the college's 2017-2020 Academic Plan.

Goal 1: Ensure exceptional quality in our academic programs.
Goal 4: Intensify and strengthen the college's applied research agenda.

Strategic Plan

This new graduate certificate program aligns to several objectives identified in the college's 2017-2020 Strategic Plan.

Goal 1, Our Students
- Deliver high-quality programs to help students develop a wide range of career-ready skills.

Goal 3, Our Business
- To manage resources responsibly and ensure that we are financially and environmentally sustainable, demonstrate good governance, and are leaders in the support of outstanding teaching and learning.
- Offer quality programs, services and systems that modernize, support and grow our business.

Goal 4, Our Community
- To contribute and respond to the economic, social and environmental well-being of our community.
- Develop new programs and services to meet the evolving demands of the job market and our students.

Business Plan (2019-2020)
Goal 1, Our Students
- To provide students with the best possible learning experience.
- Deliver high-quality programs to help students develop a wide range of career-ready skills.
- Objective 2: Ensure exceptional quality in our academic programs and services

Goal 3, Our Business
- To manage resources responsibly and ensure that we are financially and environmentally sustainable, demonstrate good governance, and are leaders in the support of outstanding teaching and learning.
- Offer quality programs, services and systems that modernize, support and grow our business.

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Goal 4, Our Community
- To contribute and respond to the economic, social and environmental well-being of our community.
- Develop new programs and services to meet the evolving demands of the job market and our students.

4.2   Fit with Existing Programs

Durham College currently delivers diploma and advanced diploma programs in computer programming and computer programming analysis, a graduate certificate in information systems security, and recently diversified its offerings with two graduate certificates; one in Data Analytics for Business Decision Making (2018) and the second in Artificial Intelligence Analysis, Design and Implementation (2019), through the School of Business, IT & Management.

These current offerings are:
Computer Programmer,
Computer Programmer Analyst,
Computer Systems Technician,
Computer Systems Technician – UOIT Transfer,
Computer Systems Technology,
Data Analytics for Business Decision Making,
Project Management,
Supply Chain and Operations – Business,
Supply Chain and Operations – Business UOIT Transfer,
Supply Chain and Operations Management – Business Administration, and
Information Systems Security – Computer and Networking.

All of these programs have regional and local community supports in place through well-established and active Program Advisory Committees (PAC) and/or field placement providers.

In addition, Durham College is uniquely positioned to offer students real-world experience in AI through the Durham College Hub for Applied Research in Artificial Intelligence for Business Systems (AI Hub). The AI Hub offers small- and medium-sized enterprises (SMEs) access to technical expertise, state-of-the art facilities and learning platforms, and students who are emerging leaders in their fields to uncover business insights and implement intelligent and autonomous solutions to increase companies' productivity and growth.

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5. **Labour Demand and Graduate Employment Possibilities**

Institutional Research and Planning prepared a comprehensive environmental scan. The following is a summary of the information and data from the scan.

After a review of the need for an Honours Bachelor of Artificial Intelligence degree program with a particular focus on ML and deep learning, Durham College determined it would be valuable to add this degree to its postsecondary offerings because:

- AI has the potential to be a key driver of global economic growth in the near future.
- There is an anticipated shortage of AI talent in Canada and worldwide.
- Ontario is an established hub for AI development and has attracted major investments from the public and private sectors.
- Durham College has an established AI Hub that offers industry partners access to technical expertise, state-of-the-art facilities and platforms, and student talent, to uncover business insights that increase productivity and growth.
- Applicant interest, enrolment and graduate outcomes are strong in programs related to the AI field of study.

5.1 Labour Market Analysis

While there is plenty of focus on the impact of AI on the labour market as a whole, the AI field itself offers many career opportunities that support the development, operation and maintenance of AI applications. A career in AI can be realized within a variety of settings including finance, education, healthcare, manufacturing and transportation. Occupations range from those responsible for building and managing platforms for ML projects (Machine Learning Engineer), to those charged with collecting, analyzing, and interpreting large, complex datasets (Data Scientist). There are a wide variety of competencies that support a career in AI, including mathematical and analytical skills, computer programming expertise, knowledge of computer languages and cloud applications, as well as boarder business and communication skills. It takes many team members to make AI work, allowing for specialization in any number of areas.

AI has already been implemented to varying degrees across a wide range of industries such as, Manufacturing, Automotive, Healthcare, Retail, and Banking and Finance. AI has the potential to have a significant impact on the global economy and labour market. According to a recent report by PwC (2017), AI could contribute up to $15.7 trillion to the global economy in 2030, "making it the biggest commercial opportunity in today's fast changing economy". Around $6.6 trillion of the expected GDP growth will come from productivity gains, especially in the near term. These include the continued automation of routine tasks, and the development of increasingly sophisticated tools to augment

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human capabilities. Over time, increased consumer demand for AI-enhanced offerings will overtake productivity gains and result in an additional $9.1 trillion of GDP growth by 2030 (ibid).

In North America, the economic gains from AI are expected to reach $3.7 trillion or 14.5% of GDP growth by 2030. North America will see the fastest growth in the near term, given its current lead in AI technologies, applications, and market readiness. However, China will likely begin to catch up by the middle 2020s given its accelerating AI investments (PwC, 2017).

Canada has been a leader in AI research and education for years and the Canadian government has recognized the need to invest in AI and build a national talent pool. In the 2017 Federal Budget, the government committed $125 million to AI through the Pan-Canadian AI Strategy —a five-year plan and the world's first national AI strategy. The Strategy, led by the Canada Institute for Advanced Research (CIFAR), aims to align Canadian resources, organizations, and AI scientists to make Canada the world's nexus of AI development, talent, and commercialization (CIFAR, 2017). Canada's three major AI institutes - Vector Institute in Toronto, Amii in Edmonton and Mila in Montreal – have attracted high-profile researchers, companies and investments (ibid).

Investments in Canada's AI industry are steadily growing. In the first half of 2017, AI attracted $162 million in investments, which was the highest amount of funding in Canada in the past five years (Green, 2018). This includes $102 million invested in Montreal's Element AI from U.S. investors37, and $5 million in seed funding for Toronto-based Integrate.ai (Integrate.ai, 2017). By 2025, the Canadian market for AI related products is expected to reach $127 billion (Green, 2018).

With investments in Canada's AI industry has also come job growth. According to Indeed.com, AI and ML job openings have risen by almost 500% (to 202) in Canada within the last two years. Ontario overall is home to 54% of the opportunities, with British Columbia and Quebec right behind at 24% and 18% respectively. While the absolute numbers might not be large, the growth trajectory is significant (StartUp Here, 2017).

The proposed program, Honours Bachelor of Artificial Intelligence, is designed to provide professional competencies that link the technical, analytical, project, legal and ethical aspects of AI. Graduates will possess the knowledge and skills to effectively use AI and ML algorithms, techniques and tools to solve complex real-world problems and to deliver measureable business value. They will be ready to become integral members of cross-functional teams designing and developing advanced AI-driven solutions. Employment opportunities can be found in a wide range of sectors such as healthcare, financial, retail, social media, entertainment and education. Possible job titles include but are not

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limited to Machine Learning Engineer, Data Scientist, Business Intelligence Analyst, and Data Analytics Developer.

National Outlook

Table 1 displays wages, occupation statistics and employment outlooks for relevant occupations in Canada.

Table 1: Wages, Occupational Statistics and Employment Outlook (National)							
NOC Code - Occupation	Median Wage[62]	Male[63]	Female	Full-Time	Part-Time[64]	Self-Employed[65]	Outlook to 2026[66]
2171 – Information systems analysts and consultants	$38.46	72%	28%	95%	5%	23%	Shortage
2172 – Database analysts and data administrators	$33.65	65%	35%	93%	7%	19%	Shortage
2173 – Software engineers and designers	$43.27	83%	17%	98%	2%	11%	Shortage
2174 – Computer programmers and interactive media developers	$34.62	82%	18%	97%	3%	15%	Shortage

All of the occupations relevant to graduates of the AI degree earn a wage well above the national average. A high proportion of males work in these occupations, and employment is primarily full-time.

The outlook for all four occupations expects there to be a higher demand than available workers through to 2026.

References

CIFAR (2017) Pan-Canadian Artificial Intelligence Strategy. https://www.cifar.ca/ai/pan-canadian-artificial-intelligence-strategy

Green Technology Asia Pte Ltd. (2018) The Canadian AI Ecosystems: A 2018 Profile. http://www.greentechasia.com/wp-content/uploads/2018/02/Canada-AI-Ecosystem-2018-Profile-Summary-Report-Greentech-Asia.pdf

Integrate.ai. (2017) Press Release: Integrate.ai raises $5m seed round from Georgian partners. https://www.integrate.ai/news/2017/2/8/press-release-integrateai-raises-5m-seed-round-from-georgian-partners

PwC. (2017) Sizing the prize: PwC's Global Artificial Intelligence Study: Exploiting the AI Revolution. https://www.pwc.com/gx/en/issues/data-and-analytics/publications/artificial-intelligence-study.html

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StartUp Here. (2017) Canadian Job Opportunities in AI Have Grown by Nearly 500%. https://startupheretoronto.com/partners/betakit/report-canadian-job-opportunities-ai-grown-nearly-500/

6.   **Student Interest**

Institutional Research and Planning surveyed students and graduates in high affinity programs to explore interest in the AI degree. The following is a summary of the information and data from the surveys:

Student Survey Results
- Of the 215 respondents, 121 are enrolled in the highly-related programs Computer Programmer and Computer Programmer Analyst.

- The vast majority of students (96%) agree that offering the Honours Bachelor of Artificial Intelligence program is a good idea. It is believed by 83% of students that the degree would make a difference in the number of potential employment opportunities, and by 76% of students that it would impact the types of jobs available upon graduation.

- Approximately 76% of students expressed some level of interest in enrolling in the Bachelor of AI program if it is offered, with the highest levels of interest among Computer Programmer/Analyst and Computer Systems Technician/Technology students.

- 74 students indicated they would be interested in enrolling in the program, and an additional 88 students indicated they might enrol. 73.6% of students indicated they are more likely to enrol if they are granted transfer credits.

Graduate Survey Results
- 33 graduates from related programs completed a survey assessing their interest in an Honours Bachelor of Artificial Intelligence. The majority of graduates (75.8%) think offering an Honours Bachelor of Artificial Intelligence is a good idea, and approximately 85% perceive an undergraduate degree as valued or highly valued in the field. Additionally, it is believed by 82% of graduates that the degree would make a difference in the number of potential employment opportunities, and by 72% of graduates that it would impact the types of jobs available upon graduation.

- Some graduates did express concern that the Honours Bachelor of Artificial Intelligence is not sufficient, as a Master's degree or PhD seem to be required in related job postings. While an Honours Bachelor of Artificial Intelligence would indeed prepare students to pursue further education, it is also evident from the labour market research and employer survey respondents that there is a skills shortage in the field of AI in Canada, and an Honours Bachelor of AI will provide the educational content that can help increase the supply of AI professionals.

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7.   Analysis of Competition

- There are no existing degree programs offered within the Ontario college system that prepare students to succeed in the field of AI.

- Seneca has recently received consent (2019) to deliver a degree in Data Science and Analytics (MTCU 80523). This proposed program places emphasis on the application of data science theory, analyzing data and presenting conclusions from big data sets, in a variety of domains.

- Seneca was also recently approved (2018) to offer an Honours Bachelor of Commerce (Business Technology Management - MTCU 80274). This program provides a combination of IT, business management and leadership skills but there is not a focus on data science or AI/ML techniques. Programming skills are the focus of Seneca's Honours Bachelor of Technology (Software Development - MTCU 80504), but this program does not incorporate a business analysis/intelligence component.

- Similarly, Humber offers an Honours Bachelor of Commerce (Digital Business Management - MTCU 80272), which combines a general business degree and broad computer and communication technology skills.

- At Durham College, there are several graduate certificates in the field of data/business analytics, including a Research Analyst program (MTCU 70717). The Durham College graduate certificate in Artificial Intelligence Analysis, Design and Implementation was launched in fall 2019 and is not part of this analysis. Several Big Data Analytic (MTCU 70523), Analytics (MTCU 70523) and Business Intelligence Systems Infrastructure (MTCU 70519) programs have also recently received Ministry approval.

  While these programs do prepare graduates for employment in a similar field, none of them are directly comparable to the proposed degree in AI. As such, applications and enrolment in these programs will provide insight into the student demand for this field.

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Table 2 presents the colleges approved to offer the related degree and graduate certificate programs.

Program	College	APS Title	Approval
Business Intelligence Systems Infrastructure (MTCU 70519)	Algonquin	Business Intelligence Systems Infrastructure	9/1/2012
	Mohawk	Systems Development for Business Analytics	9/1/2017
Big Data Analytics (MTCU 70523)	Cambrian	Business Analytics	9/1/2018
	Conestoga	Big Data Solution Architecture	9/1/2018
	Georgian	Big Data Analytics	9/1/2016
	Seneca	Business Analytics	1/1/2019
	St.Lawrence	Business Analytics	9/1/2017
Analytics (MTCU 70524)	Cambrian	Health Analytics	9/1/2018
	Cambrian	Crime Analytics	9/1/2018
Research Analyst (MTCU 70717)	Algonquin	Marketing Research and Business Intelligence	9/1/2008
	Centennial	Marketing - Research & Analytics	9/1/2010
	Durham	Data Analytics for Business Decision Making	9/1/2018
	Fanshawe	Research and Evaluation	9/1/2017
	Georgian	Research Analyst	9/1/1985
	G. Brown	Analytics for Business Decision Making	9/1/2014
	Humber	Research Analyst	9/1/2011
	Lambton	Data Analytics for Business Decision Making	9/1/2017
	Mohawk	Analytics for Business Decision Making	9/1/2017
	Seneca	Social Media Analytics	9/1/2015
	Seneca	Strategic Marketing and Marketing Analytics	9/1/2015
	Seneca	Sales Force Automation and CRM Analytics	9/1/2015
	Fleming	Applied and Community-Based Research	9/1/2012
Bachelor Of Applied Business (Electronic Business) (MTCU 80272)	Humber	Honours Bachelor of Commerce (Digital Business Management)	4/1/2002
Honours Bachelor of Commerce (Business Technology Management) (MTCU 80274)	Seneca	Honours Bachelor of Commerce (Business Technology Management)	9/1/2018
Bachelor Of Applied Technology (software Development) (MTCU 80504)	Seneca	Honours Bachelor of Technology (Software Development)	8/29/2003

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Table 3 presents the applicant interest (Fall) in the related degree and graduate certificate programs over the 2014-2018 period.

College	Measure	2014-15	2015-16	2016-17	2017-18	2018-19	Rolling Avg. Change
MTCU 70519 Business Intelligence	Total Applications	64	51	57	67	122	22.8%
	FC Applications	41	35	35	50	86	25.1%
	Confirmations	21	21	18	15	30	17.3%
MTCU 70523 Big Data Analytics	Total Applications	n/a		36	63	90	58.9%
	FC Applications			16	35	32	55.1%
	Confirmations			14	23	16	16.9%
MTCU 70524 Analytics	Total Applications	n/a				45	n/a
	FC Application					19	
	Confirmations					13	
MTCU 70717 Research Analyst	Total Applications	394	426	548	491	684	16.4%
	FC Applications	178	183	218	186	286	15.3%
	Confirmations	109	108	128	116	172	14.1%
MTCU 80272 Electronic Business	Total Applications	211	213	182	207	240	4.0%
	FC Applications	42	52	49	57	61	10.3%
	Confirmations	23	16	27	25	33	15.7%
MTCU 80274 Business Technology Management	Total Applications	n/a				215	n/a
	FC Applications					73	
	Confirmations					27	
MTCU 80504 Software Development	Total Applications	313	322	317	408	365	4.9%
	FC Applications	145	133	145	198	169	5.7%
	Confirmations	69	76	68	99	91	9.3%

Source: OCAS

Applicant interest in the degrees and graduate certificates related to the field of AI has increased on average over the past five years. This overall trend of growth in addition to the introduction of new programs (MTCU 70524, 80274 & 80523), is indicative of a strong field of study.

8. **Target Market**

The target market for this degree program is direct-entry from high school and students and/or graduates from a diploma and/or advance diploma from programs such as:

1. Computer Programmer
2. Computer Programmer Analyst
3. Computer Systems Technician / Computer Systems Technician
4. Computer Systems Technology
5. Data Analytics for Business Decision Making
6. Project Management
7. Supply Chain and Operations – Business / Supply Chain and Operations
8. Supply Chain and Operations Management – Business Administration
9. Information Systems Security – Computer and Networking

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9. Operating Revenue and Expenses

The following tables summarize the net contribution for the proposed Honours Bachelor of Artificial Intelligence program.

Student Enrolment	2020-21 Projection	2021-22 Projection	2022-23 Projection	2023-24 Projection	2024-25 Projection	2025-26 Projection	2026-27 Projection	2027-28 Projection
Projected enrolment (Semester 1 Intake)	20	40	40	40	80	80	80	80
Total Enrolment	**20**	**56**	**86**	**113**	**166**	**198**	**227**	**253**

Net Contribution	2020-21 Projection	2021-22 Projection	2022-23 Projection	2023-24 Projection	2024-25 Projection	2025-26 Projection	2026-27 Projection	2027-28 Projection
Total Direct Program Expenses	401,333	453,207	754,644	865,360	1,004,175	1,112,744	1,315,598	1,675,645
Total Revenue For Program	$126,708	$361,984	$590,079	$836,062	$1,302,820	$1,644,053	$1,989,235	$2,324,317
Net Surplus (Deficit) for Years$	($274,625)	($91,223)	($164,565)	($29,298)	$298,646	$531,309	$673,638	$648,672
Accumulated Surplus / (Deficit)	($274,625)	($365,848)	($530,413)	($559,711)	($261,066)	$270,243	$943,881	$1,592,553
Net Surplus (deficit) for Year - %	**-217%**	**-25%**	**-28%**	**-4%**	**23%**	**32%**	**34%**	**28%**
Target Net Surplus	**N/A**	**Breakeven**	**40%**	**40%**	**40%**	**40%**	**40%**	**40%**
Capital Requirement	$160,000	$0	$0	$0	$175,000	$0	$0	$0

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Revenue	2020-21 Projection	2021-22 Projection	2022-23 Projection	2023-24 Projection	2024-25 Projection	2025-26 Projection	2026-27 Projection	2027-28 Projection
Funding Unit Generated	14.7	41.0	63.3	82.7	121.5	145.0	166.1	185.1
Grant Value per Funding Unit	$4,149	$4,149	$4,149	$4,149	$4,149	$4,149	$4,149	$4,149
Tuition Fees per 2 Semesters	$6,185	$6,309	$6,435	$6,564	$6,695	$6,829	$6,966	$7,105
Grant Revenue	$60,814	$170,279	$262,716	$342,991	$504,148	$601,450	$689,022	$768,080
Tuition Revenue	123,708	353,304	555,984	740,419	1,110,031	1,350,776	1,578,496	1,794,723
Incidental Fees	3,000	8,680	13,824	18,612	28,186	34,615	40,788	46,731
Total Revenue	**$187,522**	**$532,263**	**$832,524**	**$1,102,022**	**$1,642,365**	**$1,986,841**	**$2,308,306**	**$2,609,534**

Expense Summary	2020-21 Projection	2021-22 Projection	2022-23 Projection	2023-24 Projection	2024-25 Projection	2025-26 Projection	2026-27 Projection	2027-28 Projection
Co-ordinator premium	3,300	3,300	3,300	3,300	3,300	3,300	3,300	3,300
FT Faculty*	202,058	208,120	321,545	331,191	454,836	468,481	603,170	745,518
PT Faculty	28,060	63,580	95,263	122,648	84,620	152,024	159,546	294,932
Faculty Clerical Support	36,765	37,867	78,007	80,347	82,758	85,240	87,797	90,431

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DURHAM COLLEGE
SUCCESS MATTERS

Expense Summary	2020-21 Projection	2021-22 Projection	2022-23 Projection	2023-24 Projection	2024-25 Projection	2025-26 Projection	2026-27 Projection	2027-28 Projection
Classroom Support technicians	0	0	42,860	88,292	90,941	93,669	96,479	99,374
Commons'/Library Support Technicians	17,267	17,785	18,319	18,868	19,434	20,017	20,618	21,237
Total Academic Salaries	**287,450**	**330,652**	**559,294**	**644,647**	**735,889**	**822,732**	**970,909**	**1,254,792**
Employee Benefits FT Faculty	51,340	52,855	81,211	83,623	114,534	117,945	151,617	187,204
Employee Benefits FT Support	15,129	15,583	38,972	52,502	54,077	55,699	57,370	59,092
Employee Benefits PT	4,209	9,537	14,289	18,397	12,693	22,804	23,932	44,240
Professional Development	20,206	20,812	32,154	33,119	45,484	46,848	60,317	74,552
Instructional Costs – Operating	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487
Instructional Costs – Library	10,000	5,000	5,100	5,202	5,306	5,412	5,520	5,631
Student Supplies for 2 Semesters	3,000	8,568	13,219	17,258	25,367	30,263	34,670	38,648
Total Academic Expense	**401,333**	**453,207**	**754,644**	**865,360**	**1,004,175**	**1,112,744**	**1,315,598**	**1,675,645**
Total Expense	**$401,333**	**$453,207**	**$754,644**	**$865,360**	**$1,004,175**	**$1,112,744**	**$1,315,598**	**$1,675,645**

* To include Faculty for Placement.

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Public Report

Report Number: BOG-2019-88

To: Board of Governors

From: Dr. Elaine Popp, Vice President, Academic

Date of Report: December 6, 2019

Date of Meeting: December 11, 2019

Subject: New Program of Instruction: Environmental Management

1.   Purpose

To seek approval from the Board of Governors for the following post-secondary program of instruction for September 2021 intake:

Environmental Management

- Credential: Durham College Certificate
- Centre for Professional and Part-time Learning

The Environmental Management program explores unique Canadian problems within a global perspective. The student learns systems, tools and strategies, risk management techniques and legal requirements for the assessment and management of air, water, land and waste. Throughout the program, the focus is on the need for sustainable development and market-driven solutions.

This program explores the complexity of designing environmental strategies in the presence of diverse and competing stakeholder interests. Case studies from environmental practice and current newspaper articles will provide the content and context for learning.

The goal of the program is to produce well-trained environmental practitioners who can effectively implement and manage programs directed at limiting environmental impacts and restoring degraded environments.

The Centre for Professional and Part-time Learning will pick up all courses in this program through OntarioLearn.

2.   Recommendation

It is recommended to the Durham College Board of Governors:

That in accordance with Report Number BOG-2019-88, the proposed Durham College Certificate program of instruction listed below be approved:

- Environmental Management

3.   Background

Canada's environmental sector can be divided into three main sub-sectors: environmental protection, resource management and environmental sustainability. All three face unprecedented challenges in attracting, developing, and retaining their workforces. Environmental employment is expected to grow at a faster rate than total Canadian employment. We estimate 364,000 environmental workers were employed in 2017 and expect this number to grow by 28 per cent which equates to over 100,000 new jobs by 2024. In comparison, we estimate total employment in Canada to grow by six per cent within the same forecast period. Although this equates to approximately 1.05 million new jobs by 2024, the bottom line is that one in every ten new jobs created in Canada could be for environmental roles.

Attracting new workers into the sector is paramount to ensuring an adequate supply of workers. Adding to this challenge, however, is that 22 per cent of the current workforce will likely retire in the next decade, and the sector will need to replace experienced and knowledgeable workers, particularly those in managerial and professional roles (ECO Canada, 2019).

Reference
ECO Canada. Skills Essential for Success in the Environmental Sector Report (September 2019). https://www.eco.ca/wp-content/uploads/Skills-Essential-for-Success-in-the-Environmental-Sector-September-2019.pdf

4.   Discussion/Options

- In 2018, Environmental Careers Organization of Canada embarked on a larger study and engaged 686 individuals representing employers from both private and public sectors, employees, and postsecondary institutions. The objective of this comprehensive study was to identify the knowledge, skills, and training most needed to support Canada's growing environmental sector.

- The study revealed workers in this field are expected to keep up to date with their knowledge and technical skills while developing their soft skills on the job through experience, training and other forms of professional development.
- Over half of the workers surveyed reported facing barriers to accessing training. The most common barriers faced were related to cost, scheduling, and accessibility: 60 per cent could not personally afford the cost of training; 41 per cent could not find a training program for the skills they need; and 35 per cent reported no training opportunities in their location.

Reference

ECO Canada. Skills Essential for Success in the Environmental Sector Report (September 2019). https://www.eco.ca/wp-content/uploads/Skills-Essential-for-Success-in-the-Environmental-Sector-September-2019.pdf

5.   Financial/Human Resource Implications

There are no financial or human resources implications.

6.   Implications for the Joint Campus Master Plan

There are no implications for the joint campus master plan.

7.   Implications for Ontario Tech University

There are no implications for Ontario Tech University.

8.   Relationship to the Strategic Plan/Business Plan

This new Durham College certificate program aligns to several objectives identified in the college's 2017-2020 Strategic Plan.

Goal 3, Our Business:
- To manage resources responsibly and ensure that we are financially and environmentally sustainable, demonstrate good governance, and are leaders in the support of outstanding teaching and learning.
- Offer quality programs, services and systems that modernize, support and grow our business.

Goal 4, Our Community:
- To contribute and respond to the economic, social and environmental well-being of our community.

- Develop new programs and services to meet the evolving demands of the job market and our students.

This new Durham College certificate program aligns to several objectives identified in the college's current Business Plan.

Goal 1, Our Students:

- Deliver high-quality programs to help students develop a wide range of career-ready skills.
- Expand flexible learning opportunities.

General Program Information

Proposed Program Title:	Environmental Management
Proposed Credential:	Durham College Certificate
Academic Dean:	Debbie Johnston
School/Centre	Centre for Professional and Part-time Learning
MTCU Code:	N/A
Proposed implementation:	January 2020
Year 1 enrolment:	10 new students
Number of Semesters:	N/A
Total hours:	306/309 (depending on elective chosen)
Number of new FT faculty:	None
Program delivery methods:	Fully online (through OntarioLearn)
Laptop required:	No
New or renovated space requirements:	None
Total capital costs:	None
Proposed Tuition:	$367.60 - $386.53 per course

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1. Approval Stages

The following approval stages have been assessed for this program:
- Labour Market
- Student Demand
- New Program Proposal Document reviewed by the Associate Dean, Centre for Academic and Faculty Enrichment
- Budget reviewed and approved by the Chief Financial Officer and the Vice President, Academic – needs to be submitted
- Reviewed by Program Proposal Review Committee – November 13, 2019
- Approved by vice-president, Academic
- Reviewed and approved by President

2. Program Overview

2.1 Program Description

The Environmental Management program focuses on sustainable implementation and management of air, water, land and waste at both the global and local levels. The learner will consider various systems, strategies and techniques to be applied within diverse situations where the goal is ultimately to ensure sustainable and market-driven solutions to environmental issues. This program will augment the skills and knowledge of a working professional who has experience and education in a complementary field such as public relations, civic planning, engineering or project management. This program consists of four core courses, and three electives (from a choice of four).

2.2 Career Outcomes

There are diverse roles available for graduates from this program.

Sectors that require environmental managers include:
- Policy and legislation
- Renewable energy
- Environmental health and safety
- Waste management
- Communication and public awareness

Employers include:
- Government divisions
- Non-profit organizations
- Engineering firms
- Property and facilities companies

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- Manufacturing companies
- Mining and forestry industries

Positions* include:
- Compliance Officer
- Environmental Field Coordinator
- Waste and Resource Manager
- Water Quality Manager
- Environmental Enforcement Officer
- Eco-Tourism Planner
- Recycling Manager
- Environmental Project Manager

*Some positions may require 3-10 years' experience, with a diploma, undergraduate degree or professional designation in a specialized area.

2.3   Vocational Program Learning Outcomes

Vocational program learning outcomes must be consistent with the requirements of the Credentials Framework for the proposed credential. The graduate of the Environmental Management Durham College Certificate has reliably demonstrated the ability to:

1. Assist in the implementation of environmental practices that comply with environmental legislation;
2. Examine the management and regulation of environmental issues facing business and industries operating in Ontario;
3. Interpret environmental legislation, policies and processes to identify policy and regulatory gaps;
4. Apply environmental management theories and policies to meet regulations;
5. Examine industrial processes, pollution control systems, practice techniques and procedures to ensure methods are addressing regulatory requirements;
6. Identify strategies from an impact assessment to reduce an organization's environmental risks and financial costs;
7. Recommend the development and implementation of an environmental management system; and
8. Examine the auditing process to ensure an organization is meeting its environmental obligations.

2.4   Admission Requirements

- Ontario Secondary School Diploma (OSSD) OR
- Grade 12 equivalency certificate achieved through College academic upgrading OR
- Mature Student Status (19 years of age or older) with Grade 12 English (C or U)

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3.   Program of Study

Core courses:

3.1 Course Title: Environmental Management Introduction
Course Code: ENVI 1580
Host College in OntarioLearn: Lambton College
Prerequisites/Equivalents: None
Course description: The development of analytical and evaluation skills is required in the management of environmental issues. Students are exposed to environmental policies and legislation procedures, as well as familiarized with the implications and effects of environmental management strategies. The application and development of site inspections and program auditing are explored to assist in the recognition and analysis of potential environmental risks as they would apply in the development of an environmental management system.
Instructional Setting: Online
Total Hours (Semester): 45

3.2 Course Title: Course Title: Climate Change
Course Code: ENVI 1181
Host College in OntarioLearn: Cambrian College
Prerequisites/Equivalents: None
Course description: In this course, students will research and discuss issues related to global climate change, developing skills in innovative thinking, research, political awareness, ethical reasoning, debating and communicating in writing. Students will develop an awareness of the current scientific evidence of global warming and current political issues at a global and national level. This includes topics such as weather and climate, climate history, earth's energy balance and climate change, the greenhouse effect, international agreements, ethical responsibility of individuals, corporations and governments and the conflictions between national economic interests and the environment.
Instructional Setting: Online
Total Hours (Semester): 42

3.3 Course Title: Introduction to Sustainable Development
Course Code: ENVI 1180
Host College in OntarioLearn: Lambton College
Prerequisites/Equivalents: None
Course description: Students are presented with the factors that affect the environmental, economic and social sustainability of our communities. The course investigates the development of human populations and how their need for resources (e.g. energy, food, water) has compromised natural ecosystems. Social and economic factors are explored in the context of social equality and sustainability in the local and global economy. The effects of individual lifestyle changes on the sustainability of communities are also examined.

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Instructional Setting: Online
Total Hours (Semester): 45

3.4 Course Title: Environmental Regulations
Course Code: REG 1181
Host College in OntarioLearn: Niagara College
Prerequisites/Equivalents: None
Course description: This course will provide the skills and practical knowledge to apply various environmental laws and regulations such as the Environmental Protection Act, the Ontario Water Resources Act, Ont. Reg. 419 (and former Reg. 346), Ont. Reg. 347 and other related environmental legislation. With practical understanding of environmental laws, students will have the information to help protect themselves and their companies from possible litigation while at the same time help preserve the environment.
Instructional Setting: Online
Total Hours (Semester): 42

Elective courses (choose three from the following):

3.5 Course Title: Environmental Management Systems and Audits
Course Code: ENVI 1183
Host College in OntarioLearn: Lambton College
Prerequisites/Equivalents: None
Course description: This course examines environmental systems in compliance with environmental laws and regulations. Students are introduced to the concept of environmental management systems (EMS) and their role in reducing overall environmental impacts in industry and business operations. The course provides students with an overview of the purpose of an EMS model, how companies adopt and implement them and the overall framework of EMS models. There is also a focus on specific EMS models, including ISO 14001 systems, and the auditing process as a management tool for environmental performance.
Instructional Setting: Online
Total Hours (Semester): 45

3.6 Course Title: Restoration Ecology
Course Code: ENVI 1185
Host College in OntarioLearn: Lambton College
Prerequisites/Equivalents: None
Course description: Restoration's purpose is to change disturbed areas into functioning ecosystems. This course will examine some of the practices to renew or restore ecosystems and habitats that were damaged or destroyed by human intervention. Students will analyze the biological and physical aspects of restoration ecology, as well as emphasize the role played by society in a successful restoration project. Guidance for the design of a natural ecosystem restoration project will be provided.
Instructional Setting: Online

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Total Hours (Semester): 45

3.7 Course Title: Environmental Site Assessment and Reporting
Course Code: ENVI 1184
Host College in OntarioLearn: Seneca College
Prerequisites/Equivalents: None
Course description: This course provides students with the theory and practice of Environmental Assessment approaches that are the principal means of integrating environmental considerations into governmental decision-making. Students will learn to conduct and assess Environmental Impact Assessments and apply regulatory and legislative requirements.
Instructional Setting: Online
Total Hours (Semester): 42

3.8 Course Title: Energy Resources (Alternative Energy)
Course Code: ENVI 1182
Host College in OntarioLearn: Lambton College
Prerequisites/Equivalents: None
Course description: Energy is one of the essential needs of a modern society. This course will deal with the issues of traditional and non-renewable energy sources such as crude oil, natural gas, coal and nuclear energy, as well as renewable energy sources like hydroelectricity, solar, ocean, geothermal and wind energy. Students will explore a wide range of current resources, technologies and their limitations, and develop a realistic appreciation of what energy sources and technologies may be feasible in the future.
Instructional Setting: Online
Total Hours (Semester): 45

4. **Strategic Alignment**

   4.1 Strategic Fit

   The proposed program aligns with a number of objectives/goals found within the college's Strategic Mandate Agreement, Academic Plan, and Strategic Plan.

   Strategic Mandate Agreement
   The proposed certificate aligns with the following program areas of strength and growth found in Durham College's 2017-2020 Strategic Mandate Agreement (SMA).

   Program Areas of Strength
   8. Chemical/biological
   9. Civil

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Program Areas of Expansion
4. Chemical/biological/civil

Academic Plan
In addition, this new program aligns to objectives identified in the college's 2017-2020 Academic Plan.

Goal 1: Ensure exceptional quality in our academic programs

Strategic Plan
This new certificate program aligns to several objectives identified in the college's 2017-2020 Strategic Plan.

Goal 3, Our Business:
- To manage resources responsibly and ensure that we are financially and environmentally sustainable, demonstrate good governance, and are leaders in the support of outstanding teaching and learning.
- Offer quality programs, services and systems that modernize, support and grow our business.

Goal 4, Our Community:
- To contribute and respond to the economic, social and environmental well-being of our community.
- Develop new programs and services to meet the evolving demands of the job market and our students.

Business Plan (2019-2020)

Goal 1, Our Students:

- Deliver high-quality programs to help students develop a wide range of career-ready skills.
- Expand flexible learning opportunities.

4.2   Fit with Existing Programs

Durham College currently offers an Advanced Diploma in Environmental Technology through the School of Science and Engineering Technology (SET). This program trains students to be environmental technologists through field-work and laboratory experience. SET will also be launching an Environment Health and Safety Management graduate certificate. This program trains students to apply technical knowledge of safety hazards, health risks and dangers to prevent injuries and illness while supporting broader public safety.

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The Centre for Professional and Part-time Learning Environmental Management Certificate is complementary to the diploma and graduate certificate programs. Certificate courses such as Systems and Audits, Site Assessment and Reporting, Alternative Energy and Sustainable Development add a wider perspective beyond a technology focus to include leadership in the regulatory and advocacy aspects of environmental management. This supports the findings from Environmental Careers Organization (ECO) of Canada that workers in the field have strong technical skills but the industry requires more entry level workers with knowledge about legislation and policy, for instance (September 2019).

Reference
ECO Canada. Skills Essential for Success in the Environmental Sector Report (September 2019). https://www.eco.ca/wp-content/uploads/Skills-Essential-for-Success-in-the-Environmental-Sector-September-2019.pdf

5. **Labour Demand and Graduate Employment Possibilities**

Labour Market Analysis

Data provided is from the ECO of Canada – ECO Canada, a not-for-profit organization dedicated to creating programs and services that benefit the Canadian environmental sector.

Canada's environmental sector faces unprecedented challenges in attracting, developing, and retaining its workforce. Environmental employment is expected to grow at a faster rate than total Canadian employment. We estimate 364,000 environmental workers were employed in 2017 and expect this number to grow by 28 per cent which equates to over 100,000 new jobs by 2024. In comparison, we estimate total employment in Canada to grow by six per cent within the same forecast period. Although this equates to approximately 1.05 million new jobs by 2024, the bottom line is that one in every ten new jobs created in Canada could be for environmental roles.

Attracting new workers into the sector is paramount to ensuring an adequate supply of workers. Adding to this challenge, however, is that 22 per cent of the current workforce will likely retire in the next decade, and the sector will need to replace experienced and knowledgeable workers, particularly those in managerial and professional roles (ECO Canada, 2019).

Canada's environmental job market expanded in 2018 with 24,500 online job advertisements, reflecting an 8 per cent increase from 2017. Overall, environmental job advertisements increased by 17 per cent from 2016 to 2018. Ontario, Alberta and British Columbia registered the greatest number of

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environmental job advertisements in 2018, accounting for 75 per cent of all environmental job advertisements in Canada.

An environmental manager is at the apex of the three environmental sectors (environmental protection, resource management and environmental sustainability) found in every industry in Canada (see Figure 2). Almost a quarter of job postings in the Utilities area (a significant employer in the Durham area) are environmentally focused. This indicates good prospects for graduates with this skillset.

Figure 2: ECO Canada's Sector Model

– SECTOR A –
ENVIRONMENTAL PROTECTION

1. Air Quality
2. Water Quality
3. Site Assessment & Reclamation
4. Waste Management
5. Health & Safety

– SECTOR B –
RESOURCE MANAGEMENT

1. Energy (Efficiency & Renewables)
2. Fisheries & Wildlife
3. Natural Resource Management

ENVIRONMENTAL MANAGER

– SECTOR C –
ENVIRONMENTAL SUSTAINABILITY

1. Sustainability
2. Education & Training
3. Research & Development
4. Policy & Legislation
5. Communications & Public Awareness

Sources
ECO Canada. Skills Essential for Success in the Environmental Sector Report (September 2019). www.eco.ca. Retrieved from: https://www.eco.ca/wp-content/uploads/Skills-Essential-for-Success-in-the-Environmental-Sector-September-2019.pdf
ECO Canada. Environmental Job Market Trends Report in 2018 (June 2019). www.eco.ca. Retrieved from: https://www.eco.ca/research/report/environmental-job-market-trends-2018/

6.   Student Interest

There are currently more than 350 course registrations across the courses of this program within the OntarioLearn platform. In addition, there is a popular General Education course (Environmental Citizenship) with 132 students enrolled in the fall 2019 semester. This indicates that Ontario students are interested in environmental issues as part of their post-secondary education. Interest may

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relate directly to a culture-shift where environmentalism is getting more recognition in education and the media, or due to growing employment opportunities in this field.

Sources
ECO Canada. Environmental Job Market Trends Report (June 2019). www.eco.ca.
Ministry of Education. Acting Today, Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools (2009). http://www.edu.gov.on.ca/eng/teachers/enviroed/ShapeTomorrow.pdf

7.   Analysis of Competition

Universities:

A scan of university offerings in the environmental field indicates that universities almost unanimously have a science emphasis in their undergraduate and graduate degrees. For example, Ontario Tech University offers Environmental Biology, a four year Bachelor of Science degree. The curriculum predominantly focuses on lab work, science and technical skills. The Centre for Professional and Part-time Learning program has a management, regulatory, and advocacy focus.

College programs:

Most Ontario colleges offering face-to-face full-time diplomas and graduate certificates in this area have a technician focus. This differentiates it from the Centre for Professional and Part-time Learning certificate from a curricular aspect as well as from the delivery; the part-time nature of delivery allows students to balance their life responsibilities as well as pursue further education. This is supported by ECO Canada's study, respondents indicated "the most common barrier cited was the cost of training. […]. Scheduling conflicts with busy times of the year, not being able to get time off work, and an inability to effectively schedule courses to ensure students are able to graduate on time were major barriers as well" (September, 2019).

Example of full-time programs offered at Ontario colleges:
- Durham College's Environmental Technology Advanced Diploma.
- Seneca College's Project Management - Environmental Graduate Certificate.

Reference
ECO Canada. Skills Essential for Success in the Environmental Sector Report (September 2019). https://www.eco.ca/wp-content/uploads/Skills-Essential-for-Success-in-the-Environmental-Sector-September-2019.pdf

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Online offerings:

Environmental Management Certificate at Seneca College and the Environmental Management Practices Certificate at Lambton College have robust enrolment through OntarioLearn courses in programs similar to this proposed certificate, indicating demand in this field, interest in the topics covered, and appropriateness of the credential.

The University of Toronto, Continuing Education department offers an Environmental Management certificate. It consists of four courses and does not particularly focus on the topics of legislation, regulations, sustainability, climate change and site assessment, which are the focus in the Centre for Professional and Part-time Learning's proposed certificate program. According to Eco Canada, these are the top five most valued skills for the Environmental worker:

Figure 3: Top 5 Environmental Knowledge and Technical Skills Sought After by Environmental Workers

Policy and Legislation

Industry Knowledge

Sustainability

Site Assessment and Reclamation

Climate Change

Source
ECO Canada. Environmental Job Market Trends Report (June 2019). www.eco.ca.

Other:

There is very little education available through non-traditional educational offerings such as LinkedIn Learning. A limited number of courses are offered through the Khan Academy, but these courses are not Canadian based or focused, and they do not stack up to a credential.

There are no similar offerings through Private Colleges.

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8. **Target Market**

- Graduates from programs in the Sciences, such as Biology, Chemistry, Earth Sciences, Horticulture, Agriculture.
- Graduates of Environmental Technician or Engineer programs seeking managerial opportunities.
- Professionals with credentials from other countries who are looking for a Canadian perspective and who want to add a Canadian credential to their resume.
- A wide range of skilled workers with workplace experience and a keen interest in the environment.
- Eco-minded individuals who want to make a real-world difference limiting environmental impact.

9. **Operating Revenue and Expenses**

The budget table summarizes the net contribution for the proposed Environmental Management Certificate program. Please refer to Appendix # 1 for the budget breakdown.

10. **Financial/Human Resources Implications**

There are no financial or human resources implications.

11. **Implications for the Joint Campus Master Plan**

There are no implications for the joint campus master plan.

12. **Implications for Ontario Tech University**

There are no implications for Ontario Tech University.

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| COURSE | PER STUDENT | | | | HOURS | MODALITY | 10 | 15 | 20 | 10 | 15 | 20 | 10 | 15 | 20 | 10 | 15 | 20 |
	TUITION FEES	TEACHER COST	COMPUTER CONFERENCING FEES	PER STUDENT NET REVENUE			REVENUE	REVENUE	REVENUE	Total Cost	Total Cost	Total Cost	CONTRIBUTION ($)	CONTRIBUTION ($)	CONTRIBUTION ($)	CONTRIBUTION (%)	CONTRIBUTION ($)	CONTRIBUTION ($)
Environmental Management Introduction	$ 386.63	$115.00	$102.58	$ 169.05	45	Online	$3,866.30	$5,799.45	$7,732.60	$2,175.80	$3,263.70	$4,351.60	$1,690.50	$2,535.75	$3,381.00	44%	44%	44%
Climate Change	$ 367.60	$125.40	$102.58	$ 139.62	42	Online	$3,676.00	$5,514.00	$7,352.00	$2,279.80	$3,419.70	$4,559.60	$1,396.20	$2,094.30	$2,792.40	38%	38%	38%
Environmental Regulations	$ 367.60	$115.00	$102.58	$ 150.02	42	Online	$3,676.00	$5,514.00	$7,352.00	$2,175.80	$3,263.70	$4,351.60	$1,500.20	$2,250.30	$3,000.40	41%	41%	41%
Introduction to Sustainable Development	$ 386.63	$160.00	$102.58	$ 124.05	45	Online	$3,866.30	$5,799.45	$7,732.60	$2,625.80	$3,938.70	$5,251.60	$1,240.50	$1,860.75	$2,481.00	32%	32%	32%
Students choose 3 of 4 below																		
Environmental Management Systems and Audits	$ 386.63	$115.00	$102.58	$ 169.05	45	Online	$3,866.30	$5,799.45	$7,732.60	$2,175.80	$3,263.70	$4,351.60	$1,690.50	$2,535.75	$3,381.00	44%	44%	44%
Restoration Ecology	$ 386.63	$160.00	$102.58	$ 124.05	45	Online	$3,866.30	$5,799.45	$7,732.60	$2,625.80	$3,938.70	$5,251.60	$1,240.50	$1,860.75	$2,481.00	32%	32%	32%
Environmental Site Assessment and Reporting	$ 367.60	$112.00	$102.58	$ 153.02	42	Online	$3,676.00	$5,514.00	$7,352.00	$2,145.80	$3,218.70	$4,291.60	$1,530.20	$2,295.30	$3,060.40	42%	42%	42%
Energy Resources (Alternative Energy)	$ 386.63	$160.00	$102.58	$ 124.05	45	Online	$3,866.30	$5,799.45	$7,732.60	$2,625.80	$3,938.70	$5,251.60	$1,240.50	$1,860.75	$2,481.00	32%	32%	32%
Grand Total - All Courses	Totals						$30,359.50	$45,539.25	$60,719.00	$18,830.40	$28,245.60	$37,660.80	$11,529.10	$17,293.65	$23,058.20			

![Durham College - Success Matters logo]

Public Report

Report Number: BOG-2019-98

To: Board of Governors

From: Peter Garrett, Manager, Strategic Reporting and Government Relations

Date of Report: December 5, 2019

Date of Meeting: December 11, 2019

Subject: Federal Election Update

1.   Purpose

The purpose of this report is to provide an overview of the 2019 federal election results and the next steps for government relations.

2.   Recommendation

It is recommended that the Durham College Board of Governors:

That Report BOG-2019-98, providing an update on the 2019 federal election, be received for information.

3.   Background

These reports are made to provide the Board with an overview of the activities and interactions the College has with political candidates and parties during an election period.

This report also outlines the steps that the College takes in maintaining political relationships and advancing College priorities.

4.   Discussion/Options

The 2019 federal election is over and the results are in. Justin Trudeau's government has been re-elected to form a minority. Since 2015 the liberals have lost 27 seats in the house. The other major outcome in this election was the surge in popularity of the Bloc Quebecois.

The results below show the distribution of seats in the House of Commons for each party, as well as the local results for Durham and who is representing each riding.

Federal results:

Federal Election 2019 → LIB Minority					170 seats for majority	
	LIB	CON	BQ	NDP	GRN	OTH
Total seats	**157**	**121**	**32**	**24**	**3**	**1**
Pop. Vote %	33.06	34.4	7.7	15.92	6.49	0.8
Seats - 2015	184	99	10	44	1	0

Local results and representatives:

Electoral District	Pickering-Uxbridge	Ajax	Whitby	Oshawa	Durham	Northumberland-Peterborough South
MP	Jennifer O'Connell	Mark Holland	Ryan Turnbull	Colin Carrie	Erin O'Toole	Phillip Lawrence

Most local representatives are returning including MP's O'Connell, Holland, Carrie and O'Toole. Ryan Turnbull was successful in his first election for the riding of Whitby and Kim Rudd lost the election in Northumberland-Peterborough South to Phillip Lawrence.

Congratulatory letters have already been sent to each victor and in terms of next steps, we will be scheduling meetings with each representative over the course of December and January. The house resumes on December 5th and it is important that we follow-up with each member at the beginning of this coming parliamentary cycle.

Key items for discussion in these meetings includes the Whitby campus expansion as well as applied research support.

Colleges and Institutes Canada (CICan) held a post-election committee meeting on November 25. During this discussion, former MP Joe Jordan provided some insights into how the minority government will proceed, and how colleges can work with this government.

CICan indicated that they are preparing a budget letter to be sent to the Minister of Finance that will pinpoint two key items for colleges nationally. These two items include Strategic Infrastructure Funding (SIF) and applied research funding. These fall in line with Durham's current priorities and will help the college advocate for support locally.

Finally, the new cabinet has been selected. Of note, Navdeep Bains returns as Minister of Innovation, Science and Industry and Kirsty Duncan is no longer Minister of Science and Sport.

Additional cabinet ministers of note to the college include:
- Marie-Claude Bibeau, Agriculture and Agri-food
- Mélanie Joly, Economic Development and Official Languages
- Catherine McKenna, Infrastructure and Communities
- Maryam Monsef, Women and Gender Equality and Rural Economic Development
- Carla Qualtrough, Employment, Workforce Development and Disability Inclusion
- Jonathan Wilkinson, Environment and Climate Change

5.   Financial/Human Resource Implications

There are no financial or human resource implications.

6.   Implications for the Joint Campus Master Plan

There are no implications for the joint campus master plan.

7.   Implications for Ontario Tech University

There are no implications for Ontario Tech University.

8.   Relationship to the Strategic Plan/Business Plan

This government relations and election update supports the 2017-2020 Strategic Plan including the Mission, Vision and Values outlined in the Strategic Plan. Further, this Business plan supports the four pillars of the strategic plan, specifically:

1. **Our Students** - To provide students with the best possible learning experience.

2. **Our People** - To optimize the experience and expertise of our people and help them make the best possible contribution toward the student experience.

3. **Our Business** - To manage resources responsibly and ensure that we are financially and environmentally sustainable, demonstrate good governance, and are leaders in the support of outstanding teaching and learning.

4. **Our Community** - To contribute and respond to the economic, social and environmental well-being of our community.

DURHAM
COLLEGE
SUCCESS MATTERS

Introduction

The following provides examples of how Durham College (DC) and Ontario Tech University collaborate and cooperate in the delivery of programs and services and how we provide unique opportunities for students.

Student Pathways

In 2003, the UOIT (known as Ontario Tech University) was established as a science, technology, engineering and manufacturing university. Included in the Act proclaiming UOIT was the mission to facilitate student transition between college-level programs and university-level programs. To that end, Ontario Tech University collaborates with DC, and through their respective strategic plans, DC and Ontario Tech University are committed to providing students with a transparent and effortless credit transfer system. This collaboration is consistent with the vision of the Ministry of Training, Colleges and Universities, which articulates the need for increased pathways between colleges and universities, and identifies the development of a comprehensive and transparent credit-transfer system as a high priority for Ontarians.

Each year, DC and Ontario Tech University collaborate on data exchange and analysis to continue to assess the pathways framework and the mobility of students between the two institutions.

For the reporting year 2018-19:
- 1,573 students in the first year of studies at DC declared prior postsecondary experience at an institution other than DC.
- Of these 1,573 students, 553 students in the first year of studies at DC had prior Ontario Tech University experience.
- Of these 553 students, 12.9 per cent (203 students) declared their prior verified Ontario Tech University experience on their admission application while the remaining 350 did not declare their prior Ontario Tech University experience.
- Of the 203 students who declared prior verified Ontario Tech University postsecondary experience, 13.8 per cent (28 students) were enrolled in one year certificate programs, 56.6 per cent (115 students) in diploma or advanced diploma programs, 26.6 per cent (54 students) in graduate certificate programs, and 3.0 per cent (6 students) in a degree program.

For the reporting year 2018-19:
- 718 students in the first year of studies at Ontario Tech University declared prior postsecondary experience at an Ontario college.
- Of these 718 students, 415 students who started their studies at Ontario Tech University had prior DC experience.

Prepared by Durham College – October 2019

- Of these 415 students, 80.7 per cent (335 students) declared their prior verified DC experience on their admission application while the remaining 80 students did not declare their prior DC experience.
- Of the 335 students who declared prior DC experience, 89.0 per cent (298 students) had graduated from DC while 11.0 per cent had partial experience. Of the 298 students who had graduated from DC, 81.2 per cent (242 students) had graduated from diploma programs, 14.4 per cent (43 students) had graduated from advanced diploma programs, 4.0 per cent (12 students) had graduated from certificate programs, and 0.3 per cent (1 student) had graduated from graduate certificate programs.

Student Experience – Experiential Learning

- School of Justice and Emergency Services:

  o Disaster simulation, Project Lord Ridgeback is a collaborative undertaking involving multiple Schools (Health and Community Services, Media Arts and Design) across DC as well as a partnership with Ontario Tech University and several community partners including Durham Region Police, Whitby Fire Department and Lakeridge Health.

  o Included in the event is a second day involving the civil proceedings and investigations that would typically occur in the aftermath. This allows us to extend learning opportunities beyond the traditional Emergency Service response to programs such as Paralegal and Court Support Services. This is one of the features that makes it unique.

  o This annual event involves over 300 student participants and the follow up and debriefing extends the learning to over 800 first and second year students across multiple programs.

- School of Media, Art and Design:

  o Citizen Artists – Semester 5

  Students and faculty collaborate with The LivingRoom Community Art studio (LRCAS) and the Oshawa Senior Citizens Centres, to create art in central Oshawa, in the service of community development and individual well-being.

  A variety of on-site exercises prepare students for the annual semester-end event: Each-One-Teach-One (EOTO) public workshops at the LRCAS. Each student is given an individual work space within LRCAS where they lead creative activities (one-to-one or within small groups) which are accessible and inspirational. Students are challenged to interact and contribute outside of their standard studio practice. They enter this project with trepidation but always emerge with a new-found sense of accomplishment and understanding of how they can make a difference in their community as collaborative

creators

- o Public Art – Semester 6

  Students and faculty collaborate with Oshawa's Culture and Recreation Services, fulfilling specific strategies and actions of Culture Counts: Oshawa Arts, Culture and Heritage Plan, and produce public art based on thematic inspiration and public input.

  In our 4th year of partnership (winter 2019), the Fine Art students produced a 150-foot mural based on issues and inspirations derived from the Ontario Human Rights Code.

  With each public art project our students are challenged to build upon the identity of Oshawa. The extensive conceptual development process which involves direct and indirect public and partner feedback results in the creation of public art that contributes to the development of meaningful points of gathering, as well as a reflection upon important events, places and persons within our community.

- School of Health and Community Services:

  - o Pilot followed by full implementation of the Intra-professional Health Assessment Course for Practical Nursing and BScN student which runs in Year 1, Semester 2 and this coming January will be our 5th year practical Nursing DC students and BScN Notch students learn together. The team presented on this model of learning in the US and Canada and have written one article about the course.

  - o BScN team worked with Touch Surgery to develop virtual skill based cognitive rehearsal tools used by both PN and BScN.

  - o Creation and development of an Inpatient Opioid Overdose simulation case which has been implemented in the BScN program and ran in the PN program under funding from the DC's Experiential Learning Fund. This simulation case has been presented at the national Canadian Association of Schools of Nursing in Ottawa at CAPNE and others.

  - o Development of a Graphic novel on Opioid Overdose as pre-simulation preparation tool which was funded by Ontario Tech University and DC Innovative Initiatives Fund, tool used by both PN and BScN. Research about the graphic novel has been completed.

  - o Creation and development of a Community based Opioid Overdose simulation case which ran for all students in both the PN program and BScN on a voluntary level during the celebration of International Simulation Week.

  - o Co-creation and development of a simulation model called the HELPERS model, which stands for Humanistic, Empowering, Learner-centred, Professionally-oriented, Evidence-based Simulation model. This has been presented at STHLE conference and is being presented at the International Meeting on Simulation in Healthcare in January.

- o Presently involved in working with students on the Opioid Summit ONE project with BScN, PN and Business students.

- o Both BScN, PN and SSW DC students participated in the disaster simulation.

- o Collaborative nursing program is a success.

- Use of the ACE climatic wind tunnel provides emergency services student's experiential learning in severe climate and road conditions.

- An academic learning strategies publication is produced with Ontario Tech University and Dublin University (DU).

- A Higher Education in Transition international conference is held in partnership with DC, Ontario Tech University and DU (third conference to be held in Oshawa winter 2020).

Teaching City

- TeachingCity is a partnership with Ontario Tech University, DC, the City of Oshawa and others to address Oshawa's urban issues through innovation, collaboration, applied research and shared experiential learning opportunities.

- School of Media, Art and Design:

  - Within the Teaching City initiative, JOMM Professor Teresa Goff proposed a project-based query answering the question: "How might the City better map its cultural assets?"

  - Working with City staff, Journalism students and faculty used the City of Oshawa's Culture Map as a base for creating an enriched 'ESRI' story map (Environmental Systems Research Institute) using text and multimedia assets to reveal and explain the various cultural assets in the city.

  - JOMM students wrote a 200-word informational piece (enhanced with photos, videos and weblinks) about each cultural place.

  - The Fine Arts (Advanced Diploma) program has a collaborative project embedded within the course, "Community Collaboration & Service Learning." The Fine Art students (under guidance from professor Dani Crosby), have delivered three projects through the Teaching City.

  - This 2-semester course prepares students to address the complex challenges of the 21st century; educates students for their roles as active and engaged community members and creates opportunities for them to practice the rewarding work of citizenship. Students assist in the development of the economy and culture of this region and see how classroom learning can be applied in real-life contexts. They explore critical social issues such as sustainability, marginalization, poverty, and gender politics. The Community Collaborations course adds value to our community, prepares youth

leaders, promotes social and environmental justice, and connects students to the natural and social systems that sustain us all.

Program Cooperation

- Initiated joint discussions with DC, Ontario Tech University and ITS regarding the development of the ancillary fee opt-out process for 2019-2020.

- Going into its 4th year, the General Arts and Science (GAS) program provides Ontario Tech University students who have been suspended in the first year the opportunity to come to DC for one semester and if successful, transition back to their program at the university.

- Student Academic Learning Services (SALS) supports GAS students by providing supports. Students complete an hour orientation in SALS and take a study skills session.

- When feasible, the two institutions offer opportunities for alternate offers to Ontario Tech University students (e.g. Fitness and Health promotion last fall).

- Ontario Tech University established a Sexual Violence Advisory Committee in 2018 to review and develop the University's sexual violence policy. The Office of Campus Safety worked in collaboration with this Committee and provided guidance on procedural fairness and trauma informed investigative best practices.

Campus Residence

- The Mental Health Outreach program is jointly funded by the Residence, Ontario Tech University and DC.

Campus Recreation and Wellness Centre and Campus Health Centre

- Recreation/athletics collaborate with joint programs for intramurals, extramurals and campus recreation programs. Shared facilities include CRWC, CFH, CIC, Vaso's field, Softball field and athletic therapy provides support to both institutions' athletes. Facilities host many joint and institution specific events and activities.

- Shared service for medical care, chiropractic and physical therapy.

Career Development

- Hosts a part-time job fair in September during orientation week and a job fair in February. New this year, a summer job fair will be held in April.

- Hosts Further Education Expo in October.

- Hosts nuclear job fairs in partnership with CNS and OCNI (2017 and 20018).

- Co-ordinates on-campus employer visits when the organization would like to hire both college and university graduates.

- DC and Ontario Tech University collaborate on the OPG partnership meeting.

Community Engagement

- Representatives from both institutions attend heads of guidance meetings (DDSB and DSB) and are viewed as educational partners.

- Each institution is invited to participate at open house events.

- Recruitment offices from each institution collaborate to accommodate groups on campus that wish to tour both institutions on the same day.

- Each fall, DC and Ontario Tech University co-host the Further Education Expo, which allows students at both institutions to explore options for further education. More than 50 academic partners participate.

Convocation

- Collaboration on dates for cost savings on facility rental in spring.

- Joint media and equipment rentals to reduce costs of load-in and load-out.

Fast Start

- DC and Ontario Tech University were previously partners in receiving OCE funding to establish our respective entrepreneurship services; considerable resource sharing and collaboration to initiate and grow these services; funding concluded March 2018.

- The DC FastStart team continues to meet regularly with the Ontario Tech University Brilliant team to share information and best practices, and to provide access to events for students from both institutions.

Financial Aid

- Joint presentations to CAS (Children's Aid Society) for Crown Wards.

- Joint work on Banner Student Aid updates (ex. Recent OSAP changes).

International Office, Dual Offers of Admission

- DC has developed a very unique partnership with Ontario Tech University which allows DC bound international students to apply for a pathways program with Ontario Tech University.

- This unique opportunity gives international students the advantage of applying for a DC program and an Ontario Tech University program at the same time on the same application. Students will be issued their DC letter of acceptance and at the same time will be issued a conditional offer for their pathway program at Ontario Tech University.

- Additionally, DC has a pathways agreement with the English Language Center managed by Ontario Tech University, which allows students to apply for ESL plus their DC program on the same application. Students can also opt to add the Ontario Tech University pathway program at the same time. A letter of acceptance for ELC will be issued by the University within 24 to 72 hours after the DC conditional letter of acceptance has been issued.

- By offering these unique pathway programs, DC and Ontario Tech University are able to provide international students with the opportunity to get a Diploma and Degree on the same campus with a simple application process.

Office of Campus Safety

- Student Conduct

- Campus Investigations/Fact Finding

- Sexual Violence Investigations

- Public Safety

- Security Infrastructure (Code Blue, CCTV, Public Address)

- Security Provision & Management

- Fire Warden Program

- Campus Walk Program

- CERT

- Emergency Management

- EMRT

- Business Continuity

- Incident Reporting System/Process

- Policy Enforcement (ie: smoking)

- Parking Enforcement (tailgating)

- Task Force Membership (SV, EDI, Cannabis, Smoke Free)

Office of Student Diversity, Inclusion & Transitions

- Provides training and facilitated sessions on diversity, equity and inclusion (DEI) for academic advisors and for the Faculty of Education conference.

- Works with the student life team to coordinate space/time for fall orientation programming.

- Plans a fall campus Pow Wow with Ontario Tech University's Indigenous Centre.

- Facilitates discussions around incorporating DEI principles in research work.

- Collaborate on 16 Days of Activism Events.

- Partners with Ontario Tech University and Project Restore FIBI forum 2019 (Families Impacted by Incarceration).

Research

- DC and Ontario Tech University have a Reciprocal Research Ethics Board Review Agreement to coordinate research ethics reviews for joint research.

- DC and Ontario Tech University are working together with OPG to initiate AI-related research projects.

- DC researcher Michael Williams-Bell is a frequent collaborator/co-applicant on Ontario Tech University research applications.

- BScN faculty from both institutions regularly collaborate on research.

- Several DC faculty were co-applicants or collaborators on recent Ontario Tech University applications to the New Frontiers in Research Fund.

- DC and Ontario Tech University are partners in the OCE-funded Autonomous Vehicle Innovation Network along with Spark Centre.

Administrative

- Chief Administrative Officer has bi-weekly meetings with their Chief Financial Officer to discuss operational issues between the two institutions.

- Chief Administrative Officer meets with Ontario Tech University at least semi-annually to discuss the Campus Master Plan and joint space issues.

- Chief Administrative Officer meets as a member of the Campus Recreation and Wellness Centre Advisory Committee to approve issues such as Vaso field, artificial turf, basketball dressing rooms, baseball field retrofit etc.

- Shared services are IT (including video, computers, programming changes (Banner), telephones), office of campus safety, parking, ancillary services, facilities and landscaping, purchasing, health and safety, switchboard.

- Capital Cost Sharing (e.g. north campus parking lot).

- Development of Campus Master Plan.

Joint Service Management Agreement

- In addition, a joint Service Management Agreement results in DC and Ontario Tech University collaborating and cooperating in the sharing of a number of services in ITS, facilities, security, library, residence, health and safety, and the annual budget creation and financial reconciliation of shared services and resources, etc.