University of Windsor

NOTICE OF MEETING

There will be a meeting of the Senate
on, Friday, May 22, 2020, at 2:30 p.m.
LOCATION: Virtual Meeting
Link: Join Microsoft Teams Meeting

AGENDA

Memorial - remembering students, faculty and staff who have contributed to the academic life of the university and who have passed away during the past year

1 **Approval of Agenda** (Unstarring agenda items)

2 **Minutes of the meeting of May 8, 2020**   SM200508

3 **Business arising from the minutes**

4 **Outstanding Business/Action Items**
   4.1 **Candidates for Degrees, Diplomas and Certificates**   **Robert Gordon**-Approval
                                                 To be distributed

5 **Reports/New Business**
   5.1 **Report from the Student Presidents**   **UWSA**-Information
      (UWSA, GSS, OPUS)   **GSS**-Information
                                           OPUS-Information

   5.2 **Report of the President**   **Robert Gordon**

   5.3 **Report of the Academic Colleague**   **Philip Dutton**
                                              Sa200522-5.3

   5.4 **Senate Student Caucus**   **Katherine Quinsey**

   5.5 **Program Development Committee**
      *5.5.1 **Program/Course Changes**   **Greg Chung-Yan**-Approval
                                                  Sa200522-5.5.1a-u
         *a) **Integrative Biology – Minor Program Changes (Form C)**
         *b) **Chemistry and Biochemistry – Minor Program Changes (Form C)**
         *c) **Political Science – Minor Program Changes (Form C)**
         *d) **Computer Science – Minor Program Changes (Form C)**
         *e) **Biochemistry and Biomedical Science – Minor Program Changes (Form C)**
         *f) **Combined Business and Political Science Programs – Combined Programs (Form C2)**
         *g) **Integrative Biology – New Course Proposal (Form D)**
         *h) **Biomedical Sciences – New Course Proposals (Form D)**
         *i) **Chemistry and Biochemistry – New Course Proposals (Form D)**
         *j) **Faculty of Arts, Humanities, and Social Science (FAHSS) – New Course Proposal (Form D)**
         *k) **Kinesiology – New Course Proposal (Form D)**
         *l) **Nursing – New Course Proposals (Form D)**
         *m) **Science – New Course Proposal (Form D)**

*n) Law – New Course Proposals (Form D)

*o) Chemistry and Biochemistry (Graduate) – New Course Proposals (Form D)

*p) Master of Business Administration (MBA) – New Course Proposals (Form D)

*q) University Teaching Program (UTP) – New Course Proposals (Form D)

*r) Master of Business Administration (MBA) – Minor Program Changes (Form C)

*s) Master of Medical Biotechnology (MMB) – Minor Program Changes (Form C)

*t) Graduate Regulations – Minor Program Changes (Form C)

*u) School of Creative Arts (Graduate) – Minor Program Changes (Form C)

5.5.2	**Master of Management (Business Data Analytics Field) – Major Program Changes (Form B)**	**Greg Chung-Yan**-Approval Sa200522-5.5.2
	*a) Master of Management – New Course Proposals (Form D)	Sa200522-5.5.2a
5.5.3	**Geographic Information Science (GISc) Certificate – New Program Proposal (Form A)**	**Greg Chung-Yan**-Approval Sa200522-5.5.3
	*a) Environmental Science (GISc) – New Course Proposal (Form D)	Sa200522-5.5.3a

5.6 Academic Policy Committee

*5.6.1	**Student Medical Note Standardized Form – Revisions**	**Antonio Rossini-**Approval Sa200522-5.6.1
*5.6.2	**BSc in Environmental Science Admission Requirements – Revisions**	**Antonio Rossini-**Approval Sa200522-5.6.2
5.6.3	**Internationalization Annual Report (2019)**	**Antonio Rossini-**Information Sa200522-5.6.3

5.7 Senate Governance Committee

*5.7.1	**Senate Standing Committees – Membership**	**Robert Gordon**-Approval Sa200522-5.7.1
5.7.2	**Proposed Bylaw Revisions** *[Bylaws 5, 8, 10, 11, 12, 13, 14, 16, 17, 20]*	**Rick Caron-**Approval Sa200522-5.7.2

5.8 Report of the Provost	**Douglas Kneale**
5.9 Report of Vice-President, Research and Innovation	**K W Michael Siu**
5.9.1 Research During COVID-19	

6 Question Period/Other Business

7 Adjournment

Please carefully review the 'starred' (*) agenda items. As per the June 3, 2004 Senate meeting, 'starred' items will not be discussed during a scheduled meeting unless a member specifically requests that a 'starred' agenda item be 'unstarred', and therefore open for discussion/debate. This can be done any time before (by forwarding the request to the secretary) or during the meeting. By the end of the meeting, agenda items which remain 'starred' (*) will be deemed approved or received.

University of Windsor
Senate

4.1:   **Candidates for Degrees, Diplomas, and Certificates – Spring 2020**

Item for: **Approval**

Forwarded by: **Registrar**

MOTION 1:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Arts, Humanities and Social Sciences be approved.** (Pages 2-14)

MOTION 2:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Education be approved.** (Pages 15-17)

MOTION 3:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Engineering be approved.** (Pages 18-25)

MOTION 4:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Human Kinetics be approved.** (Pages 26-27)

MOTION 5:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Law be approved.** (Pages 28-29)

MOTION 6:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Nursing be approved.** (Pages 30-32)

MOTION 7:   **That the slate of candidates for the Spring 2020 Convocation in the Odette School of Business be approved.** (Pages 33-37)

MOTION 8:   **That the slate of candidates for the Spring 2020 Convocation in the Faculty of Science be approved.** (Pages 38-46)

MOTION 9:   **That the list of candidates receiving Board of Governors' medals be approved.** (Page 49)

MOTION 10:   **That the candidates for the President's Medal and the Governor General's Silver Medal be approved.** (Page 49)

MOTION 11:   **That the addendum for the Spring 2020 Convocation be approved.**

MOTION 12:   **That the Dean of the Faculty concerned in consultation with the Registrar be empowered to approve the names of any award recipients and the names of any candidates whose notification of completion of the requirements for their degrees arrived too late for the Senate meeting.**

SPRING 2020 CONVOCATION

Friday, May 29, 2020

In order to protect the health and safety of our community, and at the advice of government health agencies, University of Windsor Chancellor Mary Jo Haddad announced Spring 2020 Convocation ceremonies would be postponed. Containing the spread of COVID-19 through social distancing strategies resulted in the degrees, diplomas and certificates of the Spring 2020 graduating class to be conferred in absentia.

By virtue of the authority vested in University of Windsor Chancellor Mary Jo Haddad by the laws of the Province of Ontario, and in accordance with the recommendation of the Senate of the University of Windsor, the following candidates' degrees, diplomas and certificates to which they are entitled are hereby conferred:

FACULTY OF ARTS, HUMANITIES AND SOCIAL SCIENCES
Dean of the Faculty: Dr. Marcello Guarini
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Board of Governors Medals

Communication, Media and Film – Jazmeen Elisa Zanier*
Dramatic Art – Emma Nicole Robert*
English Language, Literature and Creative Writing – Kristeen Rodregus*
General Program - Arts – Maria Jose*
General Program – Social Science – Peter Marval*
History – Alex Cramer*
Interdisciplinary Arts and Science – Isabelle Hinch**
Languages, Literatures and Cultures – Cameron Peter Beggs*
Music – Lillian Marie Korkontzelos*
Political Science – Devan Patrick Rawlings**
Psychology – Jenessa Louise Shaw**
Social Work – Erica Angela Bassakos**
Sociology, Anthropology and Criminology – Danielle Shaelyn Quimby*
Visual Arts – Maryanne Bakos*
Women's and Gender Studies – Kayla Nicole Fiala*

* Graduating With Distinction
** Graduating With Great Distinction

Conferring of Degrees in Course

Doctor of Philosophy

Psychology

Brianne Elizabeth Drouillard
Supporting Treatment Selection in Parents of Children with Autism Spectrum Disorder: An Educational Workshop with Acceptance and Commitment Training

Jillian Glasgow
Social Information Processing Deficits, Intimate Partner Violence, and Coercive Control in Dating Couples

Michelle Krieger
Image-Based Sexual Violence: Victim Experiences and Bystander Responses

Mia Sisic
A Focus on Strength-based Outcomes of Wartime Sexual Violence in a Sample of Ethnically Diverse Women from Bosnia and Herzegovina

Master of Arts

Criminology

Nicolas Jason Hedden	Ze Hao Liu	Sandra Nkiru Okoye

English Literature and Creative Writing

Nicolas Evan Charlton	Alexa Dicecco	Beth Denice Jarrett
Derek Joseph Deneau	Gordon Arthur Grisenthwaite	Ashley Lynn Van Elswyk

English Literature and Language

Arash Hajbabaee	Umama Umra Jutt	Nicholas Thompson
	Susan Glenda Lindsay	

History

Matthew Raymond Charbonneau	Lauren Katherine Rivet

Philosophy

Ashley Marie Glover	Joshua Daniel Hooke	Brittany Rebecca Morris
Jonathan Edward Hollingsworth		Mitchell Robert John Witteveen

Political Science

Joshua Alan Bowman	Raven Mann	Dipanjaly Barua Pinki
Connor Roger Lalonde		Tyler Matthew Romualdi

Psychology

Eric David Gilliland	Marni Michelle Oldershaw

Sociology

Mona Muslih Alharbi	Manpreet Kaur	Nirali Kaushalkumar Patel
Sydney Ellen Chapados	Abiola Mueebah Olatunde	Yuxin Zhang
Nicholas Andrew Hlymbicky		Shuqing Zhou

Master of Fine Arts

Film and Media Arts

Anushray Singh	Xavier Vance	Heng Yu

Visual Arts
Michael Lucenkiw

Master of Social Work

Adam Agueci	Lucie Caroline Sears Hager	Hoang Thu Thi Nguyen
Amrit Ahluwalia	Lauren Danielle Cecile Hammond	Danielle Nikota
Soraya Allibhai	Tina Marie Hardman	Larissa Noble
Michelle Florence Anthony	Miranda Lynn Harper	Abigail Owusu-Ansah Salami
Ivana Beverly Asumeng	Kelsey Harte	Deborah Oyediran
Bibi Asheanna Baksh	Justine Marie Haskett	Suzanne Palmieri
Mathieu Lucien Beaulieu	Katherine Helene Heikkila	Shannon Lee Papineau
Stephanie Brooke Bellaire	Nicole Heinecke	Laura Jean Parsley
Kristina Belskaya	Vanessa June Hoag	Carla Simona Passador
Bianca Mary Bergamin	Ryan Jonathan Holford	Sunayana Patranobis
Mitra Bissessar	Lindsay Horne	Deborah Attiyah Quiggin
Kathleen Michelle Bond	Krystle Grace Humphrey	Clodagh Eva A. Rawle-Davis
Anna Bonofiglio	Jocelyn Meredith Hunt	Nadia Razwan
Sabrina Josephine Borg	Mitchell Lloyd Hunter	Adela Rivera
Diane Brown	Shauna Lynn Irwin	Kimberly Lisa Robertson
Jennifer Brunet	Samantha Alexandra Jani	Renee Rogers
Fawn Marie Buker	Cassandra Faith Jocco	Victoria Rosettani
Hayley Elizabeth Bulmer	Josset Stephanie Johnson	Alexandra Rossi
Hongmei Cai	Khyati Joshi	Amanda Marie Ruggiero
Claudia Cammisa	Tina Jowrey	Natasha Rykaszewski
Stephanie Carter	Alefiyah Kakal	Cooper Rylee Sabo
Teresa Noreen Caterini	Tyson Sean Kellermann	Marija Sandovski
Carly Mackenzie Charron	Siye Beth Kiflu	Cynthia Nicole Sangiuliano
Bianca M. Colaluca	Jaclyn Ji Young Kim	Titilope Sanya
Nicole Corbett	Sarissa Klassen	Olivia Saric
Rachel Nicole Corr	Marie Claire Kubwimana	Pushpa Seenarine
Sherri Michelle Couto	Tamara Leila Kuehne	Kindu Selemani
Brittany Taylor Creighton	Gregory James Kyllo	Diwany Selvarasa
Nya Daley	Vanessa S. Lacoursiere	Jasmeen Shergill
Sandra Danial	Ahiney Mawuena Laryea	David Sidhu
Edward Stephen Davey	Seul Lee	Desiree Odessa Elizabeth Smith-Rayoff
Guia Camille Dela Cruz	Hee Joo Lim	Charlene Smolen
Felicia Joyelle Di Biase	Tonia Lowry	Victoria Soares
Megan Lee Dryfhout	Annastasia Luzba	Jenna Sousa
Keeley Dutcher	Alexis Anne Mabon	Teigan Sparkes
Daline El-Hashimi	Suabayreen Mahfuza	Katelyn Stevenson
Ruaa Farhat	Sydney Marly Malek	Karolina Styrczula
Danielle Farmer	Sydney Katherine Marcoux	Jessie Maureen Trainor
Imogen Elisabeth Farrer	Rachel Marcus	Le Tran
Tamara Rayvon Ferron-Hall	Silvia Patricia Marroquin-Ponce	Jenna L. Tucker
Stephen Firang	Michael Marshall	Marcel Ugoh
Jeannine Rosalie Donna Anne Fleury	Jennelle Antonia Martin	Dillon Spencer Jarred Underwood-Guttridge
Jane Emily Flindall	Clarke Marie McConnell	Brianna Elaine Valenzuela
Nicole Marie Forget	Tonya Heather McKee	Dianna Christine Waldner
Emma Foy	James Scott McQueen	Robin Jacqueline Wallis
Melody Friesen	Nathalie Therese Mehrer	Michael Wammes
Karlee Gammon	Kafui Debie Mensah	Lemoy Julia Whilby
Anjali George	Li-Chien Andrew Miao	Holly Nichole Whitehead
Teena Gidda	Elizabeth Ann Moss	Shoshanna Wilson
Valerie Devi Gooden	Kristan Elizabeth Mungal	Sasha-Ann K. Winchester
Camille Gray	Steven William Ray Murray	Lindsay Witiuk
Tamara Gwiazda-Bernstein	Irene Mwanri	Laura Yareychuk

Master of Social Work/Juris Doctor

Kaffie Abdirashid
Lacy Natasha Carty

Cherlene Cheung

Alexandria Evan Hamilton
Mandeep Kaur Singh

Bachelor of Arts

Honours Communication, Media, and Film

Achol Bab
Sami Bashir*
Noah Domenico Capannelli
David Salvatore Derose*
Kaitlyn Fox
Cailan Margaret Gray

Anthony Michael Greco
Mackenzie Patrick Jessop*
Adam George Knehler
Shane P. Masse
Rachel McEwen*

Samantha Margaret Morneau
Alexandria Marie Postma
Dana Marie Roe
Sikandar Saleem
Samantha Ryan Szcyrek
Weiqi Tan

Honours Communication, Media, and Film and Creative Writing
Kirsteen Francisco Navarro

Honours Communication, Media, and Film and Drama Arts Management
Kennedy Ann Holmes*

Honours Communication, Media, and Film and Philosophy
Katherine Vera Elaine Bryce

Honours Communication, Media, and Film and Political Science
Kayla Victoria Destiny Clarke*   Tamer Lauren Ouellette*

Honours Communication, Media, and Film and Psychology
Maria Carissa Calo Cahoy

Honours Communication, Media, and Film Arts Management
Tiffany Thompson

Honours Criminology

Olin Taghlob Ashak*
Zachary David Bailey*
Matthew Robert Bain
Daniel Richard Boucher
Brandan Cervini
Ethan Carter Chillman
Jack Abiel Christopher
Monique Drouillard
Aaron John Dupuis
Mayah Kaylin Facey
Brandon Robert Foster

Christopher Gabriele-Dibiase
Vincenzo Maurice Geminelli
Jillian Jazz Holland-Penney*
Natalie Isaac
Jasmon Maryanne Jarvis
Reagan Nicole Kaufman
Andrew James Lanoue
Amanpreet Kaur Lehal
Mackenzie Rose Mackay
Kelsey Marie McGregor*
Ayden Mclinden-Pearce

Sepand Michael Montazernezam
Ian Parker*
Xhulia Popaj
Paige Lauren Powless
Danielle Shaelyn Quimby*
Shannon Nicole Romualdi
Jessica Ruggaber
Rileigh Drew Shiplo
Emily Marie St. Amour
Bailey Eleanor Trotti
Jason Alexander Friars Yen*

Honours Criminology and Family and Social Relations

Alexandria Caputo

Julia Catherine Croucher
Kiana Morgan Freeland

Samantha U'Ren

Honours Criminology and History
Joshua Tyler Shepley

Honours Criminology and Modern Languages with German Option
Taylan Kaakyire Osei

* Graduating With Distinction

Honours Criminology and Political Science

Xiomara Maribel Alvarez Corrales   Hailey Madison Etchen*   Lance Craig Tofflemire

Zainab Arit Ikpong

Honours Criminology and Psychology

Brittany Paige Holmes   Rafael Tomas Leal   Katherine Tremblay

Julia Maria Leonard

Honours Developmental Psychology

Lauren Elizabeth Braido   Keri Lamb   Nour Mehanna

Sara Elahi   Shelby Cassandra Reck

Honours Developmental Psychology and Family and Social Relations

Mackenzie Lynne Demars

Honours Developmental Psychology with Thesis

Julia Power*

Honours Digital Journalism and Communication, Media, and Film

Melanie Therese Renaud   Keighn Nathaniel Vitti

Honours Disability Studies

Taya Brook Agius   Kathleen Davis   Samantha Mortier

Diandra Akwaley-Aku Allotey   Cassidy Ann Emery   Sydney Rose Talbot

Emily Adele Mitchell**

Honours Disability Studies and Psychology

Jessica Dasilva Antunes   Hala Chakra*   Hilena Alejandra Menjivar*

Honours Drama and Communication, Media, and Film

Sydney Laura Alexandria Daley   Dominique Nickels*   Audrey Louise Taylor

Honours Drama in Education and Community

Zarastiana Elizabeth Bellavia   Collin Michael Pitre   Sydney Lauren Sholdice*

Rakesha Rochelle James   Sarah Danielle Richards   Naomi Chamberlain Woods*

Emma Nicole Robert*

Honours Dramatic Art

Erin Nicole Callaghan   Lillian Reid*

Honours Dramatic Art and Music

Parker Bruce Manson

Honours Dramatic Art and Philosophy

Leah Evelyn Edmonds*

Honours English Language and Literature

Isabella D'annunzio   Lauren Elizabeth Ridgewell*   Alia Kiren Sabzwari*

Madisson Hailee Faubert   Kristeen Rodregus*   Matthew Julius Tolentino*

Courtney Hawkes   Liam Stephen Washington*

Honours English Language and Literature and Communication, Media and Film

Sarah Elizabeth Foster*   Sydney Alexandra Wortley*

* Graduating With Distinction
** Graduating With Great Distinction

Honours English Language and Literature and Dramatic Art

Stephanie Rose Gusain   Natalie Rose Worsley

Honours English Language and Literature and French Studies
Megan Madison Clifton

Honours English Language and Literature and History

Julia Rose Adamo*   Carly Ann Coombe

Honours English Language and Literature and Visual Arts
Karen Rakowicz*

Honours English Literature and Creative Writing

Bridget Heuvel   Meghann Marie Macintosh   Gillian Elizabeth Mayo*
                                   Heather Bailey McCardell*

Honours English Literature and Creative Writing and Dramatic Art
Molly Jane Phillips*

Honours Family and Social Relations
Melanie Lozon

Honours French Language and Literature

Siena Barbara Natalia-Maria Browning-Morgan*   Kristie Lee Lanoue*   Madeline Claire Reaume
Chiluba Kanso   Rawan Mortada   Charlotte Jayne Schroeder*

Honours French Studies and Modern Languages with Italian Option
Sarah Michelle Berlasty

Honours French Studies and Philosophy
Mark Zayat

Honours Greek and Roman Studies

Emma Anna Bodner*   Danny Shino*

Honours History

Megan Alexandra Bonneau   Colin Joseph Fowler   Tesloth Simon
Megan Cote   Heather Colleen Harvie*   Carl Jayme Sinnott
Alex Cramer*   Paolo Noah Liburdi   Aidan Christopher Lazarus White*
                                   Grigori Romanovich Maev*

Honours History and Modern Languages with German Option

Cameron Peter Beggs*   Katheryn Bezaire

Honours History and Political Science

Joseph Anthony Antonelli   Spencer Nathaniel Hill   Stefan Neskovic*
Taylor Tobias Appler*   Mitchell John MacDonald   Nicholas M. Robinson

Honours International Relations and Development Studies

Jane Osemudiamen Azeke   Caley Rose Hewitt   Ebuka Nzewi
Ghayad Ghunim   Sylwia Elizabeth Grace Latka   Mahum Batool Syed
Tamara Chloe Henry   Nicholas Tuff*

Honours Law and Politics

Sandra Buric   Brandon Elie Diesbourg*   Andrea Irina Yzeiri*
                                   Meagan Ashley Jubenville*

* Graduating With Distinction

Honours Law and Politics with Thesis

| Cameron Bortolon** | Victoria M. Mahon* | Emilie Aline Elisabeth Weidl** |

Honours Liberal and Professional Studies, Aeronautics Leadership Stream - Flight Option

| Dante V. Albano* | Owen Brown | Mario Santarossa |
| Adam Arsenault* | Aden Mackay Downes | Alexia Lily Stavridis |

Honours Liberal Arts and Professional Studies

| Christopher Allen | Jenna Bezaire | Megan Mackenzie Livingstone |
| | Crystal Georgeen Bryan | |

Honours Modern Languages and Second Language Education with Italian
Katelyn M. Everingham

Honours Music
Dylan Patrick Iannicello

Honours Philosophy

| Brittany Melanie Greenham | Nathaniel Zavier Ethan Talbot |

Honours Political Science

Paula Eme Ajala-Alexis	Jamie Lynn Dimenna	Drew Wesley Scott Illman
Dakota Patrick Allerston	Rami Farag	Brooke Lyn Victoria Lafreniere
Marianne Nicole Brooks*	Joshua Gardner Costa	Gail Margaret O'Neil
Francesca Luigia Cervi*	Drew Douglas Gaughan*	Mackenzie Eva Mae Rajki
George Chahine	Justin Lee Grainger**	Hector Samuel Salazar Alcala
Brianna Louise Clancy	Sarah Hage-Hassan	Baqer Shaalan
	Andrew David Hunt**	

Honours Political Science and Sociology with Thesis
Jenin Al-Taher*

Honours Political Science and Women's and Gender Studies
Kayla Nicole Fiala*

Honours Political Science with Thesis
Rima Asfour*

Honours Political Science with French Specialization
Amanda Skocic**

Honours Psychology

Tichana Adam	Christine Marie Elgie*	Corie Michelle Mercer
Reem Ibrahim Adas	Maggie Michaela Ghanam	Zahraa Nasser
Sharon Agnihotri	Hayley Sandra Jean Girardin**	Jensen Erin Lee Painter
Fayrose Akkacha	Jessica Dorine Hatem	Cayla Palahnuk*
Nikola Baic	Kristyn Rose Hodgins	Rielle Louise M. Shaw
Rebecca Elizabeth Burkoski*	Celina Marie Houad	Ayesha Siddiqi
Sean Byrne	Kylee Jackson	Andrew Townsend*
Zoie Noelle Chadwick	Catherine Janisse	Nicolas Valentin Turcas*
Julia Chick*	Victoria Madeline Kowalchuk	Samantha Elizabeth Urquhart
Olivia Marion Valerie Cranston	Katelynne Lamothe	Nicole Michelle Wilcox
Dakota William Currier	Rebecca Luden	Jamie Christie Wilson-Renaud
Jeremy Rene Delouw*	Cassie Rae-Anne Marancie*	Heidi Yaacoub*
	Meghan McCutcheon	

Honours Psychology and Criminology

Katie Lauren Beaton	Chantelle Dagley	Michael Sims
Kyle Adam Boismier	Milissa Nabil Fares	Nicole Stones-Little
Caitlin Cox	Lauren Nicole Geraci	Willow Marie Strain
Laura Danielle Crane*	Marissa Malaquias	Bethanie Nicole Visnjic
	Hannah Marie Moltrassie*	

Honours Psychology and Family and Social Relations with Thesis
Sophia Concetta Lamanna

Honours Psychology and Visual Arts
Samantha Charlee Wilson

Honours Psychology and Women's and Gender Studies with Thesis
Erica Alyssa Mahood

Honours Psychology with Thesis

Alexander Keegan Abbruzzese*	Jillian Lee Cramer*	Marissa Marie Rakus*
Sofia Evelyn Baert*	Rachel Margaret Polsky Katzman**	Evan Ripley-Mcneil*
Tabarak Baher**	Alyssa Taylor Klingbyle	Marlene Sebastian*
Julia Belton**		Jenessa Louise Shaw**

Honours Sociology

Alexa Lynn Daniels	Lam Quoc Nguyen	Joshua Samuel Peltier*

Honours Sociology and Criminology

Abdallah Abualkhair	Manaal Saeed Chaudhary*	Gellan Ishaq
Paige Corynne Almeida-Knight*	Allison Marie Coffey*	Katharine Larissa Maunula*
Brandan Matthew Badour*	Aleigha Joy Dannett	Christopher Morgan Anthony Meloche*
Victoria Joanne Bertrand	Kaysey Deanna Dorssers*	Tooba Khalid Raana
Lilyan M. Brabant	Daynar Randall Facey	Davis Elizabeth M Smith
	Danny Christian Feghali	

Honours Visual Arts and Communication, Media, and Film
Karen Iida*

Honours Visual Arts and Psychology
Melina Vanessa Svab

Honours Women's and Gender Studies
Peyton Laurie Campbell

Honours Women's and Gender Studies and Communication, Media and Film
Ashleigh Bentley

Bachelor of Arts

Four Year Communication, Media, and Film

Taylor Brain	Deborah Princess Iluyemi	Patricia Truong
	Samuel Oluwatobiloba Olawale	

Four Year Criminology

Artim Ala	Christopher William Evelyn	Ayotunde Idowu-Bello
Prince Adedayo George Adeshina	Richard Rey Galoyo	Jacqueline Akomah Kwafo
Michael Bauer	Joshua Hornick	Joshua Masse

Adam Blake McDonald Arop Antonio Plaek Deng Ian Stewart Roberts
Danielle Oliverio Fadi Pota Tammy Sousa
Randy Oriakhi Godfrey Ragonjan Jasjeet Kaur Upal
Neil Donald Orr Kevyn George Wortley

Four Year Criminology and Political Science
Quessia Nema Mugabo

Four Year Criminology and Psychology
Alexcia Naomi Delpesche

Four Year Developmental Psychology
Weniesha Dezeree Lewis Andrei Viorel Nicolae Nicole Vlanich
Carlie Marissa Toole

Four Year Developmental Psychology and Criminology
Karlie Elizabeth Matteau

Four Year Disability Studies
Danielle Christine DiPasquale Alaa Eissa Gun Hee Lee

Four Year Disability Studies and Psychology
Hailey Radmore

Four Year English Language and Literature
Veronica De Silva Meaghan Myers

Four Year Family and Social Relations
Zahra Bazzi Ashley Diane Aniniwaa Yeboah

Four Year French Studies and Political Science
Nadine Badour

Four Year History
Lauren Lappan Oluwatobiloba Taiwo

Four Year International Relations and Development Studies
Martin B. Kiluk Boluwatife Ojomo

Four Year Liberal and Professional Studies: Aeronautics Leadership Stream - Flight Option
Sumaran Yoganathan

Four Year Modern Languages and Second Language Education with German
Shuya Yang

Four Year Modern Languages and Second Language Education with Spanish
Sharon Cerna

Four Year Political Science
Kofi Acheampong Adomako Sara Chacon Ramsha Siddiqi
Brandon Eli Baillargeon Samantha Gharib Madison Louise Vandenham
Brandon Steven Bryans Julia Angelica Zalewski

Four Year Psychology

Carly Elizabeth Bondy
Jessica Antoinette El-Helou
Jeana Farhat
Ghallia Hashem

Kristina Jezdic
Meghan Eleanor Rose Laforet
Matthew Peter Mudrack

Shehar Bano Raza
Robyn Michelle Sampson
Eric Stewardson
Chelsea Elise Viselli

Four Year Psychology and Criminology

Christina Lynn Branton-Murphy

Natasha Lynn Marie Charbonneau

Yasmine Iskandar

Four Year Psychology and Women's and Gender Studies

Lauryn Fraser

Elysa Adelle Masojc

Four Year Sociology

Lucia Mokobi

Anbuja Srikanthan

Four Year Sociology and Criminology

John-Paulo Figueira
Victor Ifenna Ilo
Keiana Marie Johnston

Ann Marie Pottle
Ramone Marc Fontaine Scarlett

Ebonee Scott
Donovan Selmes-Thom
Shamiran Shamoail

Four Year Women's and Gender Studies
Sharuga Selvakularajah

Bachelor of Arts

General Arts and Professional Studies
Jingzhe Zhou

General Child Psychology

Selin Akalin
Aalaa Al-Abid Alrsol
Lamia Alnawawreh**

Kathryn Cara Ciacelli
Jennie Doss
Payton Ferrone*
Rachele M Henry

Zeinab Kourdab
Victoria Jamesena Scrymgeour Maria
Jaclyn Woelk

General Communication, Media, and Film

Jesse Robert Carmichael
Thao Ngoc Doan
Benjamin Graham
Morgan Alexis Graham*
Asha Mariam Hasnain

Luis Jimenez
Okeem Shemar Lennon
Fenglin Liu
Zhanlun Liu
Peter Marval*
Justine Madison-Emerald Peters

Kyle Allan Quick
Meghan Mackenzie Roy
Aaron Jacob Vellinga
Dana Wilhelm
Oscar Williams

General Dramatic Art

Morgan Shelley Corbett-Collins

Derek David Rocheleau

Kristian Turcas

General English Language and Literature

Sydney Bibby
Shi Nae Kang
Katelyn Jane McPherson

Almira Mohammad Radjab
Kurt D Norris

Daniela Kristina Papac
Emma Pauline Rock
Meghan Katrina-Anne Spencer Vanderzwart*

General Family and Social Relations

Temika Mandesa Jones

Veronica Marina Konecnik
Alyssa Mihai*

Sarah Oluwakemi Oyedokun

General French Studies

Nicholas Alexander Bohn
Micayla Anne Deneau
Jazzlyn Marie Dew

Isabella Jean
Sifa Kajibwami
Anthony James Martinho
Lianna Nicole Miller

Samantha Patricia Saunders
Cody Seguin
Isabella Sockett

General History
Lucas Greene

General Labour Studies
William Joseph Soulliere

General Liberal Arts and Professional Studies

El-Abraham Yakoub Ajene
Leul Berhanu Argaw

Jok Lual Guet

Nikolas Moser Aragona
Kevin Nkubito

General Political Science

Abdulla Al Damen
Asia Essence Browning
Kaitlyn Ann Dyer

Peter J. Gorski
Zachary Alexander Lachance
Bradley Byron Lindsay
Munashe Mark Machikicho

Desmond Osafo
Gabriela Maria Romualdo
Anthony Janko Zrvnar

General Psychology

Olayinka Titilayo Aloko
Kyra Lee Breshamer
Taylor E. Brown
Max Daniel Calhoun
Pui Man Jenny Chau
Miranda Coderre
Jacob Anthony Croteau
Stephanie Currie
Mark Edwin Davis
Emily Meaghan Denomme
Michaela Marie Fazekas
Roseanna Friesen
Austin Ardath Pierre Geddes

Allyson Marie Gibson
Vanessa L. Improta
Hamza Ishaq
Trisha Leah Johnson
Kanika Kanwar
Kelly Kickham
Spencer Lirissa Malott
Dimitra Marinis
Sonia Lissette Martinez Alfaro*
Sean Charles McFadden
Hunter McMahon
Jared Michael Niziolek

Dondre Anthony Palma
Elizabeth Parro
Krista Marie Peters
Dylan Jefferson Ryan
Brooke Chantel Sims
Alexis Marilyn Souchuk
Brandon Speller
Jerneja Stare*
Alina Trajlovic
Kayla Jade Tremblay
Jacob Richard Wilson
Kaila Wilson*
Carlos Hu Zhou

General Sociology

Dennis Agyeman-Duah
Nizam Al-Zaher
Sumeiya Beelut
Meighen Boyd
Matthew David Duquette
Natalie Gabriele-Dibiase
Marvin Antonio Gaynor

Justin Goudie
Ryan Graham
Jocelynne Ireland-Mccallum
Arben Juncaj
Steven Morley Kielt
Brandon William Mckeen
Angela Monyka Neufeld
Sarah Noureddine

Michael James O'Neil
Trent Saxon Parent
Kathryn Ann Piatkowski
Candace Spencer
Keirstin Lynn Taylor
Matthieu Vezina
Tyrus Wilson

General Visual Arts

Bianca Nadia Brahimir
Tiffany Tam Dang*

Maria Jose*
Bhavisha Mistry

Ian Edward Joseph Rawlings*
Emily Regnier

General Women's and Gender Studies
Mercedes Deanna Thompson

* Graduating With Distinction

Bachelor of Fine Arts

Honours Acting

Jamar Emery Adams-Thompson	Sarah Hagarty*	Simone Matheson
Dona Blight*	Flora Margaret Janos	Charles Darius Rathe
Taylor Brimner	William Alan Searson Jenkins	Olivia Margaret Ridpath*
Kaitlyn Victoria Chapman*	Haiden Lyle	Kyra Kathryn-Jean Scarlett
Celeste Maria Fiallos Castillo	Avery Lane MacDonald*	Lauren Elizabeth Catherine Watson*
Robyn Spencer Gallop	Cullen James MacNaughton	Michelle Samantha Young

Honours Visual Arts

Cassia Noelle Baert*	Mya Marjorie Fuerth	Avery Betty Lessard
Maryanne Bakos*	Mckenna Grace Jack*	Julia Nicole Mammarella
Chantal Brouillard	Lai Jiang*	Lina Ann Schatz
Laura Rene Fontaine		Max Petko Vanderheide

Bachelor of Interdisciplinary Arts and Science

Honours Biological Sciences and Anthrozoology Minor
Matthew Nicholas Fruhm Broser*

Honours Biological Sciences and History Minor
Shawn Robery Ivan Kingsbury

Honours Biological Sciences and Psychology Minor

McKaylla Lee Buchanan**   Kelsey Sandra Burns*

Honours Biological Sciences Dramatic Art
Justin Daniel Timbol

Honours Biological Sciences Greek and Roman Studies
Isabelle Hinch**

Honours Biological Sciences Visual Arts
Dominika Agnieszka Boron*

Honours Political Science and Biological Sciences Minor
Measar Musa

Honours Psychology and Biological Sciences Minor
Maria Corazon Rudi Napigkit

Bachelor of Music

Honours Music (Comprehensive)

Henry Darius Breitkopf*	Lillian Marie Korkontzelos*	Niklas E. Pizzolitto
Holly Michelle Charron	Aryan Memarzadeh-Zahedani	Samuel Grover Poole
Konrad Jarecki*	Michael James Molnar*	Anne Marie Storey*

Honours Music (Music Education)

Savanna Marie Muscat   Allesandro Mauro Rotondi*

* Graduating With Distinction
** Graduating With Great Distinction

Bachelor of Social Work

Honours Social Work

Vida Acheampong
Dzifa Adzowa Afagenu
Miranda Emily Albano
Sundus Ali Kalif*
Sara Al-Qasir
Noor Atris
Alena Auchynnikava*
Manraj Singh Aujla
Brittany Madlynn Bartlett
Anna Elizabeth Basque
Erica Angela Bassakos**
Christopher Edward Bedard*
Marissa Lynn Katherine Benson
Brandon Boldt*
Andrea Isabelle Brown
Carley Anne Katherine Carr
Dominique Chauvin
Tracy Lynn Clarke
Payton Desbiens
Ritchie Doan
Lindsay Margaret Down*
Maddy Eliza Edith Drouillard*
Kyle J. Durocher
Rhea Eady*
Elizabeth Fonseca Ponce
Jessie James Harrison

Abir Hassan*
Kelly Marie Hodgins
Samantha Lee Horne
Blessing Igiogbe
Melissa Ashley Jacobs
Arbresha Jaha
Chuoy John
Seby Joseph
Afaf Majid Khan
Erika Rose Koehn
Nathan Ryan Kristalovich
Geoffrey Kyle Laskey*
Kimberly Lauzon
Heather Marie Lenson
Marissa Ann Lepera
Stacey Lock
Caitlin Margaret Loucks
Isabella Kathleen MacMillan*
Sabrina Lynne Marchi
Carly McClughan*
Catherine Julianna McMullan**
Karlie Ellen Miller
Katelyn Agnes Mitrovic
Lucas Mitrovic*
Bree Renee Moir
Madison Nicole Morin

Daniel Nehmetallah
Jade Piper
Sally Polus
Alexa Mary Pugh
Ana Radulj
Dana Ransom
Amber Lynn Raymond
Devon Marissa Reeb
Mackenzie Lee Reid
Mikayla Lee Robertson
Levi Tanner Rogers**
Madalyn Kristine Ruby
Megan Emily Ryan
Kymani Spence
Madison Margaret St Pierre
Stefan Stevic
Janet Lousie Tong-Anderson*
Robert Klaus Trittler
Jessica VanHal
Alexa Savannah Wallace-Brouwer
Megan Alexandra Way
Carissa Noelle Whitlock*
Bianca Wiens
Lauren May Witherow*
Taylor Dawn Wright*
Basman Saleem Yalda

Honours Social Work and Disability Studies

Kayla N. Cheeseman
Cindy Lau*

Gillian Davies Lloyd-Boyle

Samantha Marentette
Abigayle Essery Stotts

Honours Social Work and Women's and Gender Studies

Sofia Ahmed*
Rune Hana Bland*

Hailey Nicole Liddle*

Vaneet Kaur Sandhu
Rose Verzosa*

Certificate in Anthrozoology

Taylor Ann Bendig

Certificate in Arts Management

Kennedy Ann Holmes

Noah Resendes Rocha

Certificate in Law and Politics

Taylor Amanda Marekovic

Sharmini Rampersaud

* Graduating With Distinction
** Graduating With Great Distinction

Certificate in Public Administration

Andrew David Hunt   Danielle Elizabeth Peladeau

Certificate in Second Language Education

Jeffrey Colin Griffiths   Kennedy Mary Wonnacott*

Certificate in Work and Employment Issues

Jenna Bezaire

****

* Graduating With Distinction

FACULTY OF EDUCATION
Dean of the Faculty: Dr. Kenneth Montgomery
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Board of Governors Medals

Faculty of Education:
Education – Leonardo Anthony Pisciuneri

Conferring of Degrees in Course

Doctor of Philosophy

Educational Studies

Mohamad Najib Ayoub
An Investigation of the Experiences of Syrian Refugee Students in Canadian Elementary Schools: A Mixed-Methods Study

Brandy Doan
The Role of Bounded Rationality in School Improvement

John R. Freer
Students' Attitudes Toward Disability: A Tripartite Intervention

Tracey L. Gurbin
Learning that Sustains the Use of an Appropriate Technology: A Case Study of Residential Solar Energy

Kimberly Marie Hillier
Motherhood and Academia: Exploring the Experiences of Graduate Student and Faculty Mothers within the Southwestern Ontario Context

Alaa Kutbi
Perceptions of Female Faculty Members at King Abdulaziz University on Social Media as a Teaching Tool: Challenges and Best Practices

Master of Education

Pinge Ai	Shiwei Li	Fan Wu
Baljinder Kaur	Yan Li	Yang Xin
Siyu Chang	Yingyan Ling	Shuning Xu
Xiyuan Chen	Xin Liu	Yuanchun Xu
Yifei Chen	Fabiana Menezes	Xinyu Zhang
Gregory Driedger	Abdul Hakim Merhi	Yijia Zhang
Azadeh Eftekhari	Yunlu Shen	Yinghua Zhao
Shihuan Fan	Liping Shu	Zitong Zhao
Fangyao Fu	Jasman Singh	Daomao Zheng
Zhiqian Guo	Xiaochuan Tan	Qi Zheng
Amarah Ishaque	Jing Tao	Qijian Zhong
Gillian Elizabeth Ann Kornacki	Yanliang Wan	Yahan Zhou
Vasiliki Kouki	Jingjing Wang	Jing Zhu
	Yijun Wang	

Bachelor of Education

Taylor Adams
Jenna Christine Aitken
Andrei Beniamin Aitonean
Diana Al Masalkhi
Alisha M. Allaer
Ashley Altaj
Cameron Michael Armstrong
Zandra Serwaa Asamoah-Boakye
Arnay Avdic
Susanne Almanza Bacarro
Sabrina Vanessa Bachetti
Bailey Olympia Baggio
Dajana Baic
Anita Rose Baldassarro
Laura Jennie Ball
Lina Barakat
Stefanie Ann Barcic
Natalie Louise Barrette
Celina Antoinette Bechard
Alexander William Bedard
Natalie Renee Bedard
Coreen Alayjah Blake
Alexander Ivano Bontorin
Cameron Troy Bowman
Christine Ashley Breault
Kristen Nicole Buchanan
Marissa Marie Bumanlag
Julia Maria Byrne
Michael Adam Caggianiello
Melissa Helena Carbone
Anthony Richard Cervi
Selena Mikhail Chahin
Maria Chenzaie
Jordan John Cooil
Austin Roger Frank Cortina
Kali Ann Courtis
Michelle Rita De Marco
Morgan Marie Debroe
Anthony Robert Degregorio
Riley Austin Delicata
Kari Michelle Delouw
Alexander Ross Derbyshire
Joshua David Desantis
Navraj Dhaliwal
Christian Di Staulo
Amanda Alanna Dimenna
Daniella Leone Dimu
Ryan Patrick Dodich
Brittany Taylor Downes-Peters
Julia Drakulovic
Adam Victor Drouillard
Sara Elizabeth Drouillard
Yahya Saad Elkelani
Zeina Farah
Julia Diane Farron
Brennan Gerard Feasey
Jessica Gomes Fernandes

Jovan Timothy Filipic
Matthew J. Findlater
Katelyn Flemington
Robert Anton Perry Fletcher
Natalie Gagne
Ariel Elise Gastmeier
Madison Rose Gignac
Jennifer Lynn Goulet
Madilyn Taylor Green
Angelika Guenther Correa
Jennifer Marie Halden
Jared Lund Hansen
Amanda Mary Hanson
Kathryn Jane Hatfield
Sydney Jean Hawkins
Olivia Sarah Hensz
Felicia Margaret Heron
Nathan Lawrence Hesman
Courtney Mackenzie Hilton
James Alexander Holland
Mackswell Jacob Holmes
Faith Nicole Hudvagner
Lisa Ann Huntingford
Cheyenne Alexandria Jansseune
Kelsey Grace Jaques
Sarah Celeste Jarvis
Stephanie Elizabeth Johnston
Michael Marc Keating
Madison Elizabeth Keller
Alanna Deanne Keren
Mary Khouri
Dylan Brent Willard Klawitter
Rebecca Ann-Marie Klein
Caroline Kochanowski
Kaitlyn Violet Dorothy Kostreba
Ourania Doreen Kourelias
Elizabeth Pamela Kulyk
Cecilia Marie Juliette Lamb
Bailey Kelly Lane
Nicole Kathryn Langlois
Robyn Pauline Lanoue
Greysun Andrew Lawrence
Tia Diana Elizabeth Layne
Vanessa Marie Lopez
Nicole Lynn Lubrick
Jessie Amaya Maclean
Mallory Jessica Mahoney
Chloe Joy Maitre
Alaina Katrina Mancina
Anna Serafina Marazita
Nicole Jeannine Marion
Sara Renee Martin
Tauner Jane Martin
Jessica Lauren Masse
Emily Anne Mccloskey
Catherine Elizabeth Mcgowan
Bradley David George McLean

Duncan Michael Mcpherson
David Andrew Meloche
Courtney Frances Menard
Madison Nicole Mills
Jacqueline Danielle Mollica
Jessica Michelle Moore
Bharti Mor
Noah David Ronald Morris
Dalton Aaron Mugridge
Christine Nicola Muharrem
Erica Marie Myers
Heather Kathleen Myers
Natalie N. Nessan
Craig Matthew Oakey
Erik Ognjanovski
Omonombe Oleko-Nembalemba
Taylor Megan Pare
Karlee Denise Parent
Jillian Charlotte Parker
Olivia Kathleen Jellamie Paty
Andrew Penner
Julie Josee Pharand
Noah Anthony Pickering
Dilani Nadeesha Pieris
Connor Pierotti
Leonardo Anthony Pisciuneri
Carlie Jeanette Poulin
Jesse Ray Power
Jacklynn Cathleen Powis
Aditya Rampal
Kulraj Singh Rathaur
Vanessa Reka
Jenna Catharine Riddell
Spencer John Riehl
Brittany Paige Rocheleau
Hilary Brooke Mendonca Rosa
Samantha Santina Ruffell
Aaron Jonathan Paul Rupert
Milo Christian Santoro
Tanya Marie Sassine
Vanessa Michelle Sassine
Alexandria Morgan Sawchuk
Peter Sawicki
Adam Mackenzie Schmidt
Vicky Marie Schoenberger
John Christian Serio
Taylor Erica Severin
Keira Anne Severs
Swati Sharma
Gillian Beatrice D'Alimonte Shaw
Andrew Joseph Shymanski
Sabrina Dina Silvestri
Jake Simpkins
Victoria Lyn Sinasac
Melanie Nirmala Singh
Brad D. Smith
Brooke Elizabeth Smyth

Conor James Sparks
Reem Ali Srour
Katerina-Christina Mathias Stavridis
Lindsey Elizabeth Stein
Anthony George Tannous
Amber Tazzman
Jason Waybe Clayton Tedball
Asha Mareen Thomas
Alyssa Tieu
Nicholas John Tregoning

Naomi Corinna Turner
Kelsey Joanne Turton
Daniela Marie Uros
Derrick William Van Every
Amanda Nicole Van Gelder
John Joseph Vanderlaan
Brandon David Varga
Aaron Zackary Vieira
Mikaela Elizabeth Vigneux
Caroline Louise Voyer
Laine Sarah Vrecic

Shihao Wang
Alana Kristy Wevers
Jordan James Wilbur
Emily Rose Will
Teo Willebald
Jaclyn F. Wood
Olivia Wuerch
John Yundt
Samantha May Zambito
Stefanie Dawn Zamperin

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FACULTY OF ENGINEERING

Dean of the Faculty: Dr. Mehrdad Saif
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Conferring of Degrees in Course

Doctor of Philosophy

Civil Engineering

Zahra Naghibi (*Posthumously*)

Priscilla Deena Williams
The Role of Approach Flow and Blockage on Local Scour Around Circular Cylinders with and without Countermeasures

Electrical Engineering

Firoz Uddin Ahmed
Lumped Parameter Thermal Network Modelling for Thermal Characterization and Protection of Traction Motors in Electric Vehicle Application

Mohammad Anvaripour
Improving Human-Robot Cooperation and Safety in The Shared Automated Workplace

Ismail Hamieh
Road Surface Feature Extraction and Reconstruction of Laser Point Clouds for Urban Environment
Moslem Heidarpur
Spiking Neural Networks: Modification and Digital Implementation

Fazel Mohammadi
Power Management and Protection in MT-HVDC Systems with the Integration of High-Voltage Charging Stations

Aida Mollaeian
Semi-Analytical Approach toward Design and Optimization of Induction Machines for Electric Vehicles

Rija Raju
Digital Filter Design Using Improved Artificial Bee Colony Algorithms

Bartosz Slak
Development, Optimization and Clinical Evaluation of Algorithms for Ultrasound Data Analysis Used in Selected Medical Applications

Iman Taha
Millimeter-Wave CMOS Digitally Controlled Oscillators for Automotive Radars

Engineering Materials

Mohammad Khurshed Khurshed-Ul Alam
Characterization of Laser-Cladded AISI 420 Martensitic Stainless Steel for Additive Manufacturing Applications

Adriana Dominguez Garcia
HT-UMSA Physical Simulations of Brake Rotor Metallurgical Processes

Zaixiu Yang
Friction Mechanisms of 2D Materials--Graphene and MoS2--in Different Environments: Effects of Sliding Induced Defects

Industrial and Manufacturing Systems Engineering

Mostafa Abdelrahman M. Moussa
Process Planning for Assembly and Hybrid Manufacturing in Smart Environments

Mechanical Engineering

Frank Joseph Angione
Development of a Vibroacoustic Noise Prediction Model for Multi-Layered Concentric Cylinders Under Electromagnetic Forced Vibration

Master of Applied Science

Automotive Engineering (International)

Stefano Caserini   Paolo Lorusso

Civil Engineering

Sidra Anis   Chaoyang Chu   Jeeric Penales
Magdalena K. Bednarek   Nicholas William MacMackin   Iyinoluwa Emmanuel Stephen
John Joseph Bressan   Afanur Rahman Talukder

Electrical Engineering

Mostafa S Ahmed   Aashish Joseph   Meitong Pan
Niwit Aryal   Kasra Kiani   Saad A. Pola
Bradford Bondy   Hanlin Li   Pratik Roy
Pronay Kumar Chakrobarty   Haleh Nazemi   Usha Sreeram
Maryam Hanna   Mohammad Abdul Moin Oninda   Jie Tang
Youying Hua   Madhan Kumar Thirumoorthi

Engineering Materials
Raju Karthik

Environmental Engineering

Tolulope Seun Adeleye   Shannon Melissa Deehan   Negin Ziayee Bideh
                                  Amanpreet Kaur

Industrial Engineering

Badr Mohamed Mahmoud Abdelrehim   Abdelrahman Tarek Amer   Prabhu Muthukirushnan
Hussein Abdulrahman   Maha Elia   Diana Naser
Muhammad Nadeem Akram   Parmis Emadi   Abdullah Qutb

Mechanical Engineering

Shu Chen   Nikunj Rashmikant Patel   Damanpreet Singh
Yue Liu   Avinash Guya Singh   Linyan Wang
Mudit Nijhawan   Yue Wu

Master of Engineering

Civil Engineering

Mohammad Umar Farook Abdul Nasser   Brija Himmatlal Chauhan   Jurik Rakeshkumar Jariwala
Kennady Arumugam   Venu Gopal Chennamallu   Hemal Bipinbhai Kanani
Ajay Kumar Ashok Madhan   Jemish Himmatlal Dhola   Ramandeep Kaur
Hery Ashvin Bodiwala   Mohammed Elzein   Arbaz Aqeel Khan
Mustafa Khozem Bombaywala   Gurpreet Kaur   Sreeja Naidu Mandali
Dhruvil Nandlal Borada   Madhur Hallan   Yusuf Mohammed

Prince Lakhabhai Mangukiya
Dhruv Atulbhai Mokaria
Hatim Moiz Morbiwala
Shashank Nagpal
Akshdeep Singh Oberoi
Visajkumar Kandarpkumar Pandya
Aarsh Hasmukh Patel
Harshkumar Kiranbhai Patel
Meet Arvindbhai Patel
Rishabh Vishnubhai Patel
Shivaniben Patel

Dikens Pravinbhai Patel
Ketul Arvindbhai Patel
Manishkumar Mahendrabhai Patel
Shivam Hirenbhai Patel
Urvin Hareshkumar Patel
Yash Bharatbhai Patel
Shibin Skaria Pennickara
Harsh Maheshbhai Poshiya
K.M. Zeba Rahman
Gagandeep Singh Rai
Sunitha Rajendran

Bhavani Sowmya Rayadurgam
Pratyusha Reddy
Ajay Popatbhai Rudakiya
Asif Saeed
Umang Pravinbhai Savani
Pranav Paragbhai Shah
Presha Praful Shah
Mohammed Zaid Shaikh
Sai Kiran Sindhe
Kumar Gaurav Singh
Bhoomi Bhaskar Solanki

Civil Engineering Co-operative Education

Krishna Priya Avadhanula

Meet Alkeshbhai Shah

Electrical and Computer Engineering

Yogesh Ashokkumar Adalatwala
Naveen Allumalla
Dishant Dilipkumar Amin
Ishant Arora
Prashee Arora
Arushi
Abinayaa Asokan
Karen Rajathi Anbumalar Babu Packia Raj
Vivek Bhailal Bandhaniya
Dinesh Kumar Bantu
Manavjot Singh Bedi
Jagjit Singh Bhangu
Yuva Srinivas Raja Bheri
Maruthi Sai Subha Saketh Bhogadi
Manpartap Singh Bhullar
Sunita Bishnoi
Romy Byju
Amith Chandran
Prem Sai Chatakonda
Aanal Rajesh Chokshi
Agnit Vipulbhai Contractor
Keval Girishkumar Dalwadi
Tridiv Das
Yash Bhalchandra Date
Haarish Kumar Dekshina Moorthy
Jayraj Alpeshkumar Desai
Blessy Mc Wilberteena Edison
Islam Mahmoud Elmas
Mythry Gaddipati
Sabarish Ganamukkala Jagadish
Monali Devdattkumar Gandhi
Swapnil Gandhi
Shanmukha Srinivas Ganji
Gazalpreet Kaur
Harmandeep Singh Gill
Jaskirat Kaur Gill
Sreekar Golla
Tushar Dhanjibhai Goti
Sabaree Prasath Govindarajan Hare Krishnan
Neha Goyal
Kirandeep Kaur Grewal
Gouthamsai Kumar Reddy Gundre

Zongyou Han
Jingyan He
Gowrish Kothandaraman Hemalatha
Menghai Hu
Pintian Huang
Ting Huang
Durga Manikanta Jalasuthram
Deepthi Bhargavi Jampana
Nabil Javeed
Chirantan Kalpeshkumar Jikkar
Bhaveshkumar Vitthalbhai Kakadiya
Srinivas Katragadda
Harpreet Kaur
Lovepreet Kaur
Lovepreet Kaur
Varaha Venkata Ramesh Kotyada
Satish Kuchhadiya
Lakshmi Sai Chaitanya Kudaravalli
Monica Vardhan Kumpati
Yiren Luo
Nisarg Dipakchandra Maisuriya
Chaitanya Makineni
Mohammed Arbaz Mohemmedaslam Malek
Bhavya Mandadapu
Lakshmi Deepak Manukonda
Sai Saranya Maru
Meenakshi
Devanshi Kartik Mehta
Bhagyesh Kishorkumar Modi
Gulam Mohiuddin Mohammed
Suraj Moolayil Nandakumar
Dhatchanamoorthy Murugesan
Subha Monika Nagarajan
Krunal Shaileshkumar Nagoriya
Sravan Kumar Nallabothula
Pradeep Reddy Nallagari
Navyasanthi Nandivelugu
Paladugu Naveen
Viplav Nayyar
Lakshmi Krishna Sri Charan Nelapolu
Sri Lakshmi Nimmagadda
Varshini Nimmakayala

Vasavi Priya Nirugonda
Amaka Onwodi
Nikhitha Padala
Yashaswini Pagadala
Raghunandhan Reddy Palla
Krishnaben Yogeshkumar Panchal
Samir Jayantibhai Panchal
Jagadeesh Sankar Parati
Akash Parmar
Aesha Dasharathbhai Patel
Akshit Devkumar Patel
Anujkumar Nayanbhai Patel
Harshal Narendrakumar Patel
Hemal Vijay Patel
Hemilkumar Narendrabhai Patel
Kishankumar Pravinbhai Patel
Pavan Bharatbhai Patel
Rajvi Manish Patel
Ripalkumar Kamleshkumar Patel
Urvishkumar Dipakbhai Patel
Vyomaben Alkeshkumar Patel
Shilpa Ponnathota
Akash Kiranbhai Pota
Viswas Potnuru
Sagarkumar Dineshbhai Prajapati
Farhana Rahman
Aarthi Rajagopal
Meet Jayeshkumar Rajyaguru
Shaiphali Rani
Sagar Bhavanishanker Rao
Ajith Kumar Ravichander
Jeganath Rengasamy
Alya Batool Rizvi
Alwin Mathai Leoraj Sagily Amalraj
Naveen Kumar Salapu
Harpreet Singh Sandhu
Jainam Ashwinkumar Sanghavi
Bhagyesh Vijaykumar Sanghvi
Ajay Babu Sayila
Hirak Pareshkumar Shah
Kinjal Dipalbhai Shah
Krupa Vipul Shah

Rahil Rakeshkumar Shah
Ruchit Paresh Shah
Rushabh Dharmendra Shah
Shalin Pankaj Shah
Shivjot Singh
Amardeep Singh
Paramjot Singh
Saurav Subham

Ishwarya Lakshmi Sundar
Gautam Sundaram Arulvallal
Satyavamsi Reddy Tadi
Kvinaben Sandipkumar Thakkar
Vrutika Harshadkumar Thakkar
Palash Tiwari
Jaspreet Kaur Toor
Stavan Sohambhai Trivedi
Anvesh Vasikarla

Pavani Vidya Veeramachaneni
Gunjan Verma
Mahalakshmi Vijjapu
Varun Kumar Yacham
Shiwei Yan
Prashanthi Yeluguri
Suresh Kumar Yenuganti
Muhammad Zeeshan

Electrical and Computer Engineering Co-operative Education

Ravneet Kaur Dhanju
Akhere Jane Ehineboh

Abhishek Gupta
Mohammad Mohaiminul Islam

Moneshaa Karunanidhi
Kavya Mekala

Engineering Materials

Chaitanya Pandit

Ruchit Kishorkumar Shilu
Niranjan Talakayala

Radha Sanjay Thakkar

Environmental Engineering

Ankushkumar Anghan

Rachel Apollos

Kaumil Anilkumar Panchal

Industrial Engineering

Alen Daniel Alexander
Smit Sanjivkumar Amin
Keerthana Anandakumar
Dinesh Kumar Ancha
Rajesh Babu
Manikanta Satyanarayana Bachina
Manobalaji Balamurali
Chandra Sekhar Bandila
Pradeep Singh Bhawani Singh
Ganesh Calpakkam
Dhananjayan Chandramohan
Adithya Subramanian Chandramouli
Alfred Davis
Maganjot Singh Dhami
Prasanna Vishnu Doke
Aravind Duraipandian Elangovan
Kaarthik Esakki Durai
Nisarg Hiteshbhai Gajjar
Nitish Krishnaa Gandhinathan
Lakshmi Sai Naga Mani Teja Ganduri
Siva Ram Kumar Gidugu
Abhi Kannan Govindan
Pranav Reddy Gundala Sethuraman
Mohamed Nihal Hanifa
Dhanush Jagadish
Yashwanth Jeevanantham
Venkatesh Kandavel
Arunraj Kanthimathinathan
Madhav Jitendrakumar Kapadia
Rachit Mayank Karulkar
Ragul Konda Suresh Babu

Bhargav Kumar
Meghashyam Kundeti
Jerin Vettukattil Kurian
Prem Rajeshbhai Madhavani
Raveen Sajeev Mathai
Vamshi Krishna Mekonda
Sohel Mohammed
Mohammed Adil Mohiuddin
Pon Vignesh Muthukumarasamy
Shekhar Prakash Nair
Khushbu Usmanbhai Nakum
Naga Venkata Sai Charan Nalam
Sharma Palani
Prashanth Palur
Prabhakaran Paramasivan
Vivek Parekh
Vraj Hasmukhbhai Parekh
Chirag Dineshbhai Parmar
Alay Yatinbhai Patel
Deep Manojkumar Patel
Harshil Rajeshkumar Patel
Mitrang Sanjaykumar Patel
Parth Navinchandra Patel
Urvesh Manojkumar Patel
Yash Vijaykumar Patel
Rohan Maheshbhai Patoriya
Ramith Vijaygopal Rai
Kaushik Raja
Abishek Rajagopal
Anvesh Rajak
Gopi Rajendran

Naresh Rajpurohit
Christo Raju
Ezhil Ramakrishnan
Vignesh Ramanathan
Rahul Vaishnav Ramawath
Praveen Kumar Ramesh
Alen Sabu
Mohammed Salauddin
Kushal Kumarpal Shah
Neel Swetalkumar Shah
Anwar Hussain Shaik
Jainil Ketulbhai Sheth
Jashanpreet Singh
Bhalaji Sivakumar
Sriram Srinivasan
Ajaey Sudhakar Kalpana
Nithish Suresh Kumar
Dhanavandan Sureshkumar
Shreyash Vallabhbhai Sutariya
Pon Sunder Rajan Suthakar
Darshan Suthar
Hitesh Kumar Reddy Tavisala
Deep Harilal Thakkar
Ajay Tharikopala Sundarraj
Saurabh Trivedi
Jagathish Umapathy
Mohit Jagdishbhai Varsani
Aiswarya Vijaya Bala Murugan
Saran Vuchuru
Indrajitsinh Vikramsinh Zala
Vidit Vipul Zinzuwadia

Industrial Engineering Co-operative Education

Varun Anbukkarasu

Priyadarshan Lingamurthy
Naeem Nuruddin Merchant

Gurwinder Singh

Mechanical Engineering

Lijo Abraham
Divyajeetsinh Rajendrasinh Alonja
Alexander Ashok Raj
Mohammed Omer Asif
Prakash Mansukhbhai Babariya
Vedanth Reddy Bairi
Kulakarni Balagam
Jawahar Balu
Havan Ashish Bhavsar
Prakashkumar Jayantibhai Bhavsar
Vihan Pragnesh Bhavsar
Naveen Bisla
Harsh Pravinbhai Bopalia
Phani Ram Chowdary Challagolla
Manan Nathubhai Chaudhari
Ayush Amrutbhai Chauhan
Hilendra Chetankumar Chauhan
Rajkumar Jagdishkumar Chauhan
Mufaddal Yakubbhai Chavda
Allwin Glover Chella Durai
Sajeev Chemath Jayarajan
Amit Chhetri
Smit Devangkumar Chokshi
Selvin Jeetendrakumar Dabhi
Meet Vinaykumar Dalwadi
Divyang Hareshbhai Davda
Mehulkumar Daxeshbhai Dave
Vatsal Bhadreshkumar Dave
Parth Devang Desai
Dhairya Dhamija
Parth Nannubhai Dhorajia
Harshal Mayurkumar Dixit
Vivek Venkata Chowdary Donthineni
Jignesh Dipak Gaekwad
Zhijie Geng
Prabhsimran Singh Gharial
Sandeep Ghevariya
Sagar Ghosh
Ravi Bharatbhai Godhani
Charudutt Shyamkant Gore
Atif Saeedahmed Gulati
Afreen Hameed
Haibo Huang
Ajay Antony Ignatius Jayaraj
Jaykumar Mayurkumar Jaha
Manmeet Jandu
Akhil Joseph Pereppadan
Eswar Kakani
Ujwal Kandukuri
Jayakavi Kannan
Shubham Kachchardas Kocharmutha
Sai Naga Santosh Kolagani
Brijeshkumar Dineshbhai Koshiya
Mithil Mavjibhai Maiyad
Arpit Manoj Maloo
Mulaparthi Manoz Simha
Satya Manoj Koustubh Mantha
Nithin Mathew

Varghese Mathew
Prashant Maurya
Kermit Pinesh Mehta
Mrugesh Shaileshchandra Mistry
Ujas Bipinchandra Modi
Asif Mohammed Inayath
Saikrishna Mohan
Karan Sureshbhai Monpara
Mangal Singh Mralda
Shrinaath Nagaraj
Triven Chowdary Nalabothu
Adeyinka Solomon Omidiya
Basim Basheer Panayanthodika
Kushal Rajendra Panchal
Vishal Ashokbhai Panchal
Manit Pandya
Abhishek Singh Panwar
Rushi Hitesh Parikh
Akshay Pareshbhai Patel
Darshankumar Jagdishbhai Patel
Dhrumil Prakashkumar Patel
Garvit Navinbhai Patel
Harsh Ronakkumar Patel
Harshil Pashabhai Patel
Jaimin Ashokkumar Patel
Jay Mahendrakumar Patel
Karan Suresh Patel
Kishan Dharmendrabhai Patel
Kishan Pankajkumar Patel
Kishan Mahendrabhai Patel
Manthan Bharatbhai Patel
Maulikkumar Pravinbhai Patel
Meet Shaileshbhai Patel
Mihir Navanitkumar Patel
Monark Rajendrakumar Patel
Neel Bhoopendrabhai Patel
Neel Bhupendrabhai Patel
Neel Vinaykumar Patel
Parth Ashokbhai Patel
Parth Ganpatbhai Patel
Parthkumar Pravinbhai Patel
Pathik Pravinbhai Patel
Pathik Rajnikant Patel
Rahulkumar Ramchandra Patel
Raj Jitendrabhai Patel
Richee Bachubhai Patel
Saurabhkumar Kanubhai Patel
Tilak Piyushbhai Patel
Umang Dhirendrakumar Patel
Umangkumar Prakashkumar Patel
Urvish Jitendra Patel
Utkarsh Anilkumar Patel
Valmik Sheetalkumar Patel
Vishwam Maheshbhai Patel
Akhil Pathalapati
Sooraj Pathukkudi Rajendran
Rahul Pawar

Chandra Mouli Peddireddi
Rajesh Reddy Pinnapureddy
Ajay Pippala
Pracheesh Prabhakaran
Hardikkumar Bipinkumar Raiyani
Jovith Kiran Rajappan
Jigar Haresh Rakholiya
Ram Charan Theja Theja Ramayanapu
Naveen Babu Ramesh Babu
Sujal Pareshkumar Rana
Girirajsinh Sureshkumar Rathod
Harshil Manish Raval
Prince Surendrasinh Rawat
Sagar Nitinkumar Ruparelia
Sanjay Saini
Sourav Saini
Sibin Sajan
Anuj Dipan Shah
Divyakumar Hiteshkumar Shah
Jainam Shah
Meet Bhupendrabhai Shah
Siddharth Gaurangbhai Shah
Vismay Ketankumar Shah
Manthan Hitesh Sharma
Unmeshkumar Sushilkumar Sharma
Hirak Shelat
Karanbir Singh
Bikramjeet Singh
Ranjodh Singh
Saranjeet Singh
Simran Singh
Gokul Sivakumar Vidyavathi
Raghav Soni
Vaibhav Priteshkumar Soni
Sebin Sunny
Vivek Nileshkumar Tailor
Gaurang Kishorbhai Tandel
Himanshukumar Kishorbhai Tandel
Parthav Ratilal Tandel
Virenkumar Dileshbhai Tandel
Lijo Thankachen
Manishankar Thiruppathy
Richard Doss Thiviam Jayakumar
Linto Thomas
Rajan Rasikbhai Thumar
Ronakkumar Vinodbhai Tikariya
Kevalkumar Rajeshkumar Trivedi
Satish Tummala
Salah U. Din
Sanu Kaushalkishore Upadhyay
Arshit Ishwarbhai Vaghasiya
Vineesh Vijayan
Vishranth Vanisree Giridharan
Vishal
Sai Prudhvi Voora
Meet Rameshbhai Vora
Wendi Wu
Cheng Zhang

Mechanical Engineering Co-operative Education

Kavi Navinkumar Gorana	Renu Surya Pratap Murikipudi	Kavita Nibhani
Davoud Motahhary		Jay Chetankumar Patel

Mechanical Engineering - Automotive Field

Leela Dhana Vara Prakash Adabala	Christopher Kingsly	Bhavesh Patil
Ayomide Elijah Ademilua	Aaquib Ali Kizhakkeyveettil Abdul Rahiman	Pranav Atmaram Pawar
Sajas Ahmed	Harmanjot Singh Kochhar	Bivin Pulikkottil Benoy
Uttam Mahendrakumar Akhani	Kukeshajanth Kodeswaran	Vivek Rajkumar Punjabi
Sriniveditha Allu	Mridul Kohli	Rushi Hasmukhlal Purohit
Sai Krishna Ancha	Dharmesh Jitendrabhai Koyani	Kuldipsinh Anopsinh Puvar
Deepak Benitoraj Antony Arulraj	Akash Praveen Kumar	Rohit Kumar Pyarasani
Justin Arockia Raj Antonyraj	Aravindh Kumaran	Jishnu Raj
Santaram Naga Aravind Anupoju	Hari Gautham Kundavi Devi Natarajan	Ashwin Ramesh
Atheender Arvindramalingam	Veada Priyudu Kurapati	Dipak Rana
Faisal Jamal Ashraf Jamal	Shuoyi Liu	Manishkumar Shyambhai Rathod
Kaustubh Ashok Baraskar	Karthick Mahadev Shivpuje	Sai Pranay Raula Pavan
Jayantkumar Anilkumar Bhatt	Shree Krishna Mahalingam	Premkumaar Ravindran
Bipin Basavaraj Bilur	Bhavesh Kantibhai Maniya	Harsh Sushil Rupela
Veda Nikhil Chalichama	Sarthak Rasikbhai Maniya	Karamjit Singh Jaswant Singh Saini
Jathin Chandanapalli	Suraj Manoharan Sornalatha	Shalin R. Sanghvi
Zhicong Chen	Joga Rao Mantha	Kishankumar Govindbhai Savaliya
Kadavakuti Srikar Chinmaya	Shoaib Ahmedbhai Memon	Gokulanaath Sekar
Sathvik Chinnamaru	Sainath Modalavalasa	Jaynik Tarunbhai Shah
Vaibhav Chopra	Yash Modi	Shivam Jiteshkumar Shah
Gauravkumar Heeralal Chouhan	Ramneek Singh Multani	Ankitbhai Vitthalbhai Siddhapara
Alen John Christian	Induwara Munasinghe	Anshuman Kumaar Singh
Romil Hitenbhai Dalvadi	Akash Muralidharan	Guneet Singh
Udhay Sakthi Damodaran	Sai Nikhil Mustyala	Harpreet Singh
Abhinay Kumar Daram	Raghavan Natarajan Nadar	Navneet Singh
Parag Hiteshbhai Dave	Nikhil Navaneetha Perumal	Prabhsandeep Singh
Hardik Ajitkumar Desai	Pierre Ouba	Rohit Singh
Priyankkumar Ashokbhai Desai	Harsh Rameshchandra Panchal	Sahib Singh
Anudev Devan Kumarri	Abhishek Pankajbhai Pandya	Darpan Balubhai Solanki
Sagar Dhakate	Bhargav Omprakash Pandya	Dhruv Rajendrakumar Soni
Prajwal U. Donni	Dhavalsinh Pravinsinh Parmar	Rajat Ajaykumar Soni
Sheldon John D'Sa	Parth Maheshkumar Parsana	Harsh Ghanshyam Sonkusre
Seenuvasan Ganapathy	Bharath Parsi	Hammash Abbas Sonsara
Shweta Gopalbhai Gondalia	Adit Patel	Vishnu Sreekala Gopal
Shuai Hao	Archit Dharmeshbhai Patel	Anand Girishkumar Thakar
Akshat Jain	Arpitkumar Rajnikant Patel	Punit Sanjaykumar Torawala
Ashishkumar Arvindkumar Jain	Avinash Pravinbhai Patel	Chintan Nileshbhai Trivedi
Rajdeep Yogeshbhai Jakhar	Deep Narendrabhai Patel	Paras Jashwantkumar Varia
Krupal Jitendrakumar Jobanputra	Jugal Maheshbhai Patel	Bharath Raghav Veeranki
Jomin Joseph	Meet Dineshkumar Patel	Sri Raga Madhuri Velpula
Amit Joshi	Meetkumar Jayeshbhai Patel	Aashrith Rachamadugu Venkata
Stavan Kaushalbhai Joshi	Mit Kamleshbhai Patel	Rishabh Verma
Mani Sharan Kandakatla	Mithilesh Bharatkumar Patel	Shanmugam Viswanathan
Ravinder Kaur	Nachiket Miteshbhai Patel	Xiaofei Xu
Mohd Saad Khalid	Pranavkumar Bhikhubhai Patel	Liqi Zhang

Mechanical Engineering - Automotive Field Co-operative Education

Robson Demetrius Araujo Abreu	Yash Kirittkumar Jain	John Anderson Evaristo Ribeiro
Arshpreet Singh Aujla	Jils Jolly	S K Paribesh Prasad
Abhishek Chakravarty	Dharam Katyal	Abhishek Dineshbhai Sharma
Rajdeep Dhar	Haoye Liu	Ratneshkumar Sahibsingh Singh
	Love Deepakkumar Patel	

Bachelor of Applied Science

Honours Civil Engineering

Amr Abdel Rahman

Mohammad Abulaban
Justin Gurske*

Kolja Nikac

Honours Electrical Engineering

Michael Anthony Boutros

Nyasha Samuel Kapfumvuti
Mahmoud Sawan

Abdulwahb Zamzami

Honours Electrical Engineering Co-operative Education

Ivana Jamina

Honours Environmental Engineering

Bushra Khan

Honours Environmental Engineering Co-operative Education

Eric MacMillan

Honours Industrial Engineering

Fahd Alayad
Abdulmohsen Saleh Alkhurayniq*
George Dimech
Nasser El-Helwani*
Charles Adimchinobi Ezeigbo
Abdullah Fayez D. Felemban

Yuhang He
Yiyang Hu
Sergey Ivanov
Tracey My Ngan Kim
Vikram Singh Lall
Alger Lobo

Ian Palmer McHaffie
Mishka Moodley
Atef Muawad
Muhammad Naziri*
Zain Tariq Shaikh
Xiaolun Wang

Honours Industrial Engineering with Minor in Business Administration

Nada Ashraf Abdelkader
Mohamad Al-Kadri

Yupeng Cao
Breeze Marinia Fenton*
Jaspreet Kaur Kalsi

Tuba I. Tuba
Mustapha Zghal*

Honours Industrial Engineering with Minor in Business Administration Co-operative Education

Melina Fartaj*

Honours Mechanical Engineering

Evan Boyd
Kevin Chau
Ayinmo Enjugu
Mahad Geele

Ali Kiki
Yanru Lu
Petar Mitrev
Tirth Vinodkumar Patel

Saiprashanth Ramesh
Robert James Roeder
Musa Sleiman
Aravind Vykanti

Honours Mechanical Engineering with Automotive Option

Cavan Matthew Hesketh

Ricardo Andrew Zorro Rabanes

Honours Mechanical Engineering with Automotive Option Co-operative Education

Mohammad Jawed

Kacey Lombardo

Bachelor of Engineering Technology

General Stream

Aziz Abdul
Wiam Abdulla
Shimna Ammiyangara

Wessam Elhajj*
Marcin Robert Gasiorowski

Myah Jackson
Damilare Odusanya
Campbell Stephen Robson

Mechatronics Stream

Eiwan Benyamien*
Cody Bougie*
Erik Kevin Damphouse*
Milan Gasko*

Michael Lozon*
Malavika Mathath*
Chady Mouawad*

Robert Claude Organ*
Jessica Provost*
Omar Salim*
Jagdeep Singh*

* Graduating With Distinction

Honours Certificate in Civil Engineering

Falah Najeeb Yousef Admat

Honours Certificate in Industrial and Management Engineering

Mohammad Talal Adib Al-naser*

Certificate of Commemoration

Ryan Friesen	Pedram Jadidi	Hamidreza Setareh Kokab

Certificate of Commemoration to University of Windsor Community

Mohammad Abaspour Ghadi

****

* Graduating With Distinction

FACULTY OF HUMAN KINETICS
Dean of the Faculty: Dr. Michael Khan
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Board of Governors Medals

Faculty of Human Kinetics:
Kinesiology – Bogdan Cristian Suciu**

President's Medal

OLIVIA JULIET JOHANNA SANDERS**

Conferring of Degrees in Course

Doctor of Philosophy

Kinesiology
Laura Mae Marie Chittle
The Influence of Relative Age on Developmental Outcomes in Female Ice Hockey

Ashley Duguay
Athlete Leadership: New Directions for Research and Practice

Sara Santarossa
Mothers and Young Adolescent Daughters in the Online World: Navigating Dynamics, Understanding Maternal Modelling of Psychosocial Health and Physical Activity Behaviours, and Collaboratively Creating Educational Materials

Master of Human Kinetics

Keifer Kevin Bell	Paige Mackenzie Johnston	Jean-Francois Scraire
Andrew Carson Berard	Shelby Leigh Anne Johnston	Daniel John Upham
James Allan Caron	Ricky Eddy McNally	Nathaniel Vaikla
Bryan Philip Craig Dutot	Ranny Michael	Kevin Eric Scott Wilson
Mallak Hamatto		Kevin Ye Su

Bachelor of Human Kinetics (Honours Kinesiology)

Honours Kinesiology with Movement Science

Adriana Rebeca Abbas	Yolla Berjawi*	Jarrod William Cullen
Richie Akinsanya	Tyra Blizzard*	Samantha Nicole Dakin
Rawan Salem Al Najjar	Ryan Kelly Burrows	Maha Gamal Moha Darbi*
Sarah Kirsten Altenhof*	Samantha Rose Butterworth	Kathryn Davidson
Jaime Elizabeth Anderson	Madison Edy Chambers	Kiara Desimone
Sarah Anne Angus*	Alexis Brianne Cheswick	Nicholas Dettinger
Erin Rebecca Axford	Sean Clark	Anthony Nicholas Di Franco
Kyla Nicole Bechard	Vanessa Christine Cotter*	Christopher James Dion*
Jeffrey Beech	Madison Breann Cowlan	Allison Holly Donaldson*
Stephanie Ann Benninger	Glendon Croley	Cole Stephen Dorion
Bentivolio Umberto Bergamin**	Rebecca Eileen Crowley	Andrew Ryan Dureno

* Graduating With Distinction
** Graduating With Great Distinction

Joshua Stephen Dycha*
Mohammad El-Nassar
Husein El-Sinawi
Alister James Ethier
Muna Fadel
Paolo Vito Finazzo
Samantha Nicole Funkenhauser
Jacob Steven Galasso
Shaina Marie Gazarek*
Olivia Elizabeth Giannotti
Samuel Jacob Girard*
Jasmine Joan Goor
Monique Lillian Griffith
Kira Grace Hadland*
Fatime Hamade
Malak Hamid
Gordon Darrell Steven Hill
Ashakie Hodge-Browne
Liam Hogan
Dylan Edward Walter Holmes
Jasmine Marie Hurst
Owen Robert Janisse
Molly Emma Jenkins*
Katie Jessica Jones*
Mikala Anne Jones*
Megan Elizabeth Kalbfleisch

Valentine Owambi Kitoko
Cody William Knights*
Diana Nicole Krstevski*
Aryan Ramdhika Kurniawan**
Joseph Matthew Landriault
Zhuoxuan Li
Merid Ashley Luna
Braeden Ernest Lyle*
Amy Jean Maitre*
Sara Ryanne Mallette
Chantel Andrea Mendes*
Natalie Lauren Nardone*
Gohar Nasreen*
Tatiana Mutolo Ngongo
Abigail Grace Palombo
Jorja Paraskevopoulos
Alexandra Stephanie Payne*
Ryan James Pellerin
Tia-Ly Thi Pheng
Adam Michael Pickel
Christopher Joseph Poloniato**
Madeline Alicia Potts*
Scott Eric Poulin
Michael Qaqish**
Sydney Rae Reaume

Fiona Marjorie Rocheleau
Dana Grace Rosaasen*
Larissa Jacqueline Rowdon*
Kaden Roy
Olivia Juliet Johanna Sanders**
Victoria Santaguida
Sara Anne Scarfone*
Ryan Michael Scherer
Mason Byron Sheppard*
Jocelyn Snowdon
Nikola Spasojevic
William Douglas Stadder*
Natalie Margo Stewardson*
Bogdan Cristian Suciu**
Namrata Talwar*
Matthew David Thompson
Claudia Margarite Town*
Curtis Tremblay*
Tamara Trninic
Mc Kayla Marie Van Boxtel
Riley Wade Vandenborn
Elizabeth Ruthanne Vander Veeken
Sarah Rose Barbara Vellinga
Kobi Remus Villavecer
Katelyn Rose Wiebe
Ahmad Zaitoun

Honours Kinesiology with Movement Science Co-operative Education

Sebastian Cedric Arnold
Averey Devereaux*
Megan Leblanc
Michelle Louwagie*

Bryan Robert Millard*
Nina Nguyen Ngo
Kyla Percy*
Jacob Pickersgill*

Brandon Michael Pope-Ferguson
Jacob David Roy*
Jessica Diny Mary Simpson
Jarrod Andrew Smith*

Honours Kinesiology with Sport Management

Malik Christopher Chase
Jenna Leigh Chaykowski
Luca Paul Ciotti

Carla Noelle Colomba
Vanessa Rose Despenic*
Jared Joseph Garon*
Andrew Hermiston

Carolyn Elizabeth McConkey
Nathalie Mero
Anthony Joseph Pelle

****

* Graduating With Distinction
** Graduating With Great Distinction

FACULTY OF LAW

Dean of the Faculty: Dr. Christopher Waters
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Valedictorian
KAYLA RUTH SMITH

Board of Governors Medals

Faculty of Law:
Juris Doctor - Imad Alame
Juris Doctor – Canadian and American Program - Kaitlyn Danielle Drury
Conferring of Degrees in Course

Juris Doctor/Master of Social Work

Kaffie Abdirashid	Cherlene Cheung	Alexandria Evan Hamilton
Lacy Natasha Carty		Mandeep Kaur Singh

Juris Doctor

Ashkan Abbas-Zadeh-Halabi	Tess Naomi Dookwah	Ilham Islow
Stephanie Allison Abbott	Brandon Matthew Doughty	Liis Mari Jakobson
Ledya Abdalla	Siobhán B. Dundon	Jessica Justyna Jakubowski
Faisal Mashood Afridi	Mariana Hany Ramzy Zaky Eid	Mariam Jammal
Fatima Ahmed	Nirosiga Elankeeran	Matthew Jacob Jantzi
Sabrina Alaimo	Christina Maria El-Azzi	Kristen Kathleen Victoria Jeavons
Imad Alame	Sahar El-Kotob	Yun Jiang
Evonne Alkhatib	Ebony R. Evans	Alim Akbar Jiwa
Clairice Ann Allsop	Leesa Imelda Farah	Nicholas Kandel
Garland Anthony	Michaela Serafina Fazio	Allahnah Karmali
Demetra Wendy Aspiotis	Stanislaw Fedun	Brandon Kyle Keshen
Yalda Aziz	Rebecca Isabel Flynn	Ziyoung Kim
Zachary Battiston	Meghan Brittany Fyall	Adrianna Klukowska
Shantal Shenel Beckford	Aaron Zelman Landers Gideon	Mohamad Kmaiha
Matthew Christopher Bedini	Sukhdeep Singh Gill	Dana Taylor Kriszenfeld
Diana Betlej	Parmis Goudarzimalayeri	Mohamed Kurdi
Tanner Joseph Blomme	Andrew John Gould	Alexandra Erin Lawrence
Elizabeth Branopolski	Somya Grover	Siqi Li
Riley Clifford Brooks	Stephen Bryce Guenther	Sara Marie Little
Joseph Timothy Brydon	Sarah Theresa Gulas	Felicia Rosemary Lozon
Malachi Cameron	Ashley Jessica Haines	Karly Alexandra Lyons
Megan Elizabeth Campbell	Adrian Halpert	Mitchell Daniel MacLean
Po Kwan Tara Chan	Summer Harb	Alanna Marchese
Savreet Kaur Chuckal	Laura Violeta Hasca	David Lucio Marini
Christopher Patrick Coccimiglio	Rachel Carol Herscovici	Shawnee Matinnia
Tully Dolan Cogswell	Benjamin Dean Hiebert	Eric Anthony Miller
Peter Alexander Dalglish	Sarah Lynn Horsfall	Komel Mirza
Elnaz Dast Parvardeh	Ali Hossein Tafreshian	Sonya Maeve Molyneux
Garrett Mathew Davidson	Antonia Nickolaeva Hristova	Monica Violeta Moran-Venegas
Christian Davies	Rawan Hussein	Lucas Adam Morini
Shahnaz Habib Dhanani	Luigi Angelo Iantosca	Ava Naraghi
Gabriella Di Santo	Faiza Farooq Ikram	Buchra Nassab
Vincenzo Francesco Di Vito	Tiffany Joyce Ing	Aadil Nathani
Andrew Amedeo Guido DiMarco	Endrita Isaj	Stephanie Paige Nicholson

Jasdeep Singh Nijjer
Stephanie Pangowish
Alexia Lauren Parente
Samir Parmar
Aesha Patel
Alexandra Jane Paul
Erin Pauline Pervin
Arman Ricardo Poushin-Coronado
Jennifer Caroline Prashad
Sania Rashid
Somayeh Rasouli
Christopher Alexander Rohr
Curtis Patrick Ryan
Shloka Saini
Amar Sarkaria
Nicholas Jay Sciuk
Kabeer Sethi

Irma Shaboian
Michael Garrick Shafarenko
Laura Elizabeth Shamess
Farah Shamoun
Eiman Sharifpour
Shahrouz Shoghian
Cory Joseph Steve Simard
James Mackenzie Simpson
Mandeep Pannu Singh
Stefan Alexander Sistilli Sguazzin
Bennison Smith
Kayla Ruth Smith
Alethea Mireung Song
Khelan Soogrim
Tasha Stansbury
Natasha Stevanovski
Ilia Louise Sumner
Farnaz Ft Talebpour

Rosamund Taylor
Ali Shamsuddin Tejani
Vinaykumar Thapliyal
Natalie Nicole Tomaszczyk
Claudia Chi Ching Tsang
Aspen Aspasia Tzalalis
Sonalika Verma
Michelle Daniela Vinitsky
Carly Shane Waisglass
Madeline Ruth Warren
Amanda Ellen Willing
Lianna Elizabeth Woollard
Shereen Juel Worrell
Han Flora Wu
Shinthuja Yogeswaran
Sidney Zarabi
Zhuying Zhuo

Juris Doctor

Canadian and American Program

Nicolas Daniel Amodeo
Alyssandra Antonangeli
Iris Bannon
Tejvir Singh Bimb
Michael A. Cappabianca
David William Joseph Carr
Jonathan Manuel Carvalho
Lina Chaker
Jessica Chen
Jane Chung
Emily Ann Coulson
Zaia Donan Sargon Daniel
Joshua Patrick Thomas Deehan
Jessica DeFilippis
Victoria Maria Delle Donne
Katherine Irene Dempsey
Matthew Ethan Douglas
Kaitlyn Danielle Drury
Hiba Fasih
Pavel Filatov
Cristina Fulop
Paul Anthony Gagliese
Manroop Kaur Ghuman
Zachary Avram Glazer
Victoria Alma Gordon
Andre David Goyo
Spencer Green
Kriti Gupta

Elizabeth Gutierrez Nadal
Cory Gutterman
Andrew Thomas Hall
Homira Haqani
Nicholas Richard Harris
Meghan Ashley Harrogate
Matthew Aaron Himmel
Matthew Holowatsch
Aaron Mark Hummel
Alyssa Riyaz Hussein
Waseem Jarjis
Anish Kamboj
Kerri Kenward
Novera Hasan Khan
Varda Sunbal Khan
Hwachung Kim
Amanda Komljenovic
Shane Ashneil Kumar
Radha Lamba
Julie Lamothe
Ila Lateran
Kang-Wook Lee
Bhavini Lekhi
Kayley Cheyenne Leon
Kyle Joseph Ludmer
Joanne Mandy Lui
Maria Macasaet
Stewart Roderick Maier
Harsh Makhijani

Shaliney Malhotra
Karman Preet Kaur Mangat
Justin Borna Mayer
Revathi Moturi
Daria Mukhina
Natasha Jasmine Naresh
Narges Naseri Harandi
Christian A Nianiaris
Adam John Ostermeier
Maxwell Peter Pappin
Tiana Perricone
Anthony Petrucci
Jack James Quimby
Juliana Devi Ramkissoon
Andrea Elisa Ricci
Alissa Scarcello
Kaila Marie Scarrow
Alison Grenside Shields
Hannah Luise Siegmund
Sharon Singh
Corey W. Sutton
Hayden Mackenzie Trbizan
Irbaz Abdul Wahab
Connor Ritchie Walton
Brett Davis Webster
Brock Nathaniel Withey
Jared Wortzman
Farah Zaman

****

FACULTY OF NURSING

Dean of the Faculty: Dr. Linda Patrick
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Board of Governors Medals

Faculty of Nursing:
Nursing - Jennifer Judith Hamel**

Governor General's Silver Medal

JENNIFER JUDITH HAMEL**

Conferring of Degrees in Course

Master of Nursing

Yasmeen Alkhouri	Keri Lynn Durocher	Tracy-Ann Shandail Reid
Gulis Baltes	Carly Catherine Grace Goossens	Selena Santia
Dorothy Christine Bear	Erin Hill	Brooke C. Sibbick
Debra L. Charron	Ravyn Paige Leona Lambkin	Andrea Simone
Ivana Crvenkovski	Kelly S. Mailloux	Andrea Terese Spadafora
Vanessa Helen Del Bianco	Lauren C. Meyer	Heather Sweet
Alicia Dolba	Shukri S. Mohamed	Holly Elizabeth Trepanier

Master of Science in Nursing

Jessica Sydney Chu	Lisa Marie Hamilton	Lauren E. Kopchek

Bachelor of Science in Nursing

Honours Nursing - Collaborative Program

Amina Mohamed Abdi	Simra Aziz	Swippendeep Batth*
Nazia Ahmad	Isabella Mia Baggio	Laine Jae Elise Beaton*
Shahida Akter*	Dominique Lisette Baillargeon*	Gabrielle Beauchamp
Julia Ann Albeartie	Faith Madison Baker	Kaitlyn Beaulieu
Dadly Raichel Alexander*	Laura Michelle Baker*	Kelsey Anne Beausoleil*
Syeda Midhat Ali	Vito Balenzano	Meracel Bechard*
Alyssa Alwis*	Lorcan Balfe	Carlie Sandra Becigneul
Chantal Marie Andary	Andrea Lauren Banwell	Hanan Benabdalla
Cameron Alec Anger	Laura Bara	Ahmed Ibrahim Bhat
Julliet Anyinke	Kayla Jean Barber	Manmeet Kaur Bhogal
Christine Ao*	Kelly Lynn Barida	Alecia Lynn Bisschop
Alyshia Arnold	Olivia Francis Bartolini	Megan Bisschop*
Ranin Asfour	Madison Kate Basso*	Bailey Dawn Blondeel
Ayodeji Hussein Asiru	Brittany Bates	Garret Gordon Blunt

* Graduating With Distinction
** Graduating With Great Distinction

Nicole Grace Bondy*
Olivia Ayn Bordignon*
Shekinah Blessing Bourner
Brianne Bianca Bracci
Courtney Lee Anne Brackenbury
Bethany Brydges*
Selame Sultan Bulto
Samantha Rose Cahill*
Kayla Lynn Campbell
Chelsea Ann Campbell-Wright
Alyssa G. Campeau
Emma Anne Violet Carnegie*
Felecia Cervini
Diana A. Chantler
Laura Elyse Chauvin
Kalinda Chea
Carina Chiarotti
Tracy Tsz-Yee Chiu*
Cassidy Marie Chownyk
Claire Noelle Collinson
Adriana Congi*
Ashley Anne Coyles
Fernilyn Cruz
Blair Alexa Cullen
Bryanna Mccabe Hunter Currie
Avery Mckenney Ann Daamen
Jacqueline Paige Dagenais
Jessica Mary Dales*
Julia Elizabeth D'Angela*
Hannah Victoria Daniel
Erika Georgette Dault
Angela Tomas De Belen
Celani de Leon
Abigail Dawn Dees
Deborah Nash Gegato Dela Torre
Sydney Lane Delicata*
Jessica Louise Demers
Avery R. Dewagner
Trang Ngoc Doan*
Daniella Dombroski
Jillian Donck
Mitchell Reid Donnan
Reiley Victoria Dresser
Candice Carlaine Dufour
Joanie Lynn Dunlop
Devyn Jean Dunmore
Richard Thomas Dunning*
Susan Durocher
Aneta Iwona Dusik*
Victoria Lee Dyck
Taylor Dyer
Tyler Bradley Edmondson
Mouna El-Sayed*
Branden Wayne Emery
Olivia Isabella Ermers*
Hanna Marie-Louise Esfahanie
Immaculate Esho*
Leanna Kaitlyn Fabbro
Susane Fakih

Jocelyn Anne Fantin*
Saleem Farhat
Brittany Marie Fast
Fereshteh Feizi*
Priscilla Fernando
Shawn Donald Fitzgerald
Anne Fletcher
Victoria Rozell Flooren*
Cassandra Marie Forte
Zoe Elizabeth Fouriezos
Samantha Fraser*
Hsueh-Liang Fu*
Nicole Ann Gagnon
Rachelle Ashely Gagnon
Nakeitha Desreen Galati
Kendra Victoria Claire Gaspar
Melanie Soares Gaspar
Kassandra Nicole Gaudette
Daniella Reighanne Gemin
Justin-James C J. Gignac*
Jean Elizabeth Anne Gillis
Hikmot Giwa
Satroop Kaur Gogia
Raquel Alexandra Gomez
Sarah Lynn Grennan
Jaspreen Kaur Grewal
Louise M. Grona
Abbie Elizabeth Guignard*
Miriam Guiliana*
Sarah Fatima Haidar
Jennifer Judith Hamel**
Phoenix Elektra Hamelin
Tavia Tichina Hamilton
Grace Amanda Harangozo*
Mercedes Hardy*
Marisa Hartford*
Karen Harvie
Jessica Helou*
Monica Hoang
Connor F. Holgate
Jordan Jean Marie Hooper
Shalena Danielle Horst
Samira Osman Huriye-Ali
Mikayla Jordan Hurst
Selena Huynh
Sarah Orla Ann Hyland*
Dastu Ibrahim
Precious Igbinevbo
Maryrose Janisse*
Luke Jendroski*
Mark Patrick Carroll Johnson*
Allison Elizabeth Johnston*
Taylor Talia Larissa Johnston*
Avery Elizabeth Jones
Sukhwant Kanwal
Haley Mackenzie Kapetanov
Sabrina May Kember
Teri Elizabeth Klassen
Jareth Kustra

Clarice A. Labrado*
Kaitlyn T. Laliberte
Joseph Ronald Laporte*
Chloe Kaitlyn LaRue
Aurora Jayne Lascelle*
Marissa Ann Lebert
Amy Leclerc
Emerald Lefave
Samantha Sarah Anne Lester
Justine Lindsay*
Madison Liolli*
Anton Miguel Llorca
Doy Estelle Loulas*
Summer Luu
Olivia Lynka
Jasman Kaur Maan
Ashley Ellen Shirley Irene MacFie
Hillary Paige Mackenzie
Laura Manton
Juan Carlos Marentette*
Lynette Caroline Markhoff
Jordan Elizabeth Marleau*
Kara Ashley Marleau*
Sarah Nicole Masse
Cassandra Nicole Mastronardi
Geanina Mg Mate
Nora Matenda-Zambi
Katherine Mazur*
Fiona McCaffrey
Madison Alexandria McCartney
Lee McFadden*
Haley McKeen
Lindsay Danielle Mclachlan
Colin Lee Mcvittie
Katy-Lynn Jean Meloche
Sarah Beth Menard*
Arielle Michaud
Kaytlyn Micinski*
Theresa Lynn Millben
Abigail Rose Kathleen Miller
Filip Mirkovic
Zahraa Fattima Mohammad
Melissa Linda Montaleone*
Jacklyn Sophia Moraal
Tiffany Christine Mos*
Saida Mukhtarkhodjaeva
Jaime-Lee Mariam Nantais*
Jailynn Margaret Nelson
Jennifer Diem Phung Ngo
Cassandra Taylor Nicholas*
Cameron Leigh Nickels
Isabel Alice Nika
Kimberly Klara Nywening
Emmelie Sarah Olson*
Isaac Osamudiamen Omonoyan
Courtney Meghan Oriet
Maia Mackenzie Osborne
Olivia C. O'Toole
Danielle Ouellette

* Graduating With Distinction
** Graduating With Great Distinction

Macie Ouimette
Mayowa Olumoyewa Orits Oyerinde
Victoria Mackenzie Page
Maxine Ossilde Palazzi
Jennah Marie Pamenter
Christopher Pangilinan
Julia Beatrice Pannitto
Charlene Marie Parsons
Simran Patel*
Nicole Lynn Pearce
Stephanie Nicole Pearson*
Adrian James Pelleboer
Marisa Pellerito
Tanya Grace Peters
Nadia Phulpoto
Christine L. Pimentel
Jordan Leigh Pisiak
Michelle Dawn Playter
Haley Erin Pletcher
Elaine M. Pollock
Nicole Preston*
Victoria Preston*
Hailey Prieur
Jocelyn Prieur
Alexis Louise Provost*
Hannah Grace Punga*
Mokhles Ramadan
Parveen Razvi*
Ashley Corinne Reid
Kara Julianne Reintjens
Jonatan Jeronimo Rivera
Gabriella Ersilia Roberts
Taylor Roelens
Natalie Marie Romanello*
Tha Roun
Sara Anne Rowse
Alana Ruggaber*
Kyle Ruggaber*

Victoria Ruggiero*
Danielle Gillian Russell*
Rachel Victoria Rutckyj
Amy Ryan*
Jihye Ryu*
Faraz Ahmad Saeed
Ala'a Salameh
Muna Salameh*
Sami Saleh
Valerie Linda Salemi
Davor Samardzic
Melissa Katrina Elisabeth Sands
Mckenna Sarafin*
Khadija Sayyeda
Brianna Catherine Schipper*
Heather Anne Schreiner**
Hailey Victoria Scott
Jayden Ashley Scott*
Kailey Elizabeth Scurr
Brittany Marie-Claire Seguin
Crystal Rose Seguin*
Jameley Jamaal Shaban
Jessica Shaw*
Zayneb Shihadi
Emillie Siemens
Katelyn Ann Sinasac
Stacey Slegers
Korin Smith
Maria Christina Spagnuolo*
Aleksandra Spiric
Mensur Srkalovic
Chloe Aurora Stachow
Emily Elizabeth Stachow
Nicole Rebecca Stewardson
Jessica Josephine Stewart
Chloe Katherine Jean Stuart
Deanna Cheryl Jordyn Sweazey

Nicholas Hume Tupling Tales
Nicole Lauren Tamm
Tiffany Nicole Taylor*
Conner Joseph M Ichael Tazzman
Valdez Derrick Tchoukou Youmsi
Angela Serena Thomson
Nicole Jacqueline Tiedeman
Sarah Tojino
Laura Anje Top*
Sierra Mackenzie Tousignant
Madisson Marie Sharon Trepanier
Natalie Xiaomin Turko
Marcel Andres Xavier Uriarte
Haley Marie Vanderburgt
Adam Thomas Vanderlaan
Felicia Mary Varacalli*
Alyssa Ann Vennettilli*
Rachelle Villa
Grace Ann Villegas
Thomas Louis Virban
Victoria Danielle Vuk*
Ashley Elizabeth Vukovic
Lauren Megan Waldbillig*
Cassandra Lyn Welacky*
Zoe Wheeler
Ashley Anne White
Morgan Taylor Wickham
Atlee Adelard Michael Williams*
Ryan Peter Wilpstra*
Sara Suzanne Wolf
Rachel Victoria Woods
Eric Brian Harvey Yacks*
Angel Tria Berdin Yosoya
Matthew Daniel Zacher
Noor Zahwe
Alexandra Zalewski**
Natalie Zarac
Konnor Fenton Zruna*

****

* Graduating With Distinction
** Graduating With Great Distinction

ODETTE SCHOOL OF BUSINESS

Dean of the Faculty: Dr. Mitchell Fields
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Board of Governors Medal

Business Administration - Andrew Spencer Wilson**

Conferring of Degrees in Course

Master-Business Administration

Ali Arif	Nour Hachem	Jordan Ashley Neposlan
Andrew Barno	Syed Adeel Abbas Kazmi	Bojan Pajic
Ryan Donald Boyd	Brandon Kyle Keshen	Emma Philomena-Esther Paterson
Peter Branko Brcic	Brandon John Lalonde	Andrew Peter Perciballi
Richard Micheal Chan	Duncan Lam	Santiago E. Rivera
Christine Marie Colautti	Zifeng Ling	Ashley Lauren Routliffe
Charles Connell	Vladimir Livrinski	Bojan Sever
Martin de la Orden	Shaun J. Martinho	Mackenzie M. Siddall
Abigayle Adeline Diemer	Jacob Michael Mccourt	Nicole Taylor
James William Docker	Matthew John McReynolds	Samia Shahid Toor
Alison Marie Dunlop	Shivani Mehta	Lauren Joy Van Niejenhuis
Mohamad Fawaz	Renata Meo Primorac	Sahithya Veeraraghavan
Paul Bal Gatkek	Francesco Giovanni Minardi	Hang Thi Vu
Kevin Joseph Girard	Julian-David Nahal	Karel A. Zouzal
	Joseph Anthony Najem	

Master of Management

Human Resources Management

Chinenye Precious Akpunonu	Huangfei Liu	Showmik Ahmed Refat
Shuotong An	Zehui Liu	Praveer Singh Sandhu
Kunal Arora	Shikha Minesh Mehta	Parneet Kaur Sekhon
Karen Correia	Mahir Sadnam Mollah	Prasenjit Sen Gupta
Dhyana Devenkumar Dave	Arghavan Najafi	Sartaj Singh
Jaspreet Kaur Dhariwal	Adaugo O. Njere	Zinia Sultana
Ge Gao	Rossan Obianuju Obiamiwe	Minh Trang Tang
Yimeng Ge	Ifunanya Frances Okoye	Sayeda Sabiha Tasnim
Mushfik Hasan	Ayoronke Abiodun Oni	Zexin Tong
Rakhi K Zaman	Wei Qian	Yan Wang
Qiuhan Li	Md. Ashiqur Rahman	Dianji Xie
Yuehua Li	Suman Ashok Kumar Rathod	Tawsif Ibne Yousuf

International Accounting and Finance

Hiickmat Nasarah Abdulai	Zijun Cao	Chiamaka Janefrances Enekwe
Eunice Adeleye	Hao Chi Chau	Tolulope Mercy Fakeye
Lanre Saheed Adenekan	Jiasu Chen	Xinmei Fan
Opeoluwa Akinmolayan	Shuyuan Chen	Ruilin Guo
Alireza Aminidad	Supti Chowdhury	Karan Hazrati
Oluwatobiloba Esther Azeez	Kevin Davis	Wenxing He
Samuel Banson	Yueqi Dong	Han Hu
Diganshi Bhardwaj	Fei Duan	Jiarui Hu
Siqi Cai	Hao Duan	Rongning Hu

** Graduating With Great Distinction

Xiaoting Huang
Jia Jia
Ataul Karim
Tingting Lan
Chenxi Li
Nanjie Li
Qiguang Li
Lin Lin
Da Liu
Meng Liu
Yanchen Liu
Junyan Lu
Sima Meghdari
Loretta Doma Mensah
Randy James Munando
Fifelomo Ifeoluwa Obembe
Tolulope Sulihat Olayinka
Racheal Omolegho Omoarukhe
Oluwaseyi Ayotunde Onabanjo

Xuan Qi
Meng Qin
Madhavan Ravi
Swakhar Roy
Margaret Rea Rozario
Md Wasif Uddin Sarker
Chenyu Shou
Shruti Shukla
Bingshun Sun
Jiajun Sun
Yixuan Sun
Farhan Tanvir
Md Reaz Uddin
Dazhi Wang
Luyao Wang
Qianxiu Wang
Xinyi Wang
Xuan Wang

Yao Wang
Ziyi Wang
Jingya Yang
Linjiao Yang
Xiangyi Yang
Yanhong Yang
Ying Yang
Qiyuan Yao
Chenjiang Ye
Min Yi
Yaoyuan Zhai
Lanxin Zhang
Lu Zhang
Su Zhang
Qiuyan Zhou
Yang Zhou
Yunqi Zhou
Jingxian Zhu
Bingjun Zong

Logistic and Supply Chain Management

Linda Serwaa Arko
Tatiana Tokindang Astra
Sweezy Bajaj
Yueting Bao
Jiaying Chen
Zhumiao Chen
Selvin Philipbhai Christi
Zijuan Deng
Savy Gupta
Joseph Duah-Boateng Idun
Deborah Oluwakemi Jegede
Madhav Kaura
Simeng Li
Zhuomin Li

Jiawei Lin
Tong Lin
Md Asif Mahmud
Deepmala Monga
Haneef Abdul Muqtadar
Thi My Hoa Nguyen
Oghenero Precious Ogumor
Oluwatobi Omobisola Ojo
Onosetale Aiwanose Okpamen
Oseremhen Eugenia Okpamen
Judith Ifunanya Omerole
Maria Del Rocio Rubin Juarez
Jagpreet Singh

Mohammad Mahdi Taheri
Sini Maarit Tornstrom
Thien Xuan Tran
Minmin Wang
Zhehao Wang
Hanming Wu
Yi Yang
Mingxing Ye
Zhewen Yu
Mincong Zhang
Yanli Zhang
Ruolin Zhao
Ye Zhao
Mingyu Zhu

Bachelor of Commerce

Honours Business Administration

Omran Abouhassan
Adetayo Abefe Adedapo
Abbas Ammar
James Noah Bonneau
Dalton James Boyle
Joshua Chukwuemeka Cliffe
Navjot Singh Deo
Carter Ducharme*
Mohammed Faysal
Gabriel Feldzamen
David Ross Francis
Rana Habib
Qihong He
Brandon Michael Ireland
Braeden Rae Irish

Blake David Irons
Marc Anthony Langlois*
Andrew James Leaman
Noah James Leschyna
Fubin Li
Jiayi Li
Ruiying Li
Nathaniel R. Nantais*
Zachary W. Nantais*
Anthony Doumit Nassar
Mark Andrew Nelson
Logan Louis Patrick Paolini
Trisha Anne Pare
Zijing Qian
David Garry Reznikov*

Courtney Jean Robinet
Fei Sha
Laurie Ann Sylvestre
Yahan Tang
Christopher Tomaszewski
Yao Tong
John Simon Touma
Can Wang*
Siyu Wang
Thomas William Werner
Wendy Jing Wen Yeung
Tian Yu
Xinyi Zheng
Huimin Zhou
Hongyu Zhu

Honours Business Administration and Computer Science

Graham Theodore Byrne

Denis Nadarevic*

* Graduating With Distinction

Honours Business Administration and Computer Science with Finance Specialization
Abdul Rahman Waleed Abu Libda**

Honours Business Administration and Computer Science with Finance Specialization Co-operative Education
Grant Carson Robbins*

Honours Business Administration and Economics
Reuben Kuivenhoven

Honours Business Administration and Economics with Finance Specialization

Shadi Beydoun	Tania Cristina Chesu	Xinyi Wang

Honours Business Administration Co-operative Education

Kevin Alexander	Emerson William Dean*	Michael R Desantis

Honours Business Administration with Accounting Specialization

Mohmmad Hassan Amjad	Spencer Leroy Leveque**	Douglas Alex Stevenson*
Lesley Bence*	Jujahar Singh Mann	Jarrett Dalton Tazzman
Yifei Deng*	Ranz Justin Rempillo	Kyle Mitchel Trepanier*
Kristy Franklin*	Noah Resendes Rocha	Justin Way
Summer Hedjazi	Colin Matthew Sartor	Kaihua Yang*
Shane Mathew James		Abdullahi Mohamed Yussuf

Honours Business Administration with Accounting Specialization Co-operative Education

Salma Abdo*	Julia Blair Fitzpatrick	Matthew Carl Pebenito

Honours Business Administration with Finance Specialization

Thomas Michael David Brough	Mark Adam Ladouceur	Lucas Layne Orlita
Sara Elizabeth Browne*	Brandon Layman*	Kolt Christopher Smith*
Logan Gregory Chamberlain	Shangjin Li	Hongjing Wang*
Robert Thomas Carden Charlton	Dylan Gregory Maitre	Helena Yaghy
Blagoja Jr Ivanovski	Antonio Albino Mancina	Pilu Yang
Moussa Jaafar-Sannan*	Joseph Mikhail	Yi Zhou

Honours Business Administration with Finance Specialization Co-operative Education

Bryce Douglas Moir	Kyle Marcel Pitre

Honours Business Administration with Human Resources Specialization

Zainab Al-Twaini*	Kyle Roderick Fiedler	Ifrah Sabeen Naseem*
Philip Charles Bakos	Aimun Irfan*	Erika Torres Ngujo
Ahmed Bassam**	Stephen Malcolm Jones	Farah Samir Sobh
Ella Bouchey	Mikala Theresa Malkoun**	Rida Nasir Zaidi Syeda
Spencer Owen Farmer	Kate Alexa Mansour	Yoniana Ze-Yao Ting

Honours Business Administration with Human Resources Specialization Co-operative Education

Kendra Rachelle Rossi	Tina Ngoc Phuong Lan Vo

Honours Business Administration with Human Resources Specialization with Thesis
Samantha Christie Bell

Honours Business Administration with Marketing Specialization

Kyle Rodrigues Cacilhas*	Noor Daud	Grace Margaret Anne Jubenville
Jaheed Cesar	Michael John Hatch	Matthew John Mihalo

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** Graduating With Great Distinction

Jordan William Morgan*   Patrick Tomas*   William Wuerch
Ronald Harish Swetta   Jessica Yako

Honours Business Administration with Marketing Specialization Co-operative Education
Nicholas Mackenzie Brown*

Honours Business Administration with Strategy and Entrepreneurship Specialization
Otto Chan   Mia Novakovic   Danis Sharda
Yasmine El Hamidi*   Tiwalola Bolanle Omolade*   Andrew Woodall

Honours Business Administration with Strategy and Entrepreneurship Specialization Co-operative Education
Nina Maria Korac*

Honours Business Administration with Supply Chain and Data Analytics Specialization
Victoria Caputo   Maurizio Mantovan*   Abdur Rahman
Sarah Nicole Carriere   Rachel Domenica Parker*   Andrew Spencer Wilson**
Nicholas George Esposito   Michael John Polewski*   Tsau Tsung Wong
Zijun Li   Mitchell David Zimmerman

Honours Business Administration with Supply Chain and Data Analytics Specialization with Thesis
Andrea Irina Yzeiri*

Bachelor of Commerce

Four Year Business Administration
Louis Boakye   Andrew Olutade Ayodeji Isaac   Xinpeng Shu
Jessamyn Andi Chen   Thomas Jraiche   Jieyang Sun
Yao Chen   Mohd Muzam Khan   Eric Tunks
Banka Dam   Kiley Alysha Kuharski   Michael Alexander Pinto Vieira
Jessica Davia   Kayla Tsui-Ling Liang   Zewen Wu
Eyram Dodjro   Rishi Manishkumar Madani   Junhao Xu
Nathaniel Hugh Farias   Eszter Franciska Ninacs   Biyao Ye
Sydney Dana Filiault   Tobiloba Olakunle Osobu   Jinli Zhang
Christina Hamilton-Yeboah   Dan Carlo Parado   Yifan Zhang
                                 Dean Joseph Patterson

Four Year Business Administration with Accounting Specialization
Ali Albanna

Four Year Business Administration with Finance Specialization
Carter Patrick Bossy   Austin Lewis Maccarone   Mitchell Martin Sobocan
Anthony Coletti   Domenic Scuderi   Hannah Joan Sprague

Four Year Business Administration with Human Resources Specialization
Asia Joyelle Jones   Najla Khalil   Jasmine Mousaly

Four Year Business Administration with Marketing Specialization
Ian Istefan   Stephanie Lalap   Steven Dennis Sartor
Timothe Kalonji   Ayesha Mir   Zhang Yivan
                                 Cory Morrow

Four Year Business Administration with Supply Chain and Data Analytics Specialization
Qianyi Guo

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** Graduating With Great Distinction

Post Graduate Certificate in Accounting

Stephanie Rose Anthony
Shaikh Aftab Anwer

Mandana Boroumand

Chin Hua Lin*
Luigi Dante Vani

Certificate in Business Administration

David J. Branton*

Scott Prier

Sarah Sabri

Certificate in Organizational Management

Leul Berhanu Argaw

Kevin Nkubito

****

FACULTY OF SCIENCE
Dean of the Faculty: Dr. Chris Houser
Dean, Faculty of Graduate Studies: Dr. Patricia Weir

Board of Governors Medals

Biomedical Sciences – Darcy James Marsden Wear**
Chemistry and Biochemistry – Melanie Nelly Semaan**
Computer Science – David Ryan Collins**
Environmental Science and Studies – Deanna Marie Crawford*
Economics – Devan Patrick Rawlings**
Forensic Science – Victoria Grandi**
General Program – Yuxi Wang**
Integrative Biology – Amina Ibrahim**
Mathematics and Statistics – Jordan James Kiss**
Physics – Tristhal Parasram**

Conferring of Degrees in Course

Doctor of Philosophy

Biological Sciences

Mohamadreza Khosravi Bakht
Molecular Imaging Targets in Prostate Cancers with Neuroendocrine Gene Signature

Seth Munholland
Organization and Introgression Mechanics of Phaseolus Vulgaris (Common Bean)

Janice Tubman
A Translational Zebrafish Model to Study Breast Cancer Inflammation and Metastasis

Computer Science

Peng Cheng
An Approach of QoS Evaluation for Web Services Design with Optimized Avoidance of SLA Violations

Osama Hamzeh
Machine Learning Approaches for Identifying Cancer Biomarkers Using Next Generation Sequencing

Huy Quang Pham
Machine Learning Approaches for Breast Cancer Survivability Prediction

Md Zamilur Rahman
Chordal Graphs and Their Relatives: Algorithms and Applications

Kalyani Selvarajah
Investigation of Team Formation in Dynamic Social Networks

Earth Sciences

Paul Sotiriou
Petrogenesis and Tectonic Setting of Archean Anorthosite-Bearing Layered Intrusions, Western Superior Province, Canada

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** Graduating With Great Distinction

Environmental Science

Karista Hudelson
Comparison of Mercury Dynamics in High Arctic Lakes

Physics

Andrew Larry Ouellette
Adaptive, High-Resolution Ultrasound Phased Array Imaging for Use in the Inspection of Laser Brazed Joints in the Automotive Sector

Master of Arts

Economics

Abraham Mofoluwaso Akinwande
Sofiat Olajumoke Atanda
Shuyu Chen
Hree Farhat
Qing Li

Chizua Uche Mesigo
Yanru Pu
Akram Sirag
Naser Torabi

Jiayuan Wang
Tianxu Yang
Qianqian Ye
Yeping Zeng
Jiahui Zhu

Master of Actuarial Science

Zahra Afshar
Shifeng Chen
Yiqin Chen
Xia Chu
Oluwaseun George Daramola
Ying Deng
Julian David Garcia Pulgarin
Farhana Islam

Kamaldeep Kaur
Mingzhen Li
Peisong Li
Orly Liber
Chenmin Mao
Fanyin Mao
Omodolapo Al-Amin Otusanya
Ziyu Peng

Haoran Shi
Qingying Shi
Mengyao Wang
Xinyu Wang
Yiqun Wang
Hao Wu
Jiayi Xu
Ya Zhou

Master of Applied Computing

Muhaimeen Ahmed
Ittsel Ali
Arif Ahmed Ayon
Amandeep Singh Bhatti
Rishinder Kumar Bodigum Rajendra
Nagabhadra Sowmya Anuradha Budampati
Khyatiben Vinodkumar Chandak
Vishalkumar Rajendrabhai Chaudhary
Silkita Chauhan
Chandra Sekhar Chunduru
Radhika Sharma Dhanduka
Sonali Karsanbhai Gandhi
Manoj Kumar Gandi
Konika Gautam
Nuoer Gegen
Sai Satya Kireeti Godavari
Datta Venkata Sesha Sai Pavankumar Goparaju
Mehaben Hiteshkumar Gor
Nancy Gupta
Oluwajoba Ayooluwa Hassan
Snehanvitha Ijjada
Prashant Kanjibhai Italiya
Manan Umeshchandra Jadhav
Akshay Jagadish
Sabiha Begum Jaggir Hussain
Divij Kumar Jawa
Aniket Jingar
Pradeep Pai Karkala

Rashmeet Kaur
Subuh Khan
Jalaj Khanna
Ruotian Liu
Rhea Garry Machado
Aakarsha Mahajan
Jagdeep Singh Mann
Harshil Jitendra Marathe
Payam Memar Kouchehbagh
Meera Ghanshyambhai Moradiya
Munish Munish
Charan Narayanan
Wajahath Nazal
Zhenyu Niu
Mcdonald Ikedichukwu Nnamdi
Mounika Pasham
Deepesh Patel
Jalpaben Kalubhai Patel
Kesha Dilipbhai Patel
Khyati Sureshchandra Patel
Maitree Jayeshkumar Patel
Meetkumar Kanubhai Patel
Riya Jitendra Patel
Rutva Mahendrakumar Patel
Suchita Devendrabhai Patel
Vidhi Dipakkumar Patel
Alekhya Reddy Patnam
Nirmal Indravadan Purohit

Keerthi Supriya Ravi
Rakesh Roby
Pratik Jayesh Sanghvi
Fabio Ribeiro Santiago
Karishmaba Rajendrasinh Sarvaiya
Apurva Ghanshyambhai Savaj
Shobhit Saxena
Adit Jigar Shah
Brinda Mukeshbhai Shah
Deep Mayankkumar Shah
Manthan Shah
Priyal Sanjay Shah
Vasu Virendrakumar Shah
Faizullah Shaik
Fanting Shang
Hari Krishna Siddamanickam
Jahanavi Singam
Chashmeet Singh
Jagmeet Singh
Kanwar Ranbir Singh
Manpreet Singh
Suhird Singh
Veer Pratap Singh
Karan Dahyabhai Solanki
Prachi Kamleshbhai Solanki
Uttambhai Rameshbhai Solanki
Ashwini Soni
Vasudha Sood

Jay Jayantilal Sukhadiya
Parichay Singh Suresh
Diksha Thakur
Suo Tian
Rushabh Vishalkumar Vakharwala

Bhuvan Vij
Dongpeng Wang
Haolun Wang
Rui Wang

Zhang Xiaobang
Uday Rajan Yerramilli
Penggao Yuan
Yan Zhang
Shouhong Zheng

Master of Applied Economics and Policy

Chidozie Peterclaver Agomuoh
Favour Emmanuella Ashaka
Chen Bi
Fangzhe Cheng
Yawen Diao
Fan Guo
Yuting Guo
Jinling Huang
Fatema Tul Jannat
Jinglin Ji
Zhihao Jia

Pengjie Jin
Shiqi Li
Songyao Li
Xu Li
Yiran Li
Yang Liu
Zongzhi Liu
Sana Shahri
Shivani Udaipratap Singh
Kang Wang

Ke Wang
Yun Wang
Yun Wang
Yushu Wang
Ching Wah Wong
Qian Xu
Xiaoyu You
Wenyue Zhang
Yao Zhao
Duanying Zheng
Yan Zhu

Master of Medical Biotechnology

Shiena Sarenas Aresta
Abimbola Arogundade
Eswar Chandra Vidya Sagar Attuluri
Shah Md Mahathir Aziz
Pavithra Balasubramanian
Niloufar Bazargani Chahardeh
Khashayar Behravan
Mrunali Manoj Bhatt
Kailong Chai
Pushpinder Kaur Cheema
Neamat Nasir Chinwala
Maisha Yasna Chowdhury
Paramvir Singh Dhillon
Ayush Bharat Dua
Fazilath Sayeeda
Gagandeep Kaur
Gazali
Anushree Mohan Gokhale
Xiaoxiao Gong
Yue Gou
Suhanya Govindasamy Swaminathan
Rui Guo
Hetvi Hareshbhai Hapani
Md Nayem Hossain
Md Niaz Hossain
Ritik Kumar Jain
Harshita Jangra
Jaspreet Kaur
Eleesa Jiji
Pamela Jimenez Vega

Parmeshar Singh Kaillay
Kinnari Kirit Kanani
Akhila Kasireddy
Priyanka Jayantilal Kathad
Harmanpreet Kaur
Mandeep Kaur
Palakpreet Kaur
Pawandeep Kaur
Ramanjot Kaur
Sharanjit Kaur
Simrandeep Kaur
Sakshi Khanna
Anusha Konatala
Xiaodong Li
Muting Liu
Zhengyi Liu
Charmi Ketan Mehta
Sizu Mittal
Ridham Yogesh Modi
Ataollah Mohammadian Kia
Salman Mohammed
Sneha Mondal
Vineetha Narayanan Namboodiripad
Sahil Narula
Neha
Utsavi Rajesh Nimbark
Nilufer Yeasmin Nipa
Fain Alexy Parackel
Himadri Piyushkumar Patel
Jaimin Manubhai Patel

Yeshaben Mahendrabhai Patel
Maheshwari Patnam Venkatesh
Mahfujur Rahman
Md Hasan Shahriar Rahman
Bhupinder Raj
Harsh Rao
Mansi Jigenkumar Shah
Rajvee Satishkumar Shah
Surbhi Chetan Shah
Nahian Anjum Shejuti
Harjot Kaur Sidhu
Tongtong Song
Sonia
Avneet Kour Sudan
Vidhi Vipulkumar Thakkar
Viral Rajeshkumar Thakkar
Shivani Sandip Kumar Upadhyay
Victoria Sibyl Charles Uttangi
Sai Saranya Vunnam
Rutvik Kamleshkumar Vyas
Vivek Prakashkumar Vyas
Jiayu Wang
Rajashekar Reddy Yalaka
Chenyi Yang
Ding Yang
Shuxi Yang
Ayan Yeleuov
Hui Zhang
Wenchao Zhang
Li Zhao

Master of Science

Biological Sciences

Alyssa Alves Frazao

Kyle John Lee Parkinson
Mathew Robert Stover

Ian Paul Campbell Thomas

Biological Sciences - Neuroscience and Behaviour
Zeenat Aurangzeb

Chemistry and Biochemistry

Michelle Dao   Nicholas Anthony Salvati

Computer Science

Nasim Al Goni	Radhika Jayaraman	Kumaran Ragunathan
Farhan Mahmood Babar	Havish Kadiyala	Harinder Kaur Sidhu
William Briguglio	Foram Pravinkumar Patel	Ziyang Tian
Caitlin Marie Facchina	Manan Hasmukhbhai Patel	Pavithra Ulaganathan

Computer Science Co-operative Education

Sonia Alice George	Padma Priya Kondepudi	Susha P. Suresh
Mahdi Ghadamyari	Kaival Kamleshkumar Patel	Rachit Tomar
Shrijan Karmacharya	Parth Anand Shukla	Rajasi D Upadhyay

Environmental Science

Patrick Jagielski   Amy Anne Weinz

Mathematics and Statistics

Penelopi Tatiana Krikella	Tao Sun	Jianbai Xu
Nikita Anne Paulick		Yiping Zhang

Physics
Rowine Sleiman

Bachelor of Arts

Honours Economics

Ebunoluwa Chizaram Akinpelu**	Alexander Mason*	Siwu Yang
	Luke David Williams	

Honours Economics and Political Science
Devan Patrick Rawlings**

Honours Forensics and Criminology

D'Andre Robert Vincent Bailey   Amber Johnson   Megan Katherine Natili

Honours Forensics and Psychology

Diljot Kaur Bhathal	Alexis Denise Fraser*	Rebecca Alicia Pacheco
	Lara Jamaleddine	

Bachelor of Arts

Four Year Forensics and Criminology
Shineta Debricra Duncan

Four Year Forensics and Psychology

Ahmed Abdallah   Lindsie Doreen Butler

* Graduating With Distinction
** Graduating With Great Distinction

Bachelor of Arts

General Economics

Jake Christian Charbonneau
Zhijun Chen

Obumneme Gerald Ilo

Ayodeji Babatunde Owojori
Gurujot Singh

Bachelor of Computer Science

Honours Applied Computing

Justin Christopher Dearden
Shelley Diane Gibbons
Shannon Afonso Dias Guerreiro*
Thomas Patrick Hales
Natalie Erin Jahn

Benjamin Nebu John
Joseph Jourekian*
Vithusanan Mathiaparanam**
Daniel Otaru Mohammed
Tyler Ouellette

Nilam Sunilkumar Patel*
Chika Scott-Ananaba
Hesha Virendrakumar Sheth*
Sahil Verma
Junyuan Zhang*

Honours Applied Computing Co-operative Education
Zachary D. Easterbrook

Honours Computer Science

Emily Jane Addison
Salam Abeer Aoda Al-Tamimi*
Steven Gennaro Bodnar*
David Ryan Collins**
Brejvinder Singh Dhillon
Dylan Michele Docherty

Joseph El-Ghaname*
Samar El-Houssami*
Spencer Davis Hyland
Majid Joseph**
Adam David Lang

Zhikai Lin
Calvin James Moras
Mustafa Sawalha
Tara Vulakovich*
Shiqi Wang*
Ho Wai Yau

Honours Computer Science Co-operative Education

Joseph Dao**

Brandon Michael Ferrari*

Michael William Melanson**

Bachelor of Computer Science

Four Year Applied Computing
Ziheng Wang

Bachelor of Computer Science

General Computer Science

Victor Taiwo Ajibefun
Adam Zaki Alhideq
Sarmad Alquraishi
Fouad Aswad
Edward Atallah
Nipun Shehan Atukorala*
Anthony Charbel Azar
Ayesha Bari*
Naveed H. Bokhari
Wesley Owen Branton
Ryan Thomas Danbrook**
Yu Du**
Daniel James Dupont*
Mustafa Fawaz*
Luke Joseph Roman Fecteau
Jeremiah Joshua Robert Gilbert

Michael Anthony Giorlando*
Muhammad Iftikhar Hafeez*
Mahmoud Hammoud
Don Ho*
Jessica Jamieson
Mark Benjamin Johnson*
Billy Tuan Le
Joshua James Lumb*
Sai Ravi Teja Maganti
David Wayne Muir
Naveed Nawaz*
Inez Emilia Niec
Zhenyu Niu
Selin Ozoglu*
Christina Petrovski

Hassen Rammal
Zachary Ryan Rivait
Samantha Michelle Robson*
Joshua Sanda
Dany Sanioura**
Raman Seviaryn
Yoon Sik Shin
Suraj Soman Nair
Justin Leonard Sparnaay
Andrea Lynn Swartz
Caleb Lewis Thomas Uddyback
Brittany Brianne Vanderlip**
Yuxi Wang**
Matthew Makepeace Whitwam
Adam Leonardo Ryker Wolff
Mohamed Yagmour

Bachelor of Environmental Studies

Honours Environmental Studies

Deanna Marie Crawford*
Destin James Ian Gardner
Emily Clare Genyn*

Jenny Gharib
Madison Mcknight

Patrick Adam McNamara
Edmund Olivier
Lisa Lynn O'Neill*

Bachelor of Environmental Studies

Four Year Environmental Studies

Curtis Jerry Beckett
Danielle Therese Bezaire
David Daniel Bezarevic

Kaylie Laurel Briggs-Crawford
Ceara Jayne Copat

Caitlin Ann Hamm
Omar Helal
Amanda Marie Schell

Bachelor of Forensic Science

Honours Forensic Science with Biology Specialization

Nadine Claire Caringas Cortez

Loren Ashley Heymann*
Cameron Kate Prentice

Brianna Turnbull*

Honours Forensic Science with Chemistry Specialization
Angelika Kupper*

Honours Forensic Science with Life Sciences Specialization

Rebecca Mae Harris*

Amal Hjjih**

Honours Forensic Science with Molecular Biology Biochemistry Specialization

Akida Akbar
Felina Araina Ali*

Kaylee Colene Anagnostopoulos*
Victoria Grandi**
Rita Issa*

Jonabeth Joely Martinez-Herrera*
Regan Kristine Pardo*

Bachelor of Forensic Science

Four Year Forensic Science with Molecular Biology Biochemistry Specialization
Aya Ali El-Sabbagh

Bachelor of Mathematics

Honours Mathematics

Andrea Marie Ciavaglia*

Valerie Fontaine*

Daniella Pacitti*

Honours Mathematics and Computer Science

Xavier Miguel Nunes*

Yanhao Yang

Bachelor of Mathematics

General Mathematics

Aehsan Ahmed

Shahmeer Ahmed

Bachelor of Science

Honours Behaviour, Cognition and Neuroscience

Mustafa Taher Abumeeiz**
Morgan Elizabeth Anderson
Maheen Arshad*
Eisha Kaur Aujla*
Brooke Cora Carter*
Lauren Kay Elliott**
Sahibjot Singh Grewal**

Abby Lynn Jill Hensel*
Rachel Marie Huggard*
Jeevan Kaur Kooner*
Amanda Anne Marie Malandruccolo*
Nora Marie Mcvinnie*
Ghadir Nassereddine
Nicholas Reynolds
Tamara Samardzic*

Selena Nicole Scebba*
Jordan Sinadinovski
Subidsa Srikantha**
Kate Elizabethe Turner*
Leslee Lynne Ward
Donika Yakoub*
Joshua Zegrean

Honours Biochemistry

Stuart Rodrigo Castillo
Heather Lynn Costello*
Briana Francine Hogan

Kelly Myriam Kaye
Eric Kirby*
Carmen Ly**

Thomson Ly**
Fatima Muslemani*
Nagesh Sharma

Honours Biochemistry with Thesis

Nicole Daniella Cesca**
Tiffany Aliya Chiu Cheung*
Cynthia Marie Dupuis*

Joy-Lynn Kobti*
Brianna Mary Pelle*
John Patrick Purdie*

Johan Pushani**
Melanie Nelly Semaan**
Aneeta Khalid Younus*

Honours Biological Sciences

Heidi Veronica Abou-Akl
Arian Ala
Tina Al-Nazzal
Sara Amine Hussein
Mahmoud Said Ammar
Cassidy R. Barr
Adam Gaspare Robert Barresi*
Berk Bayraktar
Taylor Ann Bendig*
Jayd Elizabeth Bodner
Meagan Elizabeth Burford*
Alina Cailean
Connor Blake Campagna*
Kalie Shannon Cavanaugh
Matthew R Charron*
Diana Chirescu

Cheska Eunice Cruz
Colin Michael Curran
Victoria Daher*
Riley Matthew Dolson*
Giuseppe Geloso
Melissa Marie Grondin*
Nizarina Guxholli
Nahla Abdel-Karim Hassan*
Amina Ibrahim**
Sara Ibrahim**
Belinda Marris Joseph Benher**
Simeranpreet Kaur*
Steven Joseph Lopez*
Mikayla Anne Lorkovich
Jacy Luong

Hope Marie McMahon*
Rana Merheb*
Falyn Victoria Moore
Kashifa Naeem
Victoria Theresa O'Beid*
Selin Ozoglu*
Elaina Catherine Pardalis*
Nicholas Joseph Philbin**
Patricia Rokitnicki*
Taylor Betty Root
Toqua Saflo*
Adam Sghaier*
Jason Sami Toma
Nicolas Tugui
Umarah Umarah
Sahil Verma

Honours Biological Sciences and Biochemistry (Health and Biomedical Sciences Stream)

Ali Barazi**
Herman Singh Dayal*
Baljot Kaur Deol*
Rajan Dhaliwal*
Trinh Diep*
Maksymilian Dziura*
Mayan Eid
Omer Elkhidir*
Kaity Nicole Greco**
Lauren Hawken

Taha Mohammad Ismail**
Kumudu Kumudu Jayatilaka*
Melissa Lynn Krantz
Liam Patrick Leclair**
Griffin Patrick Lotze*
Adrian Luiso*
Kelsea Martin**
Sharbel A. Najm**
Laura Pereira

Hasan Huseyin Polat*
Alaina Marie Pupulin**
Olivia Elizabeth Sauve
Amandeep Singh Sehmbi**
Angela Shabow
Rotana Tony Shamoon
Brandon Ryan Vincent Snel*
Darcy James Marsden Wear**
Lily Xu
Caesar Gideon Yip

Honours Biological Sciences and Physics
Madalina Csonti

Honours Biological Sciences and Psychology

Esther-Melody Moyinoluwa Adamson
Joelle Dianne Clutterbuck
Maha Shah

Honours Biological Sciences and Psychology with Thesis
Fatima Nadeem*

* Graduating With Distinction
** Graduating With Great Distinction

Honours Biological Sciences with Thesis

Festus Kehinde Ajibefun	Mohamed Tarek Elshikh**	Emily Mailloux*
Rim Jamal Al-Khulaidi**	Serena Maria Gaffan	Shelby Wright*
	Abdulrahman Hamdoon**	

Honours Chemistry

Makhi Cedric Crosby	Dennis Michael Lussier	Julie E Marchand
Brock Joseph Levac		Stephen Paul Sarweh

Honours Chemistry and Physics
Jamieson Mastronardi
Honours Chemistry with Thesis
Ariel Antonio Sotomayor

Honours Computer Information Systems

Ali Hazime*	Stephen Michael O'Connor*

Honours Computer Science with Software Engineering Option

Jobert Costan	Brandon Lucier	Kolby Robert Sarson*
Oluwatomisin Falodun	Habib Mohamed*	Kevin Jiaming Shi*
Mohamed Mansour Kiki	Marcel Alexander Pinheiro*	Zheng Jun Wang

Honours Computer Science with Software Engineering Option Co-operative Education
Christopher Leonard Lindsey

Honours Economics

Oluwafunmibi Olumide Awo*	Evan Caleb Mejia**	Sean Sales
	Eseohene Omonode	

Honours Environmental Science

Hannah Ella May Butcher-Hagell	Eric Michael Emon	Alexandra June Mailloux
Chelsea Evelyn Crundwell	Tiffany June Hooley	Reid Joseph Thrasher

Honours Environmental Science with Thesis

Fiona Ruth Anne Cullen	Matthew Robert Arthur Day	Andrew Nodder
	Cameron Myshok	

Honours Molecular Biology and Biotechnology

Ashraf El-Khatib	Joseph Landry Fotso Tagne*

Honours Physics

Victoria Dominique Eskritt	Alexi Jankulovski**

Honours Physics with Thesis
Dimitrios Shinas*

Honours Physics (Medical Physics)

Jean-Marc Albert Beneteau	Rebecca Marie Daoud**	Matthew Micsa*

Honours Physics (Medical Physics) Co-operative Education
Andrew Simonitto

Honours Physics (Medical Physics) with Thesis
Mark Alan Armstrong**

Honours Physics (Physics and High Technology) with Thesis
Doris Noemi Rusu**

* Graduating With Distinction
** Graduating With Great Distinction

Honours Physics and Computer Science
Tristhal Parasram**

Bachelor of Science

Four Year Biochemistry

Mike Dang   Adam Sionov

Four Year Biological Sciences

Arthur P. Adamczak   Kerstyn Elaine Mackie   Colin Robert MacMillan
Ryan Parker Brown   Kevin Oun

Four Year Biological Sciences and Biochemistry (Health and Biomedical Sciences Stream)
Zara Ali   Maha Al-Khulaidy   Tristan Frederic Verschingel
                       Andrew Gregory Butler

Four Year Biological Sciences and Psychology
Julia Joanne Marie Chappell

Four Year Chemistry
Ana Stojancevic

Four Year Environmental Science
Marcel Caron

Bachelor of Science

General Science

Saria Akram   Arjuman Khan   Marija Popovich
Raisa Tanni Alam   Noah Daniel Hurst Lewis   Joel David Potma
Sarah Alyssa Lauren Boyd   Henderson Ly   Corinne Jacqueline Ramey*
John Peter Depinto   Sammy Madineh   Tigist Tadesse
Ashley Goldsack   Aunella Meco   Nemanja Vasilic
Daleen Siheim Hammoud**   Zaynab Mohamud   Emily Jennett Anna Will
                            Nikole Marie Otcenasek

Certificate in Applied Information Technology

Louis Boakye   Jok Lual Guet   Julia Nicole Mammarella
Mohammed Faysal   Jingzhe Zhou

Certificate of Commemoration

Jonathan Chiaramonte

Certificate of Commemoration to University of Windsor Community

Samira Bashiri

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* Graduating With Distinction
** Graduating With Great Distinction

A Note on the Governor General of Canada's Academic Medals

The prestigious Governor General of Canada's Academic Medal is awarded to the student who is considered to have achieved the most outstanding academic record in comparison to his or her graduating peers.

The Silver medal is awarded to an undergraduate student at the Spring Convocation ceremony and the Gold medal is awarded to a graduate student at the Fall Convocation ceremony.

DISTINGUISHED UNIVERSITY PROFESSORS

Senate Bylaw 20, 1.4.1: Distinguished* University Professors – A Distinguished University Professor is a member of the faculty of the rank of Professor who has distinguished achievements in teaching and wide national and/or international reputation for scholarship or creative or professional accomplishment.

*A title change from University Professor to Distinguished University Professor was approved at Senate on October 10, 2014 and applied retroactively.

2020
Prof. Myra Tawfik
Law

2017
Prof. Richard Moon
Law

2016
Dr. Hoda El Maraghy
Mechanical, Automotive and
Materials Engineering

2015
Prof. Jeffrey Berryman
Law

2014
Dr. Julie MacFarlane
Law

2013
Dr. Derek Northwood
Mechanical, Automotive and
Materials Engineering

2009
Prof. William A. Bogart
Law

2007
Dr. Leslie Howsam
History

Dr. Alan S. Trenhaile
Earth and Environmental Sciences

2006
Dr. Roman Maev
Physics

2005
Dr. Francis Lemire
Mathematics and Statistics
Dr. Sudhir Paul
Mathematics and Statistics

Dr. Peter Sale
Biological Sciences

2004
Dr. William Baylis
Physics
Dr. Niharendu Biswas
Civil and Environmental Engineering
Dr. Stephen Loeb
Chemistry and Biochemistry

2003
Dr. Majid Ahmadi
Electrical and Computer Engineering
Dr. Thomas Dilworth
English Language, Literature and
Creative Writing
Dr. Stewart Page
Psychology

2002
Prof. J. Anthony Blair
Philosophy
Dr. Douglas Stephan
Chemistry and Biochemistry

2001
Dr. Ricardo Aroca
Chemistry and Biochemistry
Dr. Eleanor Maticka-Tyndale
Sociology

2000
Dr. Barry Adam
Sociology
Prof. Iain Baxter
Visual Arts

1998
Dr. Jatinder Bewtra
Civil and Environmental Engineering
Dr. David Symons
Earth Sciences

1997
Dr. Sheila Cameron
Nursing

Dr. Reuben Hackam
Electrical and Computer Engineering

1994
Dr. Charles Fantazzi
Classical and Modern Languages
Literatures and Civilizations
Dr. Ralph Johnson
Philosophy
Dr. Alistair MacLeod
English Language, Literature and
Creative Writing
Dr. Walter Soderlund
Political Science

1992
Dr. Lakshman Marasinghe
Law

1991
Dr. Anna Gupta
Nursing

1990
Dr. Graham Jullien
Electrical and Computer Engineering

1988
Dr. William McConkey
Physics

1987
Dr. John Kennedy
Civil and Environmental Engineering
Dr. Dennis Tuck
Chemistry and Biochemistry

1986
Dr. Gordon Drake
Physics
Dr. Byron Rourke
Psychology

University of Windsor
Senate

4.1:   **Convocation Awards – Board of Governors' Medals, President's Medal, and Governor General's Silver Medal – Spring 2020**

FAHSS General Program - Arts	Maria Jose
FAHSS General Program - Social Science	Peter Marval
Interdisciplinary Arts & Science	Isabelle Hinch
Integrative Biology	Amina Ibrahim
Biomedical Sciences	Darcy James Marsden Wear
Business Administration	Andrew Spencer Wilson
Chemistry & Biochemistry	Melanie Nelly Semaan
Communication, Media & Film	Jazmeen Elisa Zanier
Computer Science	David Ryan Collins
Dramatic Art	Emma Nicole Robert
Environmental Science and Studies	Deanna Marie Crawford
Economics	Devan Patrick Rawlings
Education	Leonardo Anthony Pisciuneri
English Language, Literature & Creative Writing	Kristeen Rodregus
General Program - Science	Yuxi Wang
History	Alex Cramer
Kinesiology	Bogdan Cristian Suciu
Languages, Literatures & Cultures	Cameron Peter Beggs
Law - J.D.	Imad Alame
Law- Dual J.D.	Kaitlyn Danielle Drury
Mathematics & Statistics	Jordan James Kiss
Music	Lilian Marie Korkontzelos
Nursing	Jennifer Judith Hamel
Philosophy	No Eligible Students
Physics	Tristhal Parasram
Political Science	Devan Patrick Rawlings
Psychology	Jenessa Louise Shaw
Social Work	Erica Angela Bassakos
Sociology, Anthropology & Criminology	Danielle Shaelyn Quimby
Visual Arts	Maryanne Bakos
Women's and Gender Studies	Kayla Nicole Fiala
Forensic Science	Victoria Grandi
Governor General's Silver Medal	Jennifer Judith Hamel (Faculty of Nursing)
President's Medal	Olivia Sanders (Faculty of Human Kinetics)

University of Windsor
Senate

4.1a: **Addendum – Candidates for Degrees, Diplomas, and Certificates – Spring 2020**

Item for: **Approval**

Forwarded by: **Registrar**

ADDENDUM – SPRING 2020 CONVOCATION

ADDENDUM – SPRING 2020 CONVOCATION

FACULTY OF ARTS, HUMANITIES, AND SOCIAL SCIENCES
Andrei Viorel Nicolae – Four Year Developmental Psychology
Stephanie Currie – Bachelor of Arts – General Psychology
Shi Nae Kang – Bachelor of Arts – General English Language and Literature
Crystal Georgeen Bryan – Bachelor of Arts – Honours Liberal and Professional Studies

EDUCATION
Ariel Elise Gastmeier – Bachelor of Education

ENGINEERING
Ivana Jamina – Bachelor of Applied Science – Honours Electrical Engineering Co-operative Education
Eric MacMillan – Bachelor of Applied Science – Honours Environmental Engineering Co-operative Education

GRADUATE STUDIES
Umama Umra Jutt – Master of Arts – English Literature and Language
Ashley Marie Glover – Master of Arts – Philosophy
Jonathan Edward Hollingsworth – Master of Arts - Philosophy
Parmis Emadi - Master of Applied Science - Industrial Engineering
Gagandeep Singh Rai – Master of Engineering – Civil Engineering
Karanbir Singh – Master of Engineering – Mechanical Engineering
Keifer Kevin Bell – Master of Human Kinetics
Lauren E. Kopchek – Master of Science in Nursing

ODETTE SCHOOL OF BUSINESS
Jessamyn Andi Chen – Bachelor of Commerce – Four Year Business Administration

SCIENCE
Xavier Miguel Nunes – Bachelor of Mathematics – Honours Mathematics and Computer Science – *WITH DISTINCTION*

Dimitrios Shinas - Bachelor of Science - Honours Physics with Thesis - *WITH DISTINCTION*

Senate Update: May 22, 2020

Robert Gordon
President & Vice Chancellor
University of Windsor

University of Windsor

Updates

- Employee Engagement Survey
  - Paused as a result of COVID-19
  - Planning for a Fall release of the survey for our staff and faculty
- Advancement Review
  - Moving forward on a series of recommendations and will update Senate in the Fall
- University of Windsor Economic Impact Study
  - Initiated an economic impact study through KPMG in Summer, 2019
  - Will be releasing this later in the summer and reporting to Senate in the Fall
- Sustainability
  - Sustainability Task Force is working on the development of an Action Plan for later this summer
  - UWindsor is moving towards being a signatory of the United Nations-Principles for Responsible Investing (UN-PRI)

University of Windsor

Commitment to Sustainability: UN-PRI

- In Jan/20 the Investment Committee of the Board passed a motion that UWindsor investigate the implications of becoming a UN-PRI signatory
- The Pension Fund and the Endowment Funds must be separately registered with UN-PRI

The Principles:

1	**2**	**3**	**4**	**5**	**6**
Incorporate ESG issues into investment decision-making processes	Be active owners and incorporate ESG issues into ownership policies	Seek appropriate disclosure on ESG issues by the entities in which we invest	Promote acceptance and implementation of the principles	Work together to enhance our effectiveness in implementing the principles	Report on our progress towards implementing the principles

SIGNATORIES ARE REQUIRED TO ADOPT AND IMPLEMENT THE 6 PRINCIPLES AND REPORT ANNUALLY

University of Windsor

Other Canadian University UN-PRI Signatories

Asset Owners	Date of Signing
Universite de Laval (Pension)	Jan, 2020
University of Guelph (Endowments)	Sep, 2019
Dalhousie University	May, 2019
Mount Allison University	May, 2018
Concordia University Foundation (Endowments)	Jan, 2018
Université de Montréal	Jan, 2017
University of Toronto	Dec, 2016
Thompson Rivers University	Jul, 2016
University of Victoria	Jan, 2015
Simon Fraser University	Jul, 2014
University of Ottawa	Nov, 2012

* University of Waterloo have recently submitted their application

University of Windsor

UN-PRI: Preparing to become a signatory (minimum requirements)

- Policy covering responsible investment approach:
  - At minimum, require a commitment to prepare this policy before the first reporting period (Mar/21)
- Staff dedicated for implementing the responsible investment policy
- Senior-level commitment and accountability mechanisms for responsible investment
- Annual fee (~$1500)

Fall 2020: University and College Announcements

- Face to Face: <2%
- Primarily online: 74%
- Fully online: 24%
- Several have yet to make announcements

University of Windsor

The Ends of the Spectrum

On-campus and In-person

- St. Francis Xavier

But

- With contingency plans for online and alternative delivery.

Other Nova Scotia universities have not followed with the same announcement:

- Dalhousie University has announced "predominately online"
- Cape Breton University and Mount St. Vincent will be fully online

Fully Online

- Memorial University
- Cape Breton University
- Mount St. Vincent
- Université du Québec (Montreal, Chicoutimi)
- Nipissing
- University of Regina
- Mount Royal
- University of the Fraser Valley
- Royal Roads

Middle: Blended/Mixed Delivery

Announcements include primarily, mainly, mixed, combination, blended, hybrid

Ontario

- Windsor
- Western
- Waterloo, Laurier
- Ryerson, UToronto
- Brock
- Nipissing
- Queen's
- Carleton, UOttawa
- Lakehead

Rest of Canada

- UPEI
- Dalhousie
- Mount Allison
- McGill, Concordia, Université Laval
- U Manitoba
- U Regina, U Saskatchewan
- U Alberta, U Calgary
- Simon Fraser, UBC, UVic

University of Windsor

Essential Workers

- Acknowledge our employees in essential services roles and their managers who continue to attend campus daily and for their tremendous efforts including:

  - Campus Community Policy 24x7

  - Energy Conversion Centre 24x7

  - Custodial, Maintenance and Grounds

University of Windsor

Resumption of On-Campus Activities

WORKING GROUP	BRIEF OBJECTIVES
Space Preparation & Planning ▶	• Space audits and tested traffic flows for all of campus • Guidelines for open and/or restricted spaces • Building ventilation (HVAC) and clean air flows
Building Maintenance & Custodial ▶	• Building inspections and equipment repair • Installation of signage, barriers, traffic flow guides • Sanitization of the entire campus and product use
Safety & Support ▶	• Occupant Safety Plan • Signage and Guidelines • Isolation and reporting plans
Return to Campus - Faculty ▶	• Guidelines for a phased return to campus • Guidelines for recruitment /orientation
Return to Campus - Staff ▶	• Guidelines for a phased return to campus • Guidelines for student employees (RAs, TAs, GAs)

University of Windsor

Resumption of On-Campus Activities

WORKING GROUP	BRIEF OBJECTIVES
Return to Campus - Students ▶	• Guidelines for a phased return to campus • Consults with campus stakeholders (UWSA, GSS, OPUS) • Guidelines for students living on campus
Events & Athletics ▶	• Guidelines for on-campus event planning/delivery formats • Guidelines for athletic events • Protocols for varsity teams and recreational activities
Research Planning ▶	• Determine implementation of protocols from Critical Research Committee • Determine implementation of protocols for safe research • Guidelines for impact on other areas on campus (Library, Shipping/Receiving, CCC, ACC)
Academic Planning ▶	• Determine course delivery format and support • Protocols to support Faculty • Implementation of protocols from Academic Continuity
Communications ▶	• Internal and External messaging • Provide information for a Safe Campus • Build resources to engage our campus community

University of Windsor

Questions???

University of Windsor
Senate

5.3:   **Report of the Academic Colleague**

Item for: **Information**

Forwarded by: **Dr. Philip J. Dutton, Academic Colleague**

Academic Colleagues met online on May 13, 2020.

May 13, 2020 Academic Colleagues Meeting.

COU Updates – Eva Busza.
COU staff are working from home but have been very busy with assisting Ontario universities in innumerable areas. Advice was needed and shared regarding suspension of in person-instruction, policies around building occupancy, online learning, completion of exams, and the sharing of personal protective equipment with hospitals, to name a few.

There has been and are ongoing:
- three meetings per week with executive heads.
- two meetings per week with the Ministry of Colleges and Universities.
- a need for responses to a variety of questions and requests.
- assistance with the development of COVID-19 focal points in institutions.
- provision of a platform for institutions to share their pandemic plans and other information.
- integration of policy recommendations into advocacy strategy.
- compilation of institutional priorities for delivery to the Minister.
- advocacy actions on many fronts.
- development of recommendations on return to campuses.
- management of contradictory advice and development of coherent documents of various kinds.
- consideration of students and their financial and academic needs.

The subsequent discussion amongst the colleagues and COU staff present was partly in the present but also forward looking to what repercussions we may see in higher education in the future.

Committee Updates
Quality Council: The Quality Council is continuing its regular business of cyclical program review and program approval. Some reviews are being done remotely, and others by desk audit based upon paper files. There was a discussion about courses going online, and it is the opinion of Quality Council that this is acceptable temporarily but would be considered a major program change if it continued and should then go through normal approval processes. There is recognition that there may be delays, and Quality Council is understanding of institutional needs in that regard.

Budget and Audit: The last official meeting of COU Budget and Audit committee was in February and followed normal business of approval of the COU and OUAC budgets, consideration of the investment portfolio, and the enterprise risk management system. There was a special meeting on April 3, 2020 to discuss how COU was dealing with COVID-19 and a business continuity plan was discussed. COU was not, and is not, expecting to have financial difficulties, though there were discussions around the levy payments from the admission centre to the universities (which are continuing) and the university health insurance plans that deal with international students stuck in Canada. It was noted that if applications dip there will be an impact on revenues from the admission centre.

COU Presidential Search Committee: Meetings have been proceeding well and the search firm has been active in contacting stakeholders for advice on the COU Presidential search. A job advertisement is in preparation and a late summer active search is planned.

Academic Colleagues Round the Table Discussion.
Colleagues shared their personal and institutional stories. Many concerns and experiences were common, such as:
- how to deal with essential laboratory delivery in STEM and Nursing.
- personal protective equipment for on campus workers considering the large amount of equipment we donated to the health care system.
- student needs for experiential learning opportunities through coop, internship, and capstone courses.
- budget implications of various kinds from tuition losses to outright budget cuts.
- costs of effective development and delivery of online courses.
- the ability to effectively develop and deliver online courses across whole curricula with limited resources.
- limitations on course enrolments (both maximums and minimum enrolment control).
- shifting teaching and research needs and performance assessments.
- learning new ways of delivery and assessment. Some good lessons were learned in the winter and current terms, though there is still some trepidation for the fall.
- students living in various time zones raise concerns around synchronous delivery.
- the uncertainty of the fall term is hanging over everyone and all are waiting for decisions to be made.
- colleagues were reminded that it is important to take some vacation, even if it *is* at home.

Farewells
The Academic Colleagues table is losing several valuable participants. Three colleagues have finished their terms and are moving on. Cara Krmpotich (UofT), Andrea Davis (York), and Yolande Chan (Queen's) have all been highly participatory members of the Academic Colleagues and their contributions will be missed. In addition, Yolande has been the co-chair of the group and has demonstrated excellent stewardship during her tenure.

Finally, the colleagues sorrowfully say goodbye to COU Director of Policy and Sector Collaboration who is departing the COU for an opportunity in the Higher Education Quality Council of Ontario (HEQCO) in the position of Vice President, Research and Policy. Julia Colyar has worked closely with colleagues during the past 7 years, and has been a highly supportive, knowledgeable, and contributing partner at the Academic Colleagues table. She will be missed by us all.

Welcomes
Co-chair: Douglas Ivison (Lakehead) has been elected to join Karleen Pendleton-Jimenez (Trent) as co-chair of the Academic Colleagues for a three-year term.
COU Liaison: Eva Busza, the current Vice President, Policy and Sector Collaboration has been sitting at the Colleagues table for some time in a transition period and is welcomed to replace Julia Colyar as our direct COU Liaison. Eva brings a vast amount of experience working with the Asia Pacific Foundation of Canada, the United Nations, and government, business, and civil society on a range of social, economic, and security programs throughout Asia Pacific.

Future Topics
In attempting to avoid directly focusing on COVID-19, the colleagues are proposing to direct their consideration in the next year toward contributions of Universities to the community. This ties in with previous themes related to the value of Universities. This covers a lot of ground and includes our efforts in the COVID-19 emergency, but also relates to many other community contributions and our initiatives for provision of social services to our students, particularly in mental health and health care. These ideas will be developed over the next few months and reviewed by the COU prior to our first meeting of the year in August in preparation for meeting with the Executive Heads in September.

Dates of Future Meetings
A draft meeting plan for 2020-21 was circulated. This follows closely from previous years.

Respectfully Submitted,
P.J. Dutton, Academic Colleague

University of Windsor
Senate

*5.5.1a: **Integrative Biology – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: **That the degree requirements for the Behaviour, Cognition and Neuroscience program be changed in accordance with the program/course change forms.^**

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The proposal has been approved by the Department of Integrative Biology Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.2.

University of Windsor
Senate

*5.5.1b: **Chemistry and Biochemistry – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: **That the degree requirements for the Honours Chemistry and Honours Chemistry with Thesis be changed in accordance with the program/course change forms.^**

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposal has been approved by the Department of Chemistry and Biochemistry Council, the Faculty of Science Coordinating Council, and the Pogram Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.3.

PROGRAM DEVELOPMENT COMMITTEE
MINOR PROGRAM CHANGES
FORM C

TITLE OF PROGRAM(S)/CERTIFICATE(S):	Honours Chemistry and Honours Chemistry with Thesis
DEPARTMENT(S)/SCHOOL(S):	Chemistry and Biochemistry
FACULTY(IES):	Science

Proposed change(s) effective as of* [Fall, Winter, Spring]: *(subject to timely and clear submission)*	Fall 2020

A.1   PROGRAM REQUIREMENT CHANGES

Please provide the current program requirements and the proposed new program requirements by cutting and pasting from the current undergraduate or graduate web calendar (www.uwindsor.ca/secretariat/calendars) and clearly marking deletions with strikethrough (~~strikethrough~~) and additions/new information with bolding and underlining. Example: Degree requirements: WXYZ-1000, ~~WXYZ 1010~~, WXYZ-1100, WXYZ-2100, WXYZ-3100, WXYZ-4100, plus three additional courses at the **3000-level or** 4000-level.

Honours Chemistry

Degree Requirements:

Total courses: forty courses
(a) CHEM-1100, CHEM-1110, CHEM-2200, CHEM-2300, CHEM-2310, CHEM-2400, CHEM-2410, CHEM-2500, CHEM-2510, CHEM-3210, CHEM-3300, **CHEM-3310,** CHEM-3400, CHEM-3500, CHEM-3710, BIOC-2010, **one BIOC or CHEM at 3XXX or 4XXX level,** and **three** ~~five~~ additional courses **from CHEM 4XXX (excluding CHEM-4007).** ~~at the 3XXX or 4XXX level. Of the five additional courses at the 3XXX or 4XXX level, at least three of them must be drawn from CHEM-3310, CHEM-4308, CHEM-4350, CHEM-4400, CHEM-4410, CHEM-4450, CHEM-4500, CHEM-4510, CHEM-4660.~~
(b) MATH-1760 or MATH-1720, MATH-1730, PHYS-1400 and PHYS-1410;
(c) MATH-1250 and a minimum of two additional courses from the following list: COMP-2067, MATH-2780, MATH-2790, PHYS-2200 or PHYS-2250;
(d) four courses from Arts, Languages or Social Sciences;
(e) nine courses from any area of study **(CHEM-4007 is recommended).**

Note: An internship option is available.

RECOMMENDED COURSE SEQUENCE
First Year: ten courses, including CHEM-1100, CHEM-1110, MATH-1250, MATH-1720, MATH-1730, PHYS-1400 and PHYS-1410.
Second Year: ten courses, including CHEM-2200, CHEM-2300, CHEM-2310, CHEM-2400, CHEM-2410, CHEM-2500 and CHEM-2510.
(*Recommended:* fulfill at least two requirements from (c) above).
Third and Fourth Years: twenty courses, including BIOC-2010, CHEM-3210, CHEM-3300, **CHEM-3310,** CHEM-3400,CHEM-3500, CHEM-3710 and five additional Chemistry and Biochemistry courses at the 3XXX or 4XXX level (see (a) above).

Courses used to calculate the major average are: courses listed under requirement (a), and any courses taken in the major area(s) of study.

PROGRAM DEVELOPMENT COMMITTEE
MINOR PROGRAM CHANGES
FORM C

Honours Chemistry with Thesis
Degree Requirements:

Total courses: forty courses

(a) CHEM-1100, CHEM-1110, CHEM-2200, CHEM-2300, CHEM-2310, CHEM-2400, CHEM-2410, CHEM-2500, CHEM-2510, CHEM-3210, CHEM-3300, CHEM-3310, CHEM-3400, CHEM-3500, CHEM-3710, CHEM-4900, BIOC-2010, **one CHEM or BIOC at 3XXX or 4XXX level,** and **one** ~~five~~ additional course **from CHEM-4XXX (excluding CHEM-4007).** ~~and two additional courses at the 3XXX or 4XXX level. Of the two additional CHEM or BIOC courses at the 3XXX or 4XXX level, at least one of them must be drawn from CHEM-4308, CHEM-4350, CHEM-4400, CHEM-4410, CHEM-4450, CHEM-4500, CHEM-4510, CHEM-4660.~~
(b) MATH-1760 or MATH-1720, MATH-1730, PHYS-1400 and PHYS-1410;
(c) MATH-1250 and a minimum of two additional courses from the following list: COMP-2067, MATH-2780, MATH-2790, PHYS-2200 or PHYS-2250;
(d) Four courses from Arts, Languages or Social Sciences;
(e) Eight courses from any area of study, ~~and~~ **(**CHEM-4007 is recommended**)**.

Note: An internship option is available.

RECOMMENDED COURSE SEQUENCE

First Year: ten courses, including CHEM-1100, CHEM-1110, MATH-1250, MATH-1720, MATH-1730, PHYS-1400 and PHYS-1410.
Second Year: ten courses, including CHEM-2200, CHEM-2300, CHEM-2310, CHEM-2400, CHEM-2410, CHEM-2500 and CHEM-2510. (Recommended: fulfill at least two requirements from (c) above).
Third and Fourth Years: twenty courses, including BIOC-2010, CHEM-3210, CHEM-3300, CHEM-3310, CHEM-3400, CHEM-3500, CHEM-3710, CHEM-4900, and three additional CHEM or BIOC courses at the 3XXX or 4XXX level (see (a) above).

Courses used to calculate the major average are: courses listed under requirement (a), and any courses taken in the major area(s) of study.

A.2   MINOR COURSE CHANGES REQUIRING ADDITIONAL RESOURCES OR AFFECTING DEGREE REQUIREMENTS

> *If this is a minor course and calendar change (usually noted on a Form E) requiring additional resources or affecting degree requirements, please provide the current course information and the proposed new course information by cutting and pasting from the current undergraduate or graduate web calendar and clearly marking deletions with strikethrough (~~strikethrough~~) and additions/new information with **bolding and underlining**. Examples of minor course changes include: deleting courses, course description changes, pre/anti/co- requisite changes, contact hour/lab requirement changes, course title changes, renumbering courses, and/or cross-listing courses. Minor course calendar changes, which do not require additional resources or do not affect degree requirements, should be submitted on a **Form E.***

N/A

B.   RATIONALE

> *Please provide a rationale for the proposed change(s).*

The following two changes were made to correct mistakes in the Degree Requirements of **Honours Chemistry**:
CHEM-3310 is a required course for Honours Chemistry (not just Honours Chemistry with Thesis) Four (not five) additional courses are required to add up to 20. The other change is to add more CHEM-4xxx level courses. Most of them have been taught for a while under generic course names but now have more specific course names and

PROGRAM DEVELOPMENT COMMITTEE
MINOR PROGRAM CHANGES
FORM C

individual PDC forms. This makes it easier for students to navigate our course offerings at the 4xxx level and for us to track learning outcomes and course content for the program.

Related changes were made to the Degree Requirements of **Honours Chemistry with Thesis**: The two additional CHEM courses should be drawn exclusively from CHEM-4xxx level courses because all our Honours Chemistry students should be required to take at least two CHEM-4xxx courses. CHEM-4900 does not count as a regular course. The CHEM-3xxx option was removed because all of them are already required courses under a) and the BIOC-4xxx option was removed because students can take those under e) "nine courses from any area of study".
The same CHEM-4xxx courses were added and for the same reasons as stated above for Honours Chemistry.

B.1 Indigenous (First Nations, Métis, or Inuit) Content, Perspectives, or Material

The University of Windsor is committed to building stronger, more meaningful partnerships with Indigenous students, scholars and communities. In revising this program(s), how has consideration been given to incorporating Indigenous (First Nations, Métis, or Inuit) content, perspectives, or material into the curriculum?

Indigenous content has been included in some of the added CHEM-4xxx courses.

C.   RESOURCES
C.1 Available Faculty Expertise and Staff Resources (QAF sections 2.1.7, 2.1.8, 2.1.9 and 2.1.10)

Describe, in general terms, all faculty expertise and staff resources (e.g., administrative, teaching, supervision) from all affected areas/departments currently available and actively committed to support the program change(s). Please do not name specific individuals.

No additional resources are requested and expected.

C.1.1 Extent of Reliance on Adjunct, Limited-term, and Sessional Faculty in Delivering the Revised Program

Describe the area's expected reliance on, and the role of adjunct, limited-term, and sessional faculty in delivering the revised program.

All courses are delivered by full-time faculty.

C.1.2 Graduate Faculty Qualifications and Supervisory Loads (FOR GRADUATE PROGRAMS ONLY)

Explain how supervisory loads will be distributed, and describe the qualifications and appointment status of faculty who will provide instruction and supervision in the revised program.

N/A

C.1.3 Financial Assistance for Graduate Students (where appropriate) (FOR GRADUATE PROGRAMS ONLY)

Where appropriate to the revised program, provide evidence that financial assistance for graduate students will be sufficient to ensure adequate quality and numbers of students.

N/A

C.2 Other Available Resources (Ministry sections 3 and 4)

Provide evidence that there are adequate resources available and committed to the revised program to sustain the quality of scholarship produced by undergraduate students as well as graduate students' scholarship and research activities, including for example: staff support, library, teaching and learning support, student support services, space, equipment, facilities, GA/TA

No additional resources are required and requested.

C.3 Resource Implications for Other Campus Units (Ministry sections 3 and 4)

Describe the reliance of the proposed program revisions on existing resources from other campus units, including for example:

> - *existing courses, equipment or facilities outside the proposer's control, external resources requiring maintenance or upgrading using external resources. Provide relevant details.*

All added courses have already been taught and did not require any external resources other than a functional lecture room.

C.4 Anticipated New Resources (QAF sections 2.1.7, 2.1.8 and 2.1.9; Ministry section 4)

> *List all **anticipated new resources** originating from within the area, department or faculty (external grants, donations, government grants, etc.) and committed to supporting the revisions to this program.*

No new resources are required.

C.5 Planned Reallocation of Resources and Cost-Savings (QAF section 2.1.7 and 2.1.9; Ministry section 4)

> *Describe all opportunities for internal reallocation of resources and cost savings identified and pursued by the area/department in support of the revisions to this program. (e.g., streamlining existing programs and courses, deleting courses, etc.).*

The proposed changes to the Honours Chemistry programs makes it more straightforward for students to choose specific directions (streams) in their upper years. This is part of our aspiration to individualize and diversify our Chemistry program by generating a multitude of predefined specialization pathways without requiring any additional resources. However, cost savings are not anticipated.

C.6 Additional Resources Required – Resources Requested (QAF section 2.1.7 and 2.1.9)

> *Describe all **additional faculty, staff and GA/TA resources** (in all affected areas and departments) required to run the revised program. If not applicable, write n/a.*

Faculty:	N/A
Staff:	N/A
GA/TAs:	N/A

C.6.1 Additional Institutional Resources and Services Required by all Affected Areas or Departments

> *Describe all **additional institutional resources and services** required by all affected areas or departments to run the revised program, including library, teaching and learning support services, student support services, space and facilities, and equipment and its maintenance.*
>
> *If not applicable, write n/a.*

Library Resources and Services:	N/A
Teaching and Learning Support:	N/A
Student Support Services:	N/A
Space and Facilities:	N/A
Equipment (and Maintenance):	N/A

University of Windsor
Program Development Committee

*5.5.1c: **Political Science – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: **That the degree requirements for the Bachelor of Arts Honours Law and Politics (with and without thesis) be changed in accordance with the program/course change forms.^**

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The proposal has been approved by the Department of Political Science Council, the Faculty of Arts, Humanites, Social Sciences Coordinating Council, and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.4.

University of Windsor
Senate

*5.5.1d: **Computer Science – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the degree requirements for the Bachelor of Computer Science (General), Bachelor of Computer Science (Honours), Bachelor of Computer Science (Honours Applied Computing), Bachelor of Science (Honours Computer Information Systems), Bachelor of Science (Honours Computer Science with Software Engineering Specialization), Combined Honours Computer Science Programs, Bachelor of Computer Science (General) for University Graduates, and Bachelor of Computer Science (Honours Applied Computing) for University Graduates be changed in accordance with the program/course change forms.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposal has been approved by the Department of Computer Science Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.5.

University of Windsor
Senate

*5.5.1e: **Biochemistry and Biomedical Science – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the BSc Honours Biology and Biochemistry (Health and Biomedical Stream) be renamed BSc Honours Biochemistry and Biomedical Science (Health Stream) and that the degree requirements for the program be changed in accordance with the program/course changes forms.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposal has been approved by the Department of Chemistry and Biochemistry Council, the Department of Biomedical Sciences Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.6.

University of Windsor
Senate

*5.5.1f: **Combined Business and Political Science Programs – Combined Programs (Form C2)**

Item for: **Approval**

Forward by: **Program Development Committee**

MOTION: That the Bachelor of Commerce (Honours Business Administration and Political Science) (with/without thesis) and the Bachelor of Commerce (Honours Business Administration and Political Science with Specialization in Human Resources) (with/without thesis) be approved.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposals have been approved by the Odette School of Business Council, the Department of Political Science Council, the Faculty of Arts, Humanities, the Social Sciences Coordinating Council, and the Program Development Committee.
- Students in the Bachelor of Commerce (Honours Business Administration and Political Science) may specialize in any other specializations, but this may require more than 40 courses.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.7.

University of Windsor
Senate

*5.5.1g: **Integrative Biology – New Course Proposal (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following course be approved:^
          BIOL-4220. Science Communication: A Biological Approach

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The new course has been approved by the Department of Integrative Biology Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.8.

University of Windsor
Senate

*5.5.1h: **Biomedical Sciences – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee.**

MOTION: That the following courses be approved:^
BIOM-3540. Immunology
BIOM-3400. Neurobiology of the Synapse

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The new courses have been approved by the Department of Biomedical Sciences Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.9.

University of Windsor
Senate

*5.5.1i: **Chemistry and Biochemistry – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following courses be approved:^
   CHEM-4680. Applied Analytical Laboratory
   CHEM-4832. Magnetochemistry

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The new courses have been approved by the Department of Chemistry and Biochemistry Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.10.

University of Windsor
Senate

*5.5.1j: **Faculty of Arts, Humanities, and Social Sciences (FAHSS) – New Course Proposal (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following course be approved:^
         GART/SOSC-1210. An Introduction into Indigenous Topics

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The new course has been approved by the Faculty of Arts, Humanities, Social Science Coordinating Council and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.11.

University of Windsor
Senate

*5.5.1k: **Kinesiology – New Course Proposal (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following course be approved:^
           KINE-3630. Cognitive Ergonomics

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The new course has been approved by the Faculty Human Kinetics Council and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.12.

University of Windsor
Senate

*5.5.1l: **Nursing – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by**: Program Development Committee**

MOTION: That the following courses be approved:^
            NURS-2522. Clinical Practicum II
            NURS-2130. Professional Nursing III

Rationale/Approvals
- The new courses have been approved by the Faculty of Nursing Council and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.13.

University of Windsor
Senate

*5.5.1m: **Science – New Course Proposal (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following course be approved:^
              SCIE-1900. First-Year Seminar in Science

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The new course has been approved by the Faculty of Science Coordinating Council and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.14.

University of Windsor
Senate

*5.5.1n: **Law – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: **That the following courses be approved:^**
            LAWG-5701. Trauma Informed Lawyering
            LAWG-5702. Comparative Equality Law and Intersectional Discrimination: Critical and Transnational
                        Perspectives
            LAWG-5703. Election Law

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The new courses have been approved by the Faculty of Law Faculty Council and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.15.

University of Windsor
Senate

*5.5.1o: **Chemistry and Biochemistry (Graduate) – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following courses be approved:^
          BIOC-8203. Scattering Techniques in Biochemistry
          BIOC-8404. Computational Enzymology
          CHEM-8600. Surface Chemistry and Analysis
          CHEM-8820. Introduction to Materials Chemistry
          CHEM 8821. Materials Chemistry Laboratory
          CHEM-8831. Research Project
          CHEM-8832. Magnetochemistry

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The new courses have been approved by the Department of Chemistry and Biochemistry Council, the Faculty of Science Coordinating Council, the Faculty of Graduate Studies Council, and the Program Development Committee
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.16.

University of Windsor
Senate

*5.5.1p: **Master of Business Administration (MBA) – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following courses be approved:^
                BUSI-8150. Business Analytics
                STEN-8990. Capstone Project

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The new courses have been approved by the Odette School of Business, the Faculty of Graduate Studies, and the
  Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at
  ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted
  on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this
  particular item, go to 5.17.

University of Windsor
Senate

*5.5.1q: **University Teaching Program (UTP) – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: **That the following courses be approved:^**
CTLP-8100. Learning-Centred Teaching in Higher Education
CTLP-8200. Course Design

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The new courses have been approved by the Faculty of Graduate Studies Council and the Program Development Committee.
- A proposal is being developed to make the current University Teaching Certificate into a formal graduate diploma program. These courses will be part of the formal graduate diploma program. Further, graduate students will be able to count these courses for credit towards their programs, where this is approved by the AAU (through the usual approval process).
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.18.

University of Windsor
Senate

*5.5.1r: **Master of Business Administration (MBA) – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION 1: That the degree requirements for the Master of Business Administration and the Master of Business Administration for Managers and Professionals be changed in accordance with the program/course change forms.^

^Subject to approval of the expenditures required.

MOTION 2: That the Master of Business Administration (Co-op) program be discontinued.

Rationale/Approvals:
- The proposed changes have been approved by the Odette School of Business Council and the Faculty of Graduate Studies Council, and the Program Development Comittee
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.19.

University of Windsor
Senate

5.5.1s: **Master of Medical Biotechnology (MMB) – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the admission and degree requirements for the Master of Medical Biotechnology (MMB) be changed in accordance with the program/course change forms.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The proposed changes have been approved by the Department of Chemistry and Biochemistry Council, the Faculty of Science Coordinating Council, the Faculty of Graduate Studies Council, and the Program Development Committee.
▪ Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.20.

University of Windsor
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*5.5.1t: **Graduate Regulations – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the program requirements for Master's degrees and Doctor of Philosophy degrees be changed in accordance with the program/course change forms.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposed changes have been approved by the Faculty of Graduate Studies Council and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.21.

University of Windsor
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*5.5.1u: **School of Creative Arts (Graduate) – Minor Program Changes (Form C)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the admission and degree requirements for the Master of Fine Arts in Film and Media Arts and the Master of Fine Arts in Visual Arts (MFA) and be changed in accordance with the program/course change forms.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposed changes have been approved by the School of Creative Arts Council, the Faculty of Art, Humanities, and Social Sciences Coordinating Council, the Faculty of Graduate Studies Council, and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.22.

University of Windsor
Senate

5.5.2:   **Master of Management (Business Data Analystics Field) – Major Program Changes (Form B)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the new field in Business Data Analytics in the Master of Management program be approved.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The proposal has been approved by the Odette School of Business Council, the Faculty of Graduate Studies Council, the Provost, and the Program Development Commtee.
- *See attached.*

PROGRAM DEVELOPMENT COMMITTEE
MAJOR PROGRAM CHANGES
FORM B

Form History *(Leave blank if there have been no changes. Changes can also be noted directly in the Workflow)*

Date of Modification	Approval Body Modifying	Reason for Modification
February 14. 2020	Graduate Committee. Odette School of Business	Propose a new field of Business Data Analytics in the Master of Management Program
March 20, 2020	Faculty Council Odette School of Business	Propose a new field of Business Data Analytics in the Master of Management Program
March 30,2020	Graduate Council, U of Windsor	Propose a new field of Business Data Analytics in the Master of Management Program

A. Basic Program Information

Faculty(ies)	Odette School of Business
Department(s)/School(s)	Odette School of Business
Name of Program as it Will Appear on the Diploma (*e.g.***, Bachelor of Arts Honours Psychology with thesis)**	Master of Management, Business Data Analytics
Proposed Year of Offering* [Fall, Winter, Spring]: **(subject to timely and clear submission)*	Winter, 2021
Mode of Delivery:	On site
Planned steady-state Student Enrolment (per section B.4.2)	50
Normal Duration for Completion:	16 Months
Will the program run on a cost-recovery basis?	Yes

B.   Major Program Changes - Overall Plan
B.1   Objectives of the Program/Summary of Proposal (QAF section 2.1.1; Ministry section 4)

> *Please provide a rationale for the proposed change, including a brief statement about the direction, relevance and importance of the revised program. Describe the overall aim and intended impact of the revised program. Describe the consistency of the revised program with the institution's mission, goals and objectives as defined in its strategic plan. (to view the strategic plan go to: www.uwindsor.ca/president)*

The proposal is for a new field in Business Data Analytics. Technological innovations over the past decade have drastically altered the skills and competencies demanded of today's workforce. In particular, there has been a shift toward greater reliance on quantitative techniques and artificial intelligence to support and even automate managerial decisions, increased reliance on fact based decision making, and broader use of digital business models that are dependent on advanced data collection, analysis, and reporting tools and techniques. Given the considerable market demand for graduates in the area of business data analytics, we expect that a suitably developed program will attract highly talented students and create graduates capable of taking leading roles in shaping and transforming organizations of the future. Recent reports indicate that significant numbers of students are returning to school for the explicit purpose of pursuing business data analytics training. As such, enrolment levels in analytics programs have continued to grow over the past several years. In addition, industry stakeholders have been calling on business schools to better prepare their students for the new reality of quantitative, fact-based decision making and the increased reliance of businesses on analytic models.

B.2 Changes to Program Content (QAF Section 2.1.4)

> *Evidence that the revised curriculum is consistent with the current state of the discipline or area of study.*

The Master of Management program requires 13 courses for each field. 8 of these 13 courses are common to all fields. The proposed new field requires 5 new data analytics courses consistent with the current program structure.

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B.2.1 Unique or Innovative Curriculum, Program Delivery, or Assessment Practices (QAF Section 2.1.4)

State the unique or innovative curriculum, program delivery, or assessment practices distinguishing the revised program from existing programs elsewhere.

The proposed Business Data Analytics field is an emerging area of study. This well-established field of study is already included in many graduate and undergraduate business curriculum in Ontario and elsewhere.

B.2.2   Indigenous (First Nations, Métis, or Inuit) Content, Perspectives, or Material

The University of Windsor is committed to building stronger, more meaningful partnerships with Indigenous students, scholars and communities. In developing or revising this program, how has consideration been given to incorporating Indigenous (First Nations, Métis, or Inuit) content, perspectives, or material into the curriculum?

Contents on appropriate application of data analytics to gathering, using and protecting data from Indigenous sources are addressed. Odette has undertaken research to provide information upon which systematic indigenization will proceed in a transparent, and collegial manner to meet the needs of the stakeholders. Odette School of Business encourages course developers and instructors to incorporate Indigenous content, perspectives, and materials into the curriculum. All course outlines of the Odette School of Business recognize that the Odette School of Business and the University of Windsor sit on the Traditional territory of the Three Fires confederacy of First Nations, comprised of the Ojibway, the Odawa, and the Potawatomie.

Further actions arising in due course from Indigenization will be appropriately incorporated into a sustainable manner into Odette's current structure, which includes a First Nations, Metis and Inuit Advisory Council to the Dean, formal policies, procedures and processes.

B.3   Changes to Program Name and Degree Designation/Nomenclature (QAF Section 2.1.1; Ministry section 1)

Explanation of the appropriateness of the proposed new name and degree designation for the program content and current usage in the discipline

The proposal adds a new field Business Data Analytics to the Master of Management Program. The program name and degree designation/nomenclature follow those of the other fields.

The fields to be included on the diploma parchment:
Master of Management, International Accounting and Finance
Master of Management, Logistic and Supply Chain Management
Master of Management, Manufacturing Management
Master of Management, Human Resources Management
Master of Management, Business Data Analytics

B.4   DEMAND FOR THE MODIFIED PROGRAM
B.4.1   Expected Impact of the Proposed Changes to Student and Market Demand

Describe the tools and methodology used to conduct the market assessment in support of the proposed program revisions.
Provide Quantitative evidence of student and market demand for the revisions to the program, both within and outside the local region (e.g., responses/statistics from surveys, etc.).

Business Data Analytics is high in demand. The average salary in Canada is high. As shown in [1], the average Business Analytics salary in Canada is $98,247. Outside Canada, according to Payscale [2], the average salary for a graduate with this competence at the level of a Master's degree in Business Analytics is $72,000 [3].

The job titles are Business Analyst, Senior Business Analyst, Business Data Analyst, Business Intelligence Analyst, Analytics Consultant, Data Analyst, Data Scientist, etc.

Business analytics: Salary

Based on 46 salaries

Year   Month   Week   Hour

$98,247 / Year

The average **Business Analytics** salary in Canada is **$98,247** per year or **$50.38** per hour. Entry level positions start at **$56,452** per year while most experienced workers make up to **$139,776** per year.

Median
$98,247

Low
$56,452

High
$139,776

[1] https://neuvoo.ca/salary/?job=business+analytics
[2] https://www.payscale.com/research/US/Degree=Master_of_Science_(MS)%2C_Business_Analysis/Salary
[3] https://www.franklin.edu/blog/masters-in-business-analytics-salary

B.4.1.1 Percentage of Domestic and International Students (Ministry section 5)

Expected proportion (percentage) of domestic and international students. For graduate programs, identification of undergraduate or master's programs from which students would likely be drawn.

Due to the differences in the learning needs of the domestic and international students, Odette School of Business offers two separate Master programs, Master of Business Administration for domestic students and Master of Management for international students. The data analytics specialization is a part of the Master of Management program and is expected to recruit 90% international and 10% domestic students.

B.4.2 Estimated Enrolments (QAF section 2.1.9; Ministry section 5; Senate Co-op Policy)

Provide details on projected enrolments for the revised program in the following tables. For Co-op programs: normally an annual intake of a minimum of 20 students is required for new co-op programs or programs with other experiential learning component.

Projected enrolment levels for the first five years of operation of the revised program. (If the program is in operation, use actual and projected data.)	First Year of Operation	Second Year of Operation	Third Year of Operation	Fourth Year of Operation	Fifth Year of Operation (Steady-state enrolment overall)
In the regular program (non-co-op)	40	40	50	50	50
In the co-op/experiential learning field (if applicable)	n/a				
For co-op options: projected number of international students enrolled in the co-op field	n/a				

Annual projected student intake into the first year of the revised program:	40

(this may differ from the "first year of operation" projected enrolments which could include anticipated enrolments from students transferring into the second, third, or fourth year of the program)	
Annual projected student intake into the first year of the co-op/experiential learning version of the revised program: *(this may differ from the "first year of operation" projected enrolments which could include anticipated enrolments from students transferring into the second, third, or fourth year of the program)*	*n/a*

B.4.3 New Involvement in a Collaborative Program/Changes to Collaborative Program (QAF section 1.6)

If this is a new collaborative program with another college/university, or revision to a collaborative program, identify partners and institutional arrangements for reporting eligible enrolments for funding purposes.

This is not a collaborative program.

B.4.4 Evidence of Societal Need for the Revised Program (Ministry section 6)

Describe the tools and methodology used to assess societal need. *Elaborate on the* *1) dimensions of (e.g., socio-cultural, economic, scientific, or technological),* *2) geographic scope of (e.g., local, regional, provincial, or national), and* *3) anticipated duration of, and trends in,* *societal need for graduates of the modified program* *Provide evidence that the proposed program revisions respond to societal need for graduates of the revised program and/or changes in the field, including sources of data and expert input or feedback collected to support this change in direction.*

The Odette School of Business has continually promoted and recruited for the Master of Management program. In response to the changing economy and market demands, efforts have been directed toward creating a new program that is reflective of what our students are asking for, and what current industries are demanding. Realizing the societal and industry need for graduates with a Business Data Analytics background, it was decided to use this information to create a new program.

B.4.5 Duplication (Ministry section 7)

List similar programs offered by other institutions in the Ontario university system. Resources to identify similar programs offered in Ontario include www.electronicinfo.ca, www.electronicinfo.ca/einfo.php, and www.oraweb.aucc.ca/showdcu.html. Also, list similar programs in the geographically contiguous area, e.g., Michigan/Detroit.

Odette's comparator schools recognize the demand and necessity of the academic programs in the area of Business Data Analytics as follows:

Lazaridis School of Business and Economics Wilfrid Laurier University Master's program Management Analytics.
Goodman School of Business Brock University, Business Analytics specialization in the MBA program
DeGroote School of Business, McMaster University, Business Analytics specialization in their MBA program.
Beedie School of Business in the Simon Fraser University, a course in Business Analytics in its Master of Business Administration program.
Ted Rogers School of Business, Ryerson University, specialization in Data Analytics in its MBA Management of Technology and Innovation program.

Thus, each of the Odette's comparator schools offer a program in the area of Data Analytics to its graduate students. Our proposed field will be mainly open to international students, who have expressed a great interest both from current students and recruiting agents. There is a large demand in the international market which has not been well tapped.

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B.4.5.1 Demonstrate that Societal Need and Student Demand Justify Duplication (Ministry section 7)

If the revised program is similar to others in the system, demonstrate that societal need and student demand justify the duplication. Identify innovative and distinguishing features of the revised program in comparison to similar programs.

The proposed Business Data Analytics field is based on a strong student demand and society need. In the past years, a large number of students in particular of those in the fields of computer science, engineering, and finance and recruiting agents have inquired about the possibility of offering a business data analytics field. We then surveyed our current students, who also expressed a great interest, and some of them even ask whether they can switch to this field once it is offered. The MoM program director also contacts our potential employers for the societal need for such a field, including meeting with the branch manager of a local credit union, and all of them have expressed the eager to employ graduates from the Business Data Analytics field.

The new field will be able to provide students with general skills that can transfer into several careers in business. For example, banks, credit unions, mining companies, casinos, insurance and mortgage companies, Universities, and hospitals, all have a need for data analysts. Students who graduate with this degree will be able to find a job, locally and globally in a variety of fields. Regional and global business managers and leaders will need these talents to use and analyze data to create business strategy, design and implement data driven projects, and make data driven decisions to meet the needs of their stakeholders.

B.5 RESOURCES
[The resource impact of a proposal is almost never neutral.]

B.5.1 Resources Available

B.5.1.1 Available Faculty and Staff Resources (QAF sections 2.1.7, 2.1.8, 2.1.9 and 2.1.10)

Describe, in general terms, all faculty and staff resources (e.g., administrative, teaching, supervision) from all affected areas/departments currently available and actively committed to support the program change(s). Please do not name specific individuals in this section.

The Odette School of Business faculty and staff are all committed to supporting the program. Appropriately qualified instructors will deliver courses in this program in compliance with not only University of Windsor but also AACSB requirements. Tenured and tenure-track instructors are available and willing to teach the new courses and no new staff resources are needed.

B.5.1.1a Faculty Members Involved in the Delivery of the Program

Complete the following table listing faculty members in the AAU offering the program as well as faculty members from other AAUs who are core to the delivery of the revised program. Indicate in the table the involvement of each faculty member in the revised and existing program(s) offered by the AAU.

Faculty Name and Rank (alphabetical)	Graduate Faculty member (for graduate programs only)	Program Affiliation: indicate faculty affiliation to the EXISTING program(s)	Program Affiliation: indicate faculty affiliation to the REVISED program
Category 1: Tenured Professors teaching exclusively in the AAU offering the program			
Al-Hayale, Talal – Professor	**Yes**	Accounting	BSMM-8610, BSMM-8110, BSMM-8360

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An, Yunbi – Professor	**Yes**	Finance	**BSMM-8370, BSMM-8120**
Aneja, Yash – Professor, Management Science Area Chair	**Yes**	Management Science	**Business Data Analysis**
Baki, Md. Fazle – Professor; Associate Dean Programs, Undergraduate Program Director	**Yes**	Management Science	**BSMM-8320, BSMM-8330, BSMM-8560, BSMM-8570**
Bhandari, Gokul – Associate Professor	**Yes**	Management Science	**BSMM-8320**
Bussiere, Dave – Associate Professor	**Yes**	Marketing	**BSMM-8140, BSMM-8000**
Chaouch, Abderrahmane (Ben) - Professor		Management Science	**QDM, Operations Management**
Cheung, Chi-Keung (Keith) – Assistant Professor with Tenure		Finance	**BSMM-8120**
Elsaid, Eahab – Professor	**Yes**	Finance	**Business Finance; Financial Management**
Fredette, Christopher - Associate Professor	**Yes**	Strategy	**BSMM-8510**
Guo, Xiaolei – Associate Professor	**Yes**	Management Science	**BSMM-8560, BSMM-8330**
Higginson, James – Assistant Professor with Tenure, Marketing Area Chair		Marketing	**BSMM-8550**
Jones, Don – Lecturer with Tenure, Accounting Area Chair		Accounting	**BSMM-8620, BSMM-8110, BSMM-8610**
Kerr, Gerry – Associate Professor	**Yes**	Strategy	**BSMM-8510**
Lan, George - Professor	**Yes**	Accounting	**BSMM-8360, BSMM-8110**
Lee, Jonathan – Associate Professor, Strategy Area Chair	**Yes**	Strategy	**BSMM-8310, BSMM-8510**
Ma, Zhenzhong – Professor, MoM Program Director	**Yes**	Management	**BSMM-8130, BSMM-8530, BSMM-8550, BSMM-8460**
Mahajan, Ashish – Associate Professor, Acting Associate Dean Academic	**Yes**	Management	**BSMM-8130**
Maheshwari, Bharat – Associate Professor	**Yes**	Management Science	**BSMM-8350**
Miller, Peter – Assistant Professor with Tenure		Management Science	**Business Data Analysis**
Ong, Audra – Professor	**Yes**	Accounting	**BSMM-8110**
Reavley, Martha – Professor, Management Area Chair	**Yes**	Management	**BSMM-8660, BSMM-8670, BSMM-8340, BSMM-8130**
Samnani, Al-Karim - Associate Professor	**Yes**	Management	**BSMM-8130**
Schlosser, Francine – Odette Professor in Entrepreneurship & Innovation	**Yes**	Strategy	**BSMM-8660**

Selvarajah, Esaignani (Esai) – Associate Professor	**Yes**	Management Science	**BSMM-8330**
Snowdon, Anne – Professor and Chair, World Health Innovation Network (WIN)	**Yes**	Strategy	**Data Analytics**
Sterling, Maureen – Associate Professor; Teaching Leadership Chair and AoL Coordinator	**Yes**	Accounting	**BSMM-8110**
Voyer, Peter - Associate Professor	**Yes**	Marketing	**BSMM-8140**
Walker, Kent – Associate Professor, MBA Program Director	**Yes**	Strategy	**BSMM-8510**
Category 2: Tenure-track Professors teaching exclusively in this AAU			
Aleks, Rachel – Assistant Professor		Management	**Management-Labour Relations**
Furneaux, Brent – Assistant Professor		Management Science	**Management Info. Systems; Data Analysis**
Guo, Guangrui – Assistant Professor		Management	**BSMM-8510, BSMM-8310, BSMM-8650**
Mohebshahedin, Mahmood – Assistant Professor		Finance	**BSMM-8120**
Category 3: Ancillary Academic Staff such as Learning Specialists Positions			
Georgie, Vincent – AASIII (Permanence Track) and Director, SOCA		Marketing	**BSMM-8140**
Neposlan, Sandra – AASII (Permanence Track)		Management	**BSMM-8000A/B**
Savoni, Peter – AASII (Permanence Track) – MBA-PAS Program Director		Accounting	**BSMM-8110**
Category 4: Limited-term Appointments teaching exclusively in this AAU			
n/a			
Category 5: Tenure or tenure-track or LTA professors involved in teaching and/or supervision in other AAUs, in addition to being a member of this AAU			
McFadyen, Trevor – Lecturer, L/T		Management	**BSMM-8000A/B**
Category 6: Sessionals and other non-tenure track faculty			
Abdool, Imran (MA)		Finance	**BSMM-8370**
Baki, Fouzia (PhD)		Management Science	**BSMM-8330, BSMM-8350**
Biswas, Abhijit (PhD)		Marketing	**BSMM-8140, BSMM-8310**
Carlini, Matt (CPA/CA)		Accounting	**BSMM-8360, BSMM-8620**

Cohen, Ira (PhD)		Strategy	**BSMM-8310, BSMM-8510, BSMM-8140**
Collins, Jerome (MBA)		Management	**BSMM-8130**
Costante, Fabio (MBA/JD)		Management	**BSMM-8660**
Fenn, Garnet (CPA/CA/CMA/CGA)		Finance	**BSMM-8370, BSMM-8120**
Keller, Werner (MBA/JD) (LTA until August 2019)		Strategy	**BSMM-8630**
Livneh, Deborah (MBA)		Finance	**BSMM-8120**
Maggio, Saverpierre (PhD)		Management Science	**BSMM-8320, BSMM-8630**
Mao, Tony (MBA)		Management Science/Strategy	**BSMM-8650, BSMM-8310**
Mitra, Santanu (PhD)		Accounting	**BSMM-8110, BSMM-8360, BSMM-8630**
Mougoue, Mbodja (PhD)		Finance/Strategy	**BSMM-8370, BSMM-8310, BSMM-8120**
Obeid, Carole (MBA)		Management	**BSMM-8130**
Orawski, William (Bill) (CPA/CMA)		Accounting	**BSMM-8110, BSMM-8620, BSMM-8360**
Paranjpe, Nitin (PhD)		Management Science	**BSMM-8320**
Sassine, Leann (MBA/JD)		Management	**BSMM-8340, BSMM-8130**
Simas, Melissa (MA)		Management	**BSMM-8380**
Zhang, Guoqing (PhD)		Management Science	**BSMM-8330, BSMM-8570**
Category 7: Others			
n/a			

B.5.1.1b Faculty Expertise Available and Committed to Supporting the Revised Program

Assess faculty expertise available and actively committed to supporting the revised program. Provide evidence of a sufficient number and quality of faculty who are qualified to teach and/or supervise in the revised program, and of the appropriateness of this collective faculty expertise to contribute substantially to the revised program.

Include evidence (e.g., qualifications, research/innovation/scholarly record) that faculty have the recent research or professional/clinical expertise needed to:
- *sustain the program promote innovation, and foster an appropriate intellectual climate.*

The Odette School of Business currently offers 8 out of 13 courses listed in the program and 5 prescribed courses are new. The full-time faculty members have the required qualifications to develop and teach the required new courses. Separate Form D's are attached for each new course proposal.

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B.5.1.1c Extent of Reliance on Adjunct, Limited-term, and Sessional Faculty in Delivering the Revised Program

Describe the area's expected reliance on, and the role of adjunct, limited-term, and sessional faculty in delivering the revised program.

The Odette School of Business employs tenured or tenure-track faculty members to teach the 5 new required courses. The other 8 common courses are already delivered in the program. Given the planned target of 40-50 students for the new field in two intakes per year, the increased enrolment can be accommodated by increasing the class size by 10-13 students. The current class size for common courses are 40-55 per section (normally offered in two sections). For all the common courses in the current program, around 20-25% are taught by adjunct or sessional instructors. The appointment of any adjunct and/or sessional faculty is in keeping with all graduate faculty regulations related to the appointment of faculty to teach within the program. Instructors are sought in accordance with procedures agreed on by the Odette School of Business and may include advertising, both externally and internally in the appropriate AAU(s), and by direct solicitation. Those appointed will have relevant experience and qualifications. The appointments are, made by the Dean of Business following recommendation by the AAU appointments committee in the Faculty that is responsible for the academic aspects of the program.

B.5.1.1d Graduate Faculty Qualifications and Supervisory Loads (FOR GRADUATE PROGRAMS ONLY)

Explain how supervisory loads will be distributed, and describe the qualifications and appointment status of faculty who will provide instruction and supervision in the revised program.

The Master of Management program is a course-based graduate program. No supervisory load is needed.

B.5.1.1e Financial Assistance for Graduate Students (where appropriate) (FOR GRADUATE PROGRAMS ONLY)

Where appropriate to the revised program, provide evidence that financial assistance for graduate students will be sufficient to ensure adequate quality and numbers of students.

Not applicable.

B.5.1.1f Other Available Resources (Ministry sections 3 and 4)

Provide evidence that there are adequate resources available and committed to the revised program to sustain the quality of scholarship produced by undergraduate students as well as graduate students' scholarship and research activities, including for example: staff support, library, teaching and learning support, student support services, space, equipment, facilities, GA/TA

The existing support services, space, equipment and facilities at Odette are sufficient to sustain the quality of scholarship. We expect that this change will enhance the quality of scholarship produced by graduate students and better career potentials by providing them with further training in the areas associated with data analytics.

B.5.1.2 Resource Implications for Other Campus Units (Ministry sections 3 and 4)

Describe the reliance of the proposed program revisions on existing resources from <u>other</u> campus units, including for example: existing courses, equipment or facilities outside the proposer's control, external resources requiring maintenance or upgrading using external resources. Provide relevant details.

The proposed program changes have no influence on the existing resources of other campus units.

B.5.1.3 <u>Anticipated New Resources</u> (QAF sections 2.1.7, 2.1.8 and 2.1.9; Ministry section 4)

*List all **anticipated new resources** originating from within the area, department or faculty (external grants, donations, government grants, etc.) and committed to supporting the revised program.*

The program relies on existing resources.

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B.5.1.4 Planned Reallocation of Resources and Cost-Savings (QAF section 2.1.7 and 2.1.9; Ministry section 4)

Describe all opportunities for <u>internal reallocation of resources and cost savings</u> identified and pursued by the area/department in support of the revised program. (e.g., streamlining existing programs and courses, deleting courses, etc.)

The Business Data Analytics field and its courses will utilize the resources available in various areas at the Odette School of Business, in particular the Management Science area which has been under-utilized in teaching the existing fields, including International Accounting and Finance Steam, Human Resource Management Field.

B.5.1.5 Additional Resources Required – Resources Requested (QAF section 2.1.7 and 2.1.9)

*Describe all **additional faculty, staff and GA/TA resources** (in all affected areas and departments) required to run the revised program.*

Faculty:	Existing faculty members at Odette will teach the courses proposed in the Business Data Analytics field.
Staff:	Existing support staff at Odette will be utilized for administrative help with photocopying, exam preparation, as well as, room and equipment bookings.
GA/TAs:	Some GA or TA maybe required to assist with the tutorials, office hours and marking of all assignments. If required, Odette School of Business will make the necessary arrangements to hire GA/TAs in accordance with the respective collective agreement.

B.5.1.5b Additional Institutional Resources and Services Required by all Affected Areas or Departments

*Describe all **additional institutional resources and services** required by <u>all affected</u> areas or departments to run the revised program, including library, teaching and learning support services, student support services, space and facilities, and equipment and its maintenance.*

Library Resources and Services:	No additional library resources or services are likely required. Continued access to existing library resources should be adequate.
Teaching and Learning Support:	No additional teaching and learning support services are likely required. Continued access to existing resources should be adequate.
Student Support Services:	No additional teaching and learning support services are likely required. Continued access to existing resources should be adequate.
Space and Facilities:	The proposed courses will utilize the space and facilities existing within the Odette School of Business. Continued access to existing resources is adequate.
Equipment (and Maintenance):	No additional equipment are likely required. Continued access to existing resources should be adequate.

C. Program Details

C.1 Admission Requirements (QAF section 2.1.2)

Describe new or changes to
- *program-specific admission requirements,*
- *selection criteria,*
- *credit transfer,*
- *arrangements for exemptions or special entry, and*
- *alternative admission requirements, if any, for admission into the program, such as minimum average, additional language requirements or portfolios, recognition of prior work or learning experience (and how this will be assessed), etc.*

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Admission to the Master of Management program will be open to applicants who meet the following criteria:

1) A four-year bachelor-level degree in an acceptable discipline, including management science, finance, computer science, engineering, maths, statistics, economics, and other related fields, from an academic institution approved by the University of Windsor.

2) The equivalent of a 70% average or above in the entire 4-year undergraduate studies.

3) Where appropriate an IELTS score of 7.0 (or proof of equivalent English language proficiency, such as TOEFL, MELAB or CAEL tests);

C.1.1 Admission Requirements and Attainment of Learning Outcomes (QAF section 2.1.2)

> *Demonstrate that admission requirements for the revised program are sufficient to prepare students for successful attainment of the intended learning outcomes (degree level expectations) established for completion of the program.*

The admission requirements match the current practice and have been proven to attain the learning outcomes in the past. The retention rate and the results of the AACSB Assurance of Learning tests demonstrate that the admission requirements are sufficient for the successful attainment of the learning outcomes.

C.2 Program Curriculum Structure/Program of Study (QAF sections 2.1.4 and 2.1.10)

> *Provide evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience.*
>
> *NB: For graduate programs, provide evidence that each graduate student in the revised program is required to take a minimum of two-thirds of the course requirements from among graduate-level courses. Include course requirements with course numbers and course names.*
>
> *Identify in BOLD and STRIKETHROUGH the changes to program requirements.*

Master of Management, Business Data Analytics

Total courses: 13

Degree requirements:
BSMM - 8110. Accounting concepts and techniques
BSMM - 8120. Finance in a global perspective
BSMM - 8130. Managing employees
BSMM - 8140. Marketing
BSMM - 8000A/8000B. Business Communications, Parts 1 & 2 (delivered over two consecutive terms)
BSMM - 8310. International Business
BSMM - 8320. Quantitative Studies
BSMM - 8510. Business Strategy (capstone course)

Business Data Analytics Field:
BSMM - 8710 Introduction to Data Analytics
BSMM - 8720 Data Analytics and Project Management
BSMM - 8730 Data Acquisition and Management
BSMM - 8740 Data Analytic Methods and Algorithms
BSMM - 8750 Predictive Modeling and Decision-Making (Capstone)

[...]

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The fields will be included on the diploma parchment:

Master of Management, International Accounting and Finance

Master of Management, Logistic and Supply Chain Management

Master of Management, Manufacturing Management

Master of Management, Human Resources Management

Master of Management, Business Data Analytics

Courses used to calculate the major average are: All courses

Description of thesis option (if applicable): n/a

Provide requirements for the Co-op/Experiential Learning Component AND a description of how the program requirements differ for students who complete the experiential learning option and those who opt not to (if applicable). *[If the co-op/experiential learning component is new (not part of the existing stand-alone program), a PDC Form B is required]***:** n/a

Explain how credit will be awarded for the experiential learning component (length of component, credit weighting, etc.): n/a

Guidelines for experiential learning/co-op work term reports: n/a

General length of experiential learning/co-op work term: n/a

Is the completion of the experiential learning/co-op component a requirement of the program? no

C.3.1 For Graduate Program ONLY (QAF sections 2.1.3 and 3; Senate Co-op Policy)

C.3.1.1 Normal Duration for Completion

> *Provide a clear rationale for program length that ensures that the revised program requirements can be reasonably completed within the proposed time period.*

16 Months

C.3.1.2 Program Research Requirements

> *For research-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for completion of the revised program.*

None, the program is a course-based professional Master's program.

C.3.1.3 New or Changes to Fields in a Graduate Program (optional)

> *Where fields are contemplated, provide the following information:*
> *The master's program comprises the following fields: ...[list, as applicable]*
> *The PhD program comprises the following fields: ...[list, as applicable]*

The Master of Management program comprises the following fields:

Master of Management, International Accounting and Finance

Master of Management, Logistic and Supply Chain Management

Master of Management, Manufacturing Management

Master of Management, Human Resources Management

Master of Management, Business Data Analytics

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C.3.2 For All Program Proposals

C.3.2.1 New or Changes to Standing Required for Continuation in Program

> *Minimum average requirements for continuation in the program.*
> *Must conform to the regulations for standing required for continuation in the program as set out in Senate policy.*
>
> *Specify new or changes to standing required for continuation in the experiential learning option or co-op option of the revised program, where applicable.*

No change.

C.3.2.2 New or Changes to Standing Required for Graduation

> *Minimum average requirement to graduate in the program.*
> *Must conform to the regulations for standing required for continuation in the program as set out in Senate policy.*
>
> *Specify new or changes to standing required for graduation in the experiential learning option or co-op option of the revised program, where applicable.*

No change.

C.3.2.3   New or Changes to Suggested Program Sequencing

> *Provide suggested program sequencing for each year of the revised program, ensuring that all pre-requisites are met in the sequencing.*
>
> *Where applicable, provide work/study/placement sequencing for each year of the experiential learning/co-op version of the revised program. Please ensure that all pre-requisites are met in the sequencing.*
>
> *For Co-op programs: The proposed work/study sequence or alternative arrangement should allow for year-round availability of students for employers (if appropriate) and, wherever possible, should meet the guidelines for co-operative education as set out by the Canadian Association for Co-operative Education (see Policy on Co-op Programs).*

Fall intake, Master of Management, Business Data Analytics

Fall, Year 1:
- BSMM - 8000A Business Communications, Part 1
- BSMM - 8110 Accounting concepts and techniques
- BSMM - 8130 Managing employees
- BSMM - 8320 Quantitative Studies

Winter:
- BSMM - 8000B Business Communications, Part 2
- BSMM - 8120 Finance in a global perspective
- BSMM - 8140 Marketing
- BSMM - 8710 Introduction to Data Analytics

Summer:
- BSMM - 8310 International Business
- BSMM - 8720 Data Analytics and Project Management
- BSMM - 8730 Data Acquisition and Management

Fall, Year 2:
- BSMM - 8740 Data Analytic Methods and Algorithms
- BSMM - 8510 Business Strategy (capstone course)
- BSMM – 8750 Predictive Modeling and Decision-Making (Capstone)

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Winter intake, Master of Management, Business Data Analytics

Winter, Year 1:
- **BSMM - 8000A Business Communications, Part 1**
- **BSMM - 8110 Accounting concepts and techniques**
- **BSMM - 8130 Managing employees**
- **BSMM - 8320 Quantitative Studies**

Summer:
- **BSMM - 8000B Business Communications, Part 2**
- **BSMM - 8120 Finance in a global perspective**
- **BSMM - 8710 Introduction to Data Analytics**
- **BSMM - 8720 Data Analytics and Project Management**

Fall:
- **BSMM - 8310. International Business**
- **BSMM - 8730 Data Acquisition and Management**
- **BSMM - 8740 Data Analytic Methods and Algorithms**

Winter, Year 2:
- **BSMM - 8140 Marketing**
- **BSMM - 8510 Business Strategy (capstone course)**
- **BSMM - 8750 Predictive Modeling and Decision-Making (Capstone)**

COMPLETE THIS TABLE FOR GRADUATE PROGRAMS

In the following table, provide the specific learning outcomes (degree level expectations) that constitute the overall goals of the Combined program or Concurrent offering (i.e., the intended skills and qualities of graduates of this program). Link each learning outcome to the <u>Characteristics of a University of Windsor Graduate"</u> by listing them in the appropriate rows.

A learning outcome may link to more than one of the specified Characteristics of a University of Windsor Graduate. All University of Windsor programs should produce graduates able to demonstrate each of the nine characteristics. Program design must demonstrate how students acquire all these characteristics. All individual courses should contribute to the development of one or more of these traits: a program in its entirety must demonstrate how students meet all of these outcomes through the complete program of coursework.

Proposers are strongly encouraged to contact the Centre for Teaching and Learning for assistance with the articulation of learning outcomes (degree level expectations).

For Combined Programs and Concurrent Offerings: The program learning outcomes would include the outcomes for the two standalone programs with a few additional outcomes to reflect the benefits of pursuing the two disciplines in an integrated manner. [For learning outcome A, the integration of knowledge can be within a program and between the two programs.]

For programs with an Experiential Learning or Co-op Option: Include learning outcomes for the program with a few additional outcomes highlighted to reflect the benefits of pursuing the experiential learning/co-op option.

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Program Learning Outcomes (Degree Level Expectations) *This is a sentence completion exercise. Please provide a minimum of 1 learning outcome for each of the boxes associated with a graduate attribute.* <u>At the end of this program, the successful student will know and be able to:</u>	Characteristics of a University of Windsor Graduate <u>A UWindsor graduate will have the ability to demonstrate:</u>	OCGS-approved Graduate Degree Level Expectations
A. Describe and evaluate the effects of differences in various international business environments on the likelihood of domestic and international business success (e.g. different economic drivers, trade organizations and agreements, consumer's attitudes etc. in various cultures).	A. the acquisition, application and integration of knowledge	1. Depth and Breadth of Knowledge 2. Research and Scholarship 3. Level of Application of Knowledge 6. Awareness of Limits of Knowledge
B. Undertake research to define specified international business issues and access, retrieve and evaluate the relevance of data and apply it to making a business decision. **For Business Data Analytics field:** Undertake research to define specified international business issues and access, retrieve and evaluate the relevance of data, **visualize data** and apply it to making a business decision, **e.g., project management, portfolio management, asset management, asset valuation.**	B. research skills, including the ability to define problems and access, retrieve and evaluate information (information literacy)	2. Research and Scholarship 3. Level of Application of Knowledge 6. Awareness of Limits of Knowledge
C. Apply an evidence-based decision model to evaluate and recommend the best available alternative to resolve an international business problem. **For Business Data Analytics field:** Apply an evidence-based **data analytic** decision model, **and software** to evaluate and recommend the best available alternative to resolve an international business problem.	C. critical thinking and problem-solving skills	1. Depth and Breadth of Knowledge 2. Research and Scholarship 3. Level of Application of Knowledge 4. Professional Capacity/autonomy 6. Awareness of Limits of Knowledge
D. Analyze both qualitative and quantitative data and findings; distinguish and evaluate their relevance to the resolution of international business issues. **For Business Data Analytics field:** Analyze both qualitative and quantitative data and findings, **using data analytic models and software**; distinguish and evaluate their relevance to the resolution of international business issues.	D. literacy and numeracy skills	2. Research and Scholarship 5. Level of Communication Skills

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Program Learning Outcomes (Degree Level Expectations) *This is a sentence completion exercise. Please provide a minimum of 1 learning outcome for each of the boxes associated with a graduate attribute.* <u>At the end of this program, the successful student will know and be able to:</u>	Characteristics of a University of Windsor Graduate <u>A UWindsor graduate will have the ability to demonstrate:</u>	OCGS-approved Graduate Degree Level Expectations
E. Recognize differences among the ethical and legal environments **(e.g. Global Reporting Initiative, Indigenous rights, etc**) to evaluate and exercise responsible social behaviors in the international context.	E. responsible behaviour to self, others and society	4. Professional Capacity/Autonomy 6. Awareness of Limits
F. Select and communicate effectively and professionally (both appearance and behavior) through a variety of appropriate media in written and verbal communications	F. interpersonal and communications skills	5. Level of Communication Skills
G. Identify and apply appropriate team skills to constructively deploy diversity within teams to inform the resolution of international business issues.	G. teamwork, and personal and group leadership skills	4. Professional Capacity/Autonomy 5. Level of Communication Skills
H. Summarize the importance of different contextual factors in order to formulate innovative ideas about what could constitute success in the conduct of business in various cultures	H. creativity and aesthetic appreciation	2. Research and Scholarship 4. Professional Capacity/autonomy 6. Awareness of Limits of Knowledge
I. Apply acquired knowledge to resolving international issues and facilitating ongoing professional development	I. the ability and desire for continuous learning	4. Professional Capacity/autonomy

C.4.1 Revised Program Structure and Regulations Ensure Learning Outcomes Can be Met

Describe how the revised program's structure and regulations ensure that the specified learning outcomes can be met by successful students.

The performance of the students will be assessed through a combination of midterm exam, final exam, simulation, class participation, research projects, case studies, oral presentation, and CATME results (CATME facilitates on-line team member evaluation). Assurance of Learning (AoL) is administered in a parallel process based on the Odette schedule of testing in its BComm courses. AoL is tested using methods and observable measures which are aligned with the learning outcome being tested.

C.4.2 Impact of Experiential Learning Component on Attainment of Learning Outcomes

For programs with a proposed experiential learning or co-op component: describe how the experiential learning/co-op component changes the emphasis or the means of achieving the intended learning outcomes for the program.

N/A, the program does not have an internship or co-op component.

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C.4.3 Mode of Delivery (QAF section 2.1.5)

Demonstrate that the proposed modes of delivery are appropriate to meet the new or revised program learning outcomes. Discuss online vs. face-to-face (e.g., lecture, seminar, tutorial, lab) modes of delivery, as well as specialized approaches intended to facilitate the acquisition of specific skills, knowledge, and attitudes.

The courses will be delivered through face-to-face, online or hybrid modes as appropriate for students to complete the program in a timely way.

C.5   Student Workload

Provide information on the expected workload per course credit (3.0) of a student enrolled in this revised program. (For assistance with this exercise, proposers are encouraged to contact the Centre for Teaching and Learning.)

Expected Workload per 3.0 Course Credit/Week	Average Time *per week* the Student is Expected to Devote to Each Component Over the Course of the Program
Lectures	4
Tutorials	
Practical experience	
Service or experiential learning	
Independent study	3
Reading and work for assessment, including meeting classmates for group work/project assignments (essays, papers, projects, laboratory work, etc.)	3
Studying for tests/examinations	2
Other: *[specify]*	
Compare the student workload for this program with other similar programs in the AAU: Master of Management courses are delivered over 10 weeks of classes with a 4 hours/week class meeting. Students take 3.5 courses in terms 1 and 2, and then take 3 courses in terms 3 and 4. Thus, a 12 hours/course/week translates into 42 hours/week in terms 1 and 2 and 36 hours in terms 3 and 4. Also, 12 hours/course/week means 120 hours/course over the entire term. This workload is reasonable and comparable with other similar programs in Business.	

D. MONITORING AND EVALUATION (QAF section 2.1.6)

Describe and explain the appropriateness of the proposed methods of assessing student achievement given the new or revised intended learning outcomes and degree level expectations.

The Assurance of Learning (AOL) process at Odette is well established and has been vetted by the Centre for Teaching and Learning and the results of each semester are posted in a Blackboard Learn site for all instructors on the roster of Odette to view.

D.1 Plan for Documenting And Demonstrating Student Performance Consistent with Learning Outcomes

Describe the plan for documenting and demonstrating student performance level and demonstrate its consistency with the new or revised stated learning outcomes and degree level expectations.

The Odette School of Business has a grading policy and a rigorous Assurance of Learning (AOL) process. Whenever the course grades and/or AOL results do not meet threshold requirements the program director in consultation with the Dean, area chairs, graduate committee and instructors, develops remedies to improve the program.

E. NEW OR REVISIONS TO EXPERIENTIAL LEARNING/CO-OP COMPONENT ONLY (Senate Co-op Policy)

N/A, the program does not have an internship or co-op component.

University of Windsor
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*5.5.2a: **Master of Management – New Course Proposals (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following courses be approved:^
BSMM-8710. Introduction to Data Analytics
BSMM-8720. Data Analytics and Project Management
BSMM-8730. Data Acquisition and Management
BSMM-8740. Data Analytic Methods and Algorithms
BSMM-8750. Predictive Modeling and Decision-Making (Capstone)

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The new courses have been approved by the Odette School of Business, the Faculty of Graduate Studies Council, and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.1.1.

University of Windsor
Senate

5.5.3:   **Geographic Information Science (GISc) Certificate – New Program Proposal (Form A)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the Certificate in Geographic Information Science be approved.^

^Subject to approval of the expenditures required.

Rationale/Approvals:
▪ The proposal has been approved by the School of the Environment Council, the Faculty of Science Coordinating Council, the Provost, and the Program Development Committee.
▪ *See attached.*

PROGRAM DEVELOPMENT COMMITTEE
PROPOSAL BRIEF FOR NEW PROGRAMS
FORM A

New Program Steering Committee/Provost Approval to Develop New Program Proposal

Prior to completing this form, proposers MUST complete a "New Program Notice of Intent Form" and obtain APPROVAL to proceed from the New Program Steering Committee and the Provost.

Date of New Program Steering Committee/Provost approval to proceed with development of the new program proposal:	Fall 2019

A. Basic Program Information

Faculty(ies)	Faculty of Science
Department(s)/School(s)	School of the Environment
Name of Program as it Will Appear on the Diploma (*e.g.*, Bachelor of Arts Honours Psychology with thesis)	Geographic Information Science (GISc) Certificate
Proposed Year of Offering* [Fall, Winter, Spring]: **(subject to timely and clear submission)*	Fall 2020
Mode of Delivery:	In-Class Lectures and Labs
Planned steady-state Student Enrolment (per section B.4.2)	50
Normal Duration for Completion:	4 years
Will the program run on a cost-recovery basis?	No

B. Overall Program Plan

B.1 Objectives of the Program/Summary of Proposal (QAF section 2.1.1; Ministry section 4)

Please provide a brief statement about the direction, relevance and importance of the new program. Describe the overall aim and intended impact of the proposed new program. Describe the consistency of the proposed new program with the institution's mission, goals and objectives as defined in its strategic plan. (to view the strategic plan go to: www.uwindsor.ca/president)

Geographic Information Science (GISc) as a discipline is growing rapidly and the demand for geospatial professionals is high, diverse, and secure. A certificate identifying expertise in GISc is both **relevant** and **timely**. GISc develops and utilizes different types of geospatial technologies (e.g., geographic information systems [GIS], remote sensing [RS], global positioning systems [GPS], and unmanned aerial vehicles [UAVs]) to capture and visualize natural and anthropogenic features on the earth's surface. Geospatial data is then generated to map, model, and analyze the geographic relationships between humans and their environments. GISc as a discipline has seen significant growth in terms of services, economic impact, software development, research and development, and job opportunities (Appendix 1, page 5).

A significant driver of this growth has been the widespread adoption of GISc and geospatial technologies by a diverse range of disciplines. Traditionally, GISc has predominantly been taught within the disciplines of geography and natural resource management and has focused primarily on environmental applications. However, GISc is now being embraced in the areas of business and marketing, health sciences, transportation and navigation, computer science, criminology, etc. A review of 944 regional job advertisements from 2001 to 2018 has shown that geospatial professionals are being sought in areas such as environmental/resource management (25%), geomatics services

(21%), municipal government (14%), utilities (13%), construction (3%), education (3%), information technology (3%), engineering (2%), transportation (1%), and other (7%) (Appendix 2, page 18). "Other" includes areas such as advertising, agriculture, communications, law enforcement and forensics, emergency response, food services, health, insurance, mining, navigation, planning, real estate, sales, and shipping.

Due to this growth and the related expansion in application areas, there are increased numbers of job opportunities for geospatial professionals. Our job advertisement review showed a steady increase in the number of advertisements over the 17-year period that was examined (Appendix 2, page 17). Geospatial professionals who were surveyed as part of the stakeholder surveys supported this conclusion when 79% stated that graduates would continue to be desirable to employers over the next 5-10 years (Appendix 2, page 100). Further, according to Higher Education Strategy Associates (HESA), the job outlook for geospatial positions is "Fair" insofar as the number of job seekers equals the number of job vacancies (Appendix 3, page 14).

There is also a significant amount of support for offering a GISc Certificate at the University of Windsor from departments and faculty members within our university community, local and regional businesses, government agencies, and the local school system. The development team has received 18 letters of support, communicating the value of the certificate for the university as well as the need for graduates with geospatial skills, from the following individuals, departments, business, and/or institutions (Appendix 4):

- Dr. Aaron Fisk, School of the Environment/GLIER, University of Windsor
- Dr. Andrea Craig, Department of Economics, University of Windsor
- Department of Economics, University of Windsor
- Cross Border Institute, University of Windsor
- Leddy Library, University of Windsor
- ENWIN
- ESRI Canada
- United Way Centraide Windsor-Essex County
- WE-SPARK Health Institute
- Essex Region Conservation Authority
- St. Clair Region Conservation Authority
- Lower Thames Valley Conservation Authority
- Town of Tecumseh
- City of Windsor
- City of London
- Environment and Climate Change Canada
- Mr. Chittarro, Holy Names Catholic High School
- Windsor Essex Catholic District School Board

As awareness of this increased demand for geospatial professionals spreads, students have begun to request programs that will put them on a path to employment in geospatial positions. Our own research into the interest for a GISc Certificate among our current students, alumni, and local high school students showed evidence of this demand. 88% of undergraduate students and 61% of high school students were either interested or very interested in the certificate (Appendix 2, page 38 and page 86). The undergraduate student respondents who were interested or very interested came from varying departments: School of the Environment (SOE) (33%), Civil & Environmental Engineering (C&EE) (24%), Computer Science (CS) (13%), Biology (BIO) (7%), Economics (ECON) (6%), Chemistry (CHEM) (6%), Great Lakes Institute for Environmental Research (GLIER) (2%), Sociology, Anthropology, Criminology (SAC) (2%), and General Science (SCI) (2%) (Appendix 2, page 33). 70% of undergraduate students surveyed and 33% of SOE alumni surveyed would strongly consider submitting an application to the certificate once it is launched

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FORM A

(Appendix 2, page 39 and page 57). In addition, 68% of SOE alumni stated that they would have enrolled in a GISc Certificate during their time at the university had one been offered (Appendix 2, page 56). Therefore, the University of Windsor should take advantage of the community's steady demand for geospatial professionals and the student's growing demand for geospatial programs by offering a GISc Certificate.

A GISc Certificate at the University of Windsor is **important** to ensuring that we remain competitive, both provincially and nationally. While several universities and colleges across the province offer geospatial programs (44 individual institutions), only two universities offer a GIS certificate that closely resembles what is being proposed at the University of Windsor (i.e., an undergraduate GIS certificate at a university) (Appendix 2, page 12). In addition, the geographic distribution of geospatial programs in the province reveals a large gap in offerings south of Waterloo. Offering a competitive, multidisciplinary GISc Certificate open to all students at the University of Windsor presents a significant opportunity for us to corner the market, draw students back to our region, and develop a southwestern Ontario geospatial centre of excellence.

To market and promote the certificate to ensure healthy enrolment and to build the certificate's reputation, the development team worked with internal and external partners to: 1) conceptualize a visual brand model and an external marketing plan for the certificate (Appendices 5 and 6), 2) determine the level of internal university support that may be available to provide help in marketing the certificate (Appendix 7, pages 19-22), and 3) formalize a pilot project to build a feeder school initiative for GIS education at a local high school (Appendix 7, pages 22-23).

The **direction** the GISc Certificate has taken was largely determined by: the skill sets the industry identified as necessary for employment as part of stakeholder surveys, comparisons to other institution's course contents, the disciplines from which interested students are coming, existing SOE courses, the potential for experiential learning opportunities amongst local and regional geospatial industry, industry standard skills and competencies (e.g., the GIS&T Body of Knowledge), and our own insights into and expertise in geospatial science. Based on these considerations, the GISc Certificate has been designed in a way that emphasizes critical spatial thinking, core spatial analytical and technical skills and competencies, and in-demand spatial technologies. The certificate will be open to all undergraduate students at the University of Windsor and is meant to be completed *concurrently* with a four-year undergraduate degree. As such, the GISc Certificate is a value/service-add certificate. The GISc Certificate consists of the following *nine* courses, *all of which* are required courses in order to obtain a GISc Certificate at graduation:

Course Code	Course Title
ESCI-1141	Cartography & Digital Mapping
ESCI-1151	Fundamentals of Geographic Information Systems
ESCI-3721	Introduction to Image Processing & Remote Sensing
ESCI-2701	Geospatial Data Collection & Database Design
ESCI-2711	Scripting and Programming in GIS
ESCI-3701	Spatial Modeling in GIS
ESCI-3761	Geostatistical Analysis in GIS
ESCI-3771	GeoWeb & Geoportal Development
ESCI-4911	GIS Capstone Research Project (2 semesters)

Ultimately, the **overall aim** of the certificate is to produce graduates who are prepared to obtain well-paid, stable employment after graduation, and excel as highly skilled geospatial professionals.

The GISc Certificate will add value to the following shared objectives and priorities for differentiation identified in the University of Windsor's **Strategic Mandate Agreement** (SMA): 1) program innovation and student experience, 2) innovation in teaching and learning, 3) research excellence and impact, and 4) innovation, economic development

and community engagement. For a detailed discussion of alignment to the SMA, please refer to pages 11-15 of Appendix 1.

The **impact** of offering a GISc Certificate will be to: 1) contribute highly skilled geospatial professionals that various industries are seeking to strengthen the discipline and the communities in which they work; 2) provide insight into the viability of implementing a full-scale degree program (i.e., a Bachelor's Degree or a Master's in GISc at the University of Windsor); 3) introduce new courses to the SOE that will further align our overall course offerings to environmental applications; 4) increase the SOE's enrolment numbers and strengthen our existing programs; 5) strengthen the university's competitiveness with other institutions offering similar programs; 6) form industry and community partnerships through the capstone course; and 7) build a geospatial centre of excellence at the university to demonstrate our leadership in GISc teaching and research.

B.2 Program Content (QAF Section 2.1.4)

Evidence that the proposed curriculum is consistent with the current state of the discipline or area of study.

The development team based the design of the GISc Certificate, its curriculum, and course structure on the results of several research initiatives: 1) the stakeholder surveys, specifically the Alumni and Potential Employer surveys; 2) the marketing and labour demand report developed by HESA; and 3) research into geospatial industry and its emerging trends.

The results of the Alumni survey showed that geospatial professionals utilized the following most often in their roles: proprietary software (i.e., ESRI products), online mapping applications, database management software and query languages, and programming languages and software (Appendix 2, page 55).

The results of the Potential Employer survey showed that the most sought-after skills in new hires include: spatial analysis and modeling, knowledge of geospatial software and technologies, database development and management, data collection and conversion (Appendix 2, page 97). Respondents also identified the following key skills as lacking in new hires: knowledge of geospatial software and technologies, programming skills, and data collection and conversion (Appendix 2, page 96). Respondents also placed an emphasis on seeking new hires with experience with both proprietary and open source GIS software, since open source options are becoming increasingly popular in the workplace due to increasing costs. Finally, respondents indicated that they are seeking graduates who are critical spatial thinkers. One respondent stated specifically that a crucial skill or ability essential to their organization is "Critical Thinking - when faced with a wide variety of requests and issues, one must plan and chart the process to approach the task in a logical way" (Appendix 2, page 106).

The HESA report concluded that the most sought after skills for HESA performed a third-party analysis of the labour market and, using the National Occupational Classification code #2255: Technical occupations in geomatics and meteorology, identified the most sought after skills for geospatial technicians, analysts, specialists and programmers to be: knowledge of GPS, ability to query using SQL, and experience coding using Python (Appendix 3, page 19).

The GIS&T Body of Knowledge, produced by the University Consortium for Geographic Information Science, is a comprehensive encyclopedia of the key concepts, skills, and theories that relate directly to geographic information science as a discipline. It is frequently used in the development of geospatial curricula and used to inform hiring practices. It identifies the following amongst its foundational concepts: programming and development, data capture, data management, analytics and modeling, and cartography and visualization (UCGIS, 2019).

The development team, using this information, designed each course within the GISc Certificate to meet or align to each of the considerations discussed above.

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The table below lists each certificate course and provides a brief course description. The colours used in the table denote the level of achievement of each course based on the CuMA paradigm, where **Green** is "Introductory", **Purple** is "Reinforced", and **Orange** is "Mastery".

Course Code & Title	Course Description
ESCI-1141 Cartography & Digital Mapping	This introductory course focuses on the key elements of map design, representation of spatial data, and map interpretation. Topics will include projections, datums and coordinate reference systems, scale properties and unit calculations, map symbology, and map accuracy. Different mapping approaches, such as choropleth, isoline, and dot mapping will be utilized throughout the course. Web-based mapping will be introduced. Maps will be designed, generated, and interpreted using paper-based media and modern cartographic software in a laboratory setting.
ESCI-1151 Fundamentals of Geographic Information Systems	This introductory course focuses on the basic principles, techniques, applications, and impacts of geographic information systems. Vector and raster data structures will be introduced, as well as methods for acquiring, storing, manipulating, and analyzing spatial and non-spatial data. Spatial data conversion, data reformatting, and basic database development techniques will also be explained. Geographic layers will be created and different overlay and spatial query procedures to address various real-world problems will be presented using proprietary and open-source GIS software in a laboratory setting.
ESCI-2721 Introduction to Image Processing & Remote Sensing	This course will introduce how changes to the Earth's surface can be examined by utilizing aerial photography and satellite imagery and the key elements of imagery interpretation. Discuss how different satellite sensors and platforms (LANDSAT, RADARSAT, SPOT, MODIS), and how electromagnetic radiation, in conjunction with remote sensing software, can be used to identify key spectral signatures of the Earth's diverse environments (water, vegetation, urban). Emphasis will be placed on how remote sensing constrains and permits our ability to derive useful attributes of the Earth's surface, and how imagery is processed, classified, and interpreted. This course will involve completing application-based assignments using specialized remote sensing software.
ESCI-2701 Geospatial Data Collection & Database Design	Geospatial data are continuously being collected in real-time and in large quantities, at different scales and for different purposes. This course will explore fundamental database concepts in non-spatial contexts (entity- relationship model, object-oriented database design) and introduce spatial considerations (geometric objects, topology, connectivity) when creating geodatabases. Methods for building effective relational and spatial databases using modern geospatial and non-geospatial software, as well as query-based languages such as SQL. Data capture equipment and tools, such as UAVs (drones), total survey stations, GPS, and online spatial catalogues (including census, climate, and municipal) will be utilized to collect and import spatial and aspatial data into geodatabases. Data quality and assurance, database management systems and geodatabase enterprise solutions, mining of big spatial data, implications of data sharing, and construction of metadatabases will also be discussed.
ESCI-2721* Scripting & Programming in GIS	Knowledge and competence in programming are an essential skill set and a critical requirement for most geospatial job opportunities. This course will introduce the basics of constructing scripts (lists, loops, syntax, classes, objects) and programming them into a GIS framework for the purpose of automating workflows, visualizing geospatial data, building and running tools from GUIs and APIs, etc. Other topics will include: methods to enhance functionalities within current geospatial software and web-based systems, the utilization of geospatial libraries, and the construction of effective tools for spatial analysis purposes using Python and other programming languages.
ESCI-3701 Spatial Modeling in GIS	This course will explore several types of advanced spatial models (conceptual, mathematical, statistical, process, and spatial) and how these models are used for decision-making in various real-world applications. The modeling approaches that may be explored include: multi-criteria decision analysis, fuzzy logic, network models (routing vs. hydrologic), 3-D and terrain assessment, agent-based modeling, and artificial intelligence. These approaches will be applied to both vector and raster formats within a GIS framework. Other topics that will be examined include: model selection, calibration, uncertainty and error identification, sensitivity analysis, and validation procedures.
ESCI-3761 Geostatistical Analysis in GIS	This course will provide comprehensive examination of geostatistical approaches and how they can be incorporated into a spatial and statistical framework to determine how and why spatial distributions and patterns occur between and amongst humans and their environments. The specific geostatistical

	approaches that will be covered include methods that analyze patterns (spatial autocorrelation, nearest neighbour), map clusters (hot-spot, groupings and outliers), measure geographic distributions, and model spatial relationships (weighted/land use regressions, correlation matrices).
ESCI-3771 GeoWeb & Geoportal Development	Internet mapping has become a conventional approach used by the public (citizen science) and various organizations (government, health, utilities) to store, manage and share spatial data. Knowing how to design, construct and administer these online systems has become a necessary skill in the workplace. This course will explore the history of internet mapping, what software is available (proprietary vs. open source) to map spatial data online and how to design interfaces, construct tools and visualize spatial data within geoweb based GUIs and APIs. Process, storage and querying mechanisms for online geodatabases will also be taught.
ESCI-4911 GIS Capstone Research Project	Students will learn how to design, manage, and complete a research project that emphasizes the use of a geographic information system (GIS) for a specific application. Students can either work in groups of 3 to 4 or individually based on the scope and complexity of the project. Each group or individual will select a suitable spatial problem, with guidance from the instructor, and try to solve the problem by acquiring, organizing, and analyzing data within a GIS by using the necessary theories, tools, programs, etc. that they learned throughout the certificate. Projects must include an extensive analytical component where GIS is central to the methods used. The course will also cover conducting literature reviews, project methodology and organizational design, proper reporting of results and overall project management. Students may also participate and collaborate with outside community partners, GIS organizations and/or GIS professionals as part of their research initiatives.

In previous CDF reports that have been attached to this submission, ESCI-2721 was referred to as ESCI-2111. The course number was changed due to internal SOE considerations.

B.2.1 Unique or Innovative Curriculum, Program Delivery, or Assessment Practices (QAF Section 2.1.4)

> *State the unique or innovative curriculum, program delivery, or assessment practices distinguishing this proposal from existing programs elsewhere.*

As part of our research, the development team identified two existing certificates that are directly comparable to this proposed GIS Certificate (i.e., an undergraduate GIS certificate at a university) (Appendix 2, page 12). These include: 1) a Certificate in Geographic Information Science at Queen's University; 2) a Certificate in Geographic Information Systems and Remote Sensing at York University.

There are four other programs that are similar to the proposed GISc Certificate but have not been deemed directly comparable as they are offered at continuing education GIS certificates (Appendix 2, page 12). They are: 1) a Certificate in Applied Digital Geography and GIS at Ryerson University; 2) a Certificate in Demographic Analysis and GIS at Ryerson University; 3) an Advanced Certificate in Applied Digital Geography and GIS at Ryerson University; and 4) a Certificate in Geographic Information Systems and Remote Sensing at York University. ***Note: A more detailed discussion of the methods used to identify these existing certificates is found in the Duplication section (Section B.4.5) of this form below.***

The proposed GISc Certificate will distinguish itself from these six existing certificates in four significant ways.

First, the certificate will be open to any student on campus from any department (if their schedule allows) as a value-add to their four-year undergraduate degree. The existing certificates at the aforementioned universities are not set up as such: they are housed in a single department and, after reviewing their documentation, do not appear to be open to all students across their respective universities. Further, unlike the GISc Certificate, they are standalone certificates and are not offered as a value-add to their undergraduate degree program for no additional charge to students. The GISc Certificate has been designed to be completed concurrently with an undergraduate degree and will not require students to pay additional fees (i.e., in addition to their tuition and mandatory incidental fees required by their primary undergraduate degree). By organizing the proposed GISc Certificate in this way for the University of Windsor, we will guarantee the greatest opportunity for high enrolment numbers and bring geospatial thinking and

skills to the widest variety of students as possible. Knowing that the geospatial industry has been and will continue to expand to disciplines beyond the environment and geography, students across the University of Windsor community will be able to take advantage of the certificate and diversify their education to meet a growing demand for multidisciplinary, critical spatial thinkers.

Second, teaching in this certificate will involve a hybridization of traditional, lecture-based and emerging experiential-based teaching practices. Traditional lecture-based teaching is associated with practices such as lectures, whiteboard illustrations, assignments with tasks, and rubric-driven summation-based assignments. Alternatively, experiential-based teaching practices include computer assisted learning, flipped classroom exercises, distance education, and e-learning. The table below identifies, broadly, which practices will be utilized for each certificate course. This hybridized approach will give students the ability to: 1) directly engage with the subject matter being taught; 2) incorporate a problem-solving process to guide inquiry; 3) address real word-problems at various scales (e.g., local, regional, global); and 4) view and solve problems from multi-disciplinary perspectives. The result is a critical spatial thinker who can tackle issues such as spatial data, spatial processing and analysis, and spatial outputs and communications, using a wide range of different spatial skills and abilities that could be transferable to solve any real-world problem.

School of the Environment Professors & Research Alignment to GISc Certificate Courses									
Courses	Lectures	Assignments and Assessments	Computer Assisted Learning	Active Learning	Problem-Based Learning	Field-Based Learning	Project-Based Learning	Service Learning	Place-Based Learning
ESCI-1141 Cartography & Digital Mapping	✓	✓	✓	✓	✓				
ESCI-1151 Fundamentals of Geographic Information Systems	✓	✓	✓	✓	✓				
ESCI-2721 Introduction to Image Processing & Remote Sensing	✓	✓	✓	✓	✓				
ESCI-2701 Geospatial Data Collection & Database Design	✓	✓	✓	✓	✓	✓	✓		
ESCI-2711 Scripting & Programming in GIS	✓	✓	✓	✓	✓				
ESCI-3701 Spatial Modelling in GIS	✓	✓	✓	✓	✓		✓		
ESCI-3761 Geostatistical Analysis in GIS	✓	✓	✓	✓	✓		✓		
ESCI-3771 GeoWeb & Geoportal Development	✓	✓	✓	✓			✓	✓	
ESCI-4911 GIS Capstone Research Project	✓	✓				✓	✓		✓

Third, the GISc Certificate will include non-traditional methods of student and program assessment that incorporate experiential learning and community partnerships. Along with the traditional methods which include formal testing, expressing their understanding of concepts in written assignments, and demonstrating technical competencies with geospatial technologies and software in laboratory settings, the certificate students will also be required to apply the totality of their learned skills in a final capstone project. This capstone course (to be completed over two semesters) will require students to work on specific geospatial problems and initiatives with various community stakeholders (e.g. local government, conservation authorities, non-profit organizations, etc.) and industrial partners. These partnerships may entail the following: geospatial software application development, generation of environmental and other spatial models, geospatial web application development, geodatabase generation and management, geovisualization in 2D and 3D, field work with various geospatial tools, etc. In addition, workplace skills such as

geospatial project management, workflow design, and presenting and communicating ideas and results will be developed. The assessment of the students' performances will be done collaboratively between the instructors of the capstone course and the industry partner providing the project.

Finally, the GISc Certificate itself will be externally reviewed regularly by an advisory board made up of University of Windsor and community stakeholders. The purpose of this board is to provide feedback on the GISc Certificate - its curriculum, design, and vision - that will guide its initial development, execution, and future evolution. This collaboration with the geospatial industry through the capstone course and the advisory boards is extremely innovative insofar as it provides an opportunity for industry to be a part of how geospatial education at the University of Windsor evolves. This open line of two-way communication will ensure that: 1) the University stays abreast of all emerging industry trends, 2) industry can communicate to educators what they are looking for in geospatial professionals, and 3) students make the industry connections needed to obtain well-paid, secure employment after graduation.

B.2.2   Indigenous (First Nations, Métis, or Inuit) Content, Perspectives, or Material

The University of Windsor is committed to building stronger, more meaningful partnerships with Indigenous students, scholars and communities. In developing this program, how has consideration been given to incorporating Indigenous (First Nations, Métis, or Inuit) content, perspectives, or material into the curriculum?

While not every course lends itself to the incorporation of the content or perspectives of Indigenous Peoples, there are **four courses** in which this is possible. Our goal in incorporating this content was to do so in a way that is meaningful to our students and deeply respectful of and in collaboration with local Indigenous communities.

1. The **Cartography and Digital Mapping course (ESCI-1141)**, we would like to incorporate Indigenous perspectives of "sense" and "state" of place to further enhance the cartographic process. This would encourage new-found empathy toward any given environment/location and improve the depiction of them. This could be accomplished by inviting a guest speaker from a regional nation (e.g., Bkejwanong Walpole Island First Nation, Aamjiwnaang First Nation, Caldwell First Nation, or Moravian of the Thames Band First Nation) to discuss their viewpoints on the concepts of "sense" and "state" of place (i.e., their communities). "Sense" of place, how Indigenous people experience their physical environment (e.g., sensory, spiritual, medicinal, historical, linguistic), leads to a deeper awareness of the "state" of place (i.e., social, physical, environmental condition of a location). With these discoveries, students will enhance their decision-making abilities to produce effective and thought-provoking cartographic outputs.

2. The **Geospatial Data Collection & Database Design course (ESCI-2701)**, we would like to formulate a relationship with an Indigenous community that is interested in teaching our students how data is collected, recorded, interpreted, or shared in their communities (quantitatively and qualitatively), specifically related to environmental and ecological applications. This exploration will lead us to a better understanding of the commonalities between our methods from a scientific perspective and potentially introduce our students to new, non-clinical ways of approaching data. Further, this would give students an awareness of and respect for the concerns Indigenous communities have related to data ownership and privacy surrounding data collected on a nation's land. To drive this discussion, guest speakers from Indigenous communities and researchers currently working with Indigenous communities, who are collecting data and establishing various types of outputs, would be invited to speak to the class to discuss their experiences.

3. The instructor for the **Introduction to Image Processing and Remote Sensing course (ESCI-2721)**, may reach out to Indigenous communities in hopes of building and potentially formalizing a relationship that would outline the needs of an Indigenous community that may require the use of imagery and opportunities to learn how to utilize these data capturing technologies. For example, hyperspectral drones could be used to capture imagery that would help identify, classify, and map species of vegetation important to the community.

4. The **GIS Capstone Research Project course (ESCI-4911)**, will give Indigenous communities a potential platform to discuss spatial problems important to any nation, identify the resources (e.g., spatial technologies,

students, etc.) needed to address that problem, and access those resources to investigate that problem. It is through this Indigenous guidance and mentorship that our students will build everlasting relationships, a respect for Indigenous viewpoints, and incorporates critical spatial thinking which will result in an overall empathy for our communities.

B.3 Program Name and Degree Designation/Nomenclature (QAF Section 2.1.1; MINISTRY section 1)

Explanation of the appropriateness of the name and degree designation for the program content and current usage in the discipline.

The name *Geographic Information Science* (GISc) *Certificate* is an appropriate designation that reflects not just the technical skill sets that will be achieved by our students, but also reflects the development and further evolution of the discipline itself. *Geographic Information System* (GIS) refers exclusively to the technical aspects of the discipline: learning how to utilize software (e.g., ArcGIS) and certain spatial technologies (e.g., GPS units). However, because this certificate will also teach students to understand the theoretical basis for these technologies, how they are conceptualized, and how they can be applied to various problems, along with the technical aspects, GISc more accurately reflects the nature and content of the certificate curriculum. Further, GISc also encompasses remote sensing concepts and technology, data capture technologies such as unmanned aerial vehicles (UAVs), etc.

B.4 DEMAND FOR THE NEW PROGRAM

B.4.1 Student and Market Demand (MINISTRY section 5)

Describe the tools and methodology used to conduct the market assessment. Provide quantitative evidence of student and market demand both within and outside the local region (e.g., responses/statistics from surveys, etc.).

The development team employed four methodologies to conduct both the student demand and market demand assessments:

1) Five online stakeholder surveys;
2) An in-house cataloguing of GIS job advertisements;
3) A third-party market demand study completed by Higher Education Strategy Associates (HESA); and
4) A GISc special topics graduate course to act as a test run for enrollment.

As part of the stakeholder surveys, the team developed and distributed short online surveys amongst five groups:

1) University of Windsor current students (undergraduates in the Faculty of Science, undergraduates and graduates in Civil & Environmental Engineering, undergraduates in Business, and GLIER graduate students);
2) University of Windsor School of the Environment's (SOE) alumni;
3) Local high school students;
4) Local high school teachers; and
5) Potential employers/industry (across Canada but predominantly in the Windsor-Essex region).

The team followed the Curriculum Development Fund's (CDF) Standard Operating Procedure (SOP) to obtain University of Windsor Research Ethics Board (REB) approval in terms of the development and dissemination of all five stakeholder surveys (Appendix 8, page 22). Surveys were anonymous and distributed to each group via e-mail that had an embedded linked image to the appropriate surveys. Reminder emails were sent in subsequent weeks to some groups to increase the momentum of responses. For each survey, the respondent was required to agree to a *Consent to Participate in Research* clause.

The table below summarizes the main objectives and key questions of each group's survey. To see each survey in full, please refer to Appendix 9.

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Group	Objectives	Key Questions	# of Questions
University of Windsor Students	1. To determine the extent of the demand for and interest in a GISc Certificate at the University of Windsor for existing students. 2. To gauge the level of interest in the proposed course content. 3. To determine the level of interest across various academic units on campus.	1. Do you find this certificate appealing? 2. What GIS courses have you taken? 3. What is your level of interest in this certificate? 4. How likely is it that you would apply? 5. In which department are you registered?	17
University of Windsor Alumni	1. To determine the extent of the demand for and interest in a GISc Certificate at the University of Windsor for potential returning students. 2. To gauge the level of interest in the proposed course content. 3. To determine the extent to which graduates use geospatial knowledge and skills in the workplace.	1. Did you take any GIS courses? Would you have? 2. Are you using GIS software or skills as part of your job? 3. Would you have enrolled in the certificate if it were offered? 4. Would you return as a mature student to the certificate?	9
High School Teachers	1. To determine the degree to which high school students are exposed to geospatial theory and applications. 2. To identify potential gaps in the proposed course content. 3. To understand the level of resources available at the high schools for teaching geospatial theory and application. 4. To quantify a level of interest for continuing education courses in GISc	1. Are GIS courses taught in your school? 2. What resources do you have to teach these courses? 3. Would you enroll in this certificate as a mature student? 4. Do you think this certificate would be appealing to senior students? 5. Are there any course topics or subject matters that should be included?	14
High School Students	1. To determine the extent of the demand for and interest in a GISc Certificate at the University of Windsor for potential incoming students. 2. To identify the extent of pre-existing knowledge of or exposure to geospatial theory and applications. 3. To determine whether students are interested in attending university and assessing what subject matter they are interested in, generally.	1. Have you taken any GIS courses? 2. Would you take them if they were offered? 3. What is your level of interest in this certificate? 4. Would you enroll in this certificate concurrently with your undergraduate degree? 5. Do you plan to attend university? 6. What subject matters are of interest to you?	10
Potential Employers	1. To identify what GISc skill sets employers are looking for. 2. To identify the breadth of disciplines/industries that employ geospatial professionals (local vs. regional). 3. To compile a list of organizations that would be interested in participating in the internship component of the proposed GISc Certificate. 4. To identify potential gaps in the proposed course content from the employer's perspective.	1. What are the main geospatial skills you consider essential? 2. What are the main gaps in geospatial skills or knowledge you have seen in new hires? 3. What level of certification is typically desired? 4. Do you believe graduates with combined credentials will become more desirable? 5. Would your organization be willing to participate in an internship course?	14

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As part of the in-house job advertisement catalogue, the development team recorded job advertisements from four online GIS job sites: GIS Jobs Clearinghouse, Geomatics Canada, Canadian GIS, and GIS Careers. These data were then collated into a queryable database consisting of 944 jobs that were posted between 2001 and 2018. For each job posting the following was recorded: job title, Country, Province/State, City, organization, industry (e.g., utilities, environment, IT, etc.), and year. To view this database in full, please see Appendix 10.

Also, it is important to note that the industry survey discussed above was also created to provide a micro-scale analysis, more at the local level (i.e., Windsor-Essex area), of the specific geospatial job skills required from the perspective of working geospatial professionals and potential employers. To begin, a database of potential contacts from various organizations was generated. These organizations included: local and regional municipalities, conservation authorities, environmental consultants, utilities, surveyors and geospatial companies, charities, federal and provincial government bodies, etc. For each contact, where available, the following information was recorded: name, email address, phone number, position, organization name, etc. The emails were then input into Qualtrics® to be used as part of the stakeholder survey exercise described above. For a detailed discussion of the methodology used to develop and disseminate these surveys, please refer to pages 2-4 of Appendix 8.

The HESA report served to enhance our knowledge of the market and student demand for a GIS certificate. HESA consultants used Statistics Canada's National Occupational Classification (NOC) 2255 "technical occupations in geomatics and meteorology" and the North American Industry Classification System (NAICS) to assess: industry and organization hiring trends, geospatial skills by job title, required experience by job title, salary ranges, etc. The final report was received via email from HESA on November 30th, 2018. HESA also assessed student demand by focusing on a select number of competitor programs that the development team identified and tallying enrollment rates for multiple programs across multiple years (Appendix 3).

A GISc special topics graduate course was delivered in the Fall of 2018 through the School of the Environment. It helped the development team gauge the level of interest in a graduate GIS course, the multidisciplinarity of the student body interested in GISc, and the feasibility of extending the proposed certificate into a Master's program in the future. This introductory course, Applications of Geographic Information Systems and Technology (GISc) (03-61-590), exposed students to core spatial theories and their applications to transportation and logistics, pollution tracking and epidemiological impact, habitat mapping and species distribution, and 3-D visualization and geosimulation. Students were exposed to industry standard proprietary and open source geospatial software packages, and geospatial mobile devices (e.g., GPS, UAVs).

The table below summarizes the key results of the research initiatives described above.

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Dataset	Key Findings	Things to Consider
University of Windsor Student Survey	1. The *majority (81%)* indicated that the GISc Certificate is **appealing** (n=70). 2. **88%** of students indicated that have a high or very high **level of interest** in this certificate (n=67). 3. **70%** of respondents are either *likely* or *very likely* to **submit an application** to the certificate once it is launched (n=66). 4. Those respondents who were interested or very interested in the certificate come from the following **departments**: *EES* (**33%**), *C&EE* (**24%**), *CS* (**13%**), *BIO* (**7%**), *ECON* (**6%**), *CHEM* (**6%**), *GLIER* (**2%**), *SAC* (**2%**), and *SCI* (**2%**) (n=59) *. 5. *55 students* provided us with their **contact information** so that they may be notified when the certificate is ready to accept applications. 6. *89%* of students felt that a GISc Certificate *may or would strongly improve* their job prospects after graduation (n=66). 7. **47** students indicated that they have not taken GIS courses at the university. Of those students, **71%** still responded that they have a **high level of interest** in the certificate. 8. The three **main draws** to the certificate for students who were interested are: 1) the chance to learn to use **geospatial technologies**, 2) the **job opportunities** after graduation, and 3) the chance to participate in an **internship course**.	While there was multidisciplinary pool of respondents, not every academic unit on campus (i.e., the arts and social sciences, kinesiology, law, etc.) was surveyed. The survey may have benefited by being open for a longer period of time (i.e., a month). In terms of survey development, using Qualtrics®, there was some difficulty with the settings. Particularly, the automatic response saving setting defaults to 1 week after last activity, at which point it saves the response complete or not. This results in incomplete or empty fields submitted involuntarily by the respondent (n=32 blanks).
University of Windsor Alumni Survey	1. The *majority* (**68%**) of alumni **would have enrolled** in a GISc Certificate had it been available when they attended the University of Windsor (n=57). 2. *Some alumni* (**33.33%**) would **consider enrolling** in a GISc Certificate at the University of Windsor as a mature student (n=57). 3. The most used **spatial software and technologie**s used by alumni are *proprietary software* (26), *online mapping applications* (11), *database management software and query languages* (9), and *programming languages and software* (8). 4. *23 alumni* provided us with their **contact information** so that they may be notified when the certificate is ready to accept students.	These surveys were sent to the EES alumni only. Additional inquiries in the future (i.e., in developing a Master's program) could include alumni from other departments.
High School Teacher Survey	1. Only *one* teacher reported that **GIS courses** are taught in their high school. 2. The only **resources** teachers have to teach GIS-related courses are *networked computer labs* (3), *a few computers* (3), *paper maps* (2), and/or *web and online mapping applications* (1). 3. *Three* teachers who responded believe that a GISc Certificate would be **beneficial to graduating students**. 4. The majority of teachers believe that a GISc Certificate *may improve* (25%) or *would improve* (50%) a student's **chances of getting hired** after graduation (n=4).	While both school boards were contacted, only the Windsor Essex Catholic District School Board responded. Direct distribution of the surveys to teachers and students was controlled by the individual high school's principles, not the research team. The low number of respondents suggests that an outreach

5. ***Three*** teachers indicated that they may consider enrolling in the GISc Certificate to enhance their teaching credentials.

program to promote GIS in high schools is needed.

Interestingly, this survey seemed to have triggered interest from local teachers such that they contacted Ms. Grgicak-Mannion directly to discuss developing geomatics courses at the senior grade levels. These meetings will begin in January. Could this lead to developing a feeder school? This point is further supported by the anecdotal comment left on the alumni survey by a respondent, assumed to be a teacher: "GIS is a great tool. Too many high schools are not teaching this. The focus is just not there by the TDSB and too many principals are deaf to the benefits of GIS. Universities must get across to the School Boards and principals, that this stuff is beneficial. My high school is the number one feeder school in all of Ontario for Ryerson's Geographic Analysis program. We teach our kids all about GIS using passion as a basis!"

One teacher did respond after the deadline, apologizing for missing the survey window. This further supports having a longer window.

This low response rate is interesting considering that the last two GIS Day events run at the University experienced a high level of attendance from the local high schools: approximately 100 students from different schools at different grade levels.

This was the weakest respondent group.

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High School Student Survey	1. The *majority* (76%) of high school students are aware of **what GIS is** as a discipline (n=25). 2. The *majority* (64%) of high school students have taken courses that **utilize GIS technologies** such as GPS units, drones, or software (n=25). 3. The majority of high school students identified that their **level of interest** as either *interested* (30.43%) or *very interested* (30.43%) in the GISc Certificate (n=23). 4. When asked a general question regarding their subject matter interests after high school, the most prominent response was *Chemistry/Biochemistry* **(11/22 students)**, while **6/22** students identified *Earth/Environment/Geography*.	While both school boards were contacted, only the Windsor Essex Catholic District School Board responded. Direct distribution of the surveys to teachers and students was controlled by the individual high school's principles, not the research team.
Potential Employer Survey	1. The three most identified **industries** in which geospatial professionals who responded to our survey are working are: *environmental* (**31.58%**), *municipal government* (**15.79%**), and *utilities* (**15.79%**) (n=19). 2. The **most desired geospatial skills** required by these organizations include *spatial analysis and modelling*, *knowledge of geospatial software and technologies*, *database development and management*, *data collection and conversion*. 3. Employers identified the following skills as **lacking in new hires**: knowledge of *geospatial software and technologies*, *programming skills*, and *data collection and conversion*. 4. *Undergraduate degrees* and *undergraduate degrees with a GISc Certificate* were identified most often as the **desired level of certification** for new hires. 5. **79%** of respondents stated that *graduates with combined credentials* (i.e., an undergraduate degree with a GISc Certificate) would be increasingly desirable in the next 5-10 years (n=19). 6. *15 geospatial professionals* indicated that they were very interested in being part of the **capstone course** planned for the proposed GISc Certificate. 7. *13 geospatial professionals* indicated that they were interested in **participating** in the GISc Certificate's courses as judges, guest lecturers, etc. 8. *8 geospatial professionals* indicated that they were interested in being part of an **advisory board** for the development of the GISc Certificate.	Other industries included: transportation, social services, engineering, academic, consulting, mapping, etc. While on the surveys focused primarily on local organizations and businesses (i.e., the Windsor-Essex region), further studies could expand the audience beyond this region to Ontario-wide or even Canada-wide. This being said, some organizations outside of this region were identified and surveyed.
Geospatial Job Database (University of Windsor compiled)	1. While the **number of available geospatial job**s fluctuates over time, the trend is showing a *steady increase from 2001 to 2018*. 2. The four main industries in which geospatial jobs appear are *environmental/resource management* (**25%**), *geomatics services* (**21%**), *municipal government* (**14%**), and *utilities* (**13%**) (n=944). 3. The most sought after **positions** are geospatial *technicians* (**24%**), *analysts* (**18%**), *specialists* (**12%**), and *developers* (**7%**) (n=944).	The most prominent decline in the number of jobs available happened in 2008 during the economic crisis originating in the United States. Number did not start increasing again until 2010. There were many other industries seeking geospatial professionals, such as: construction, engineering,

		transportation, information technology, health, etc.
HESA Report	1. **Enrollment rates** are *growing* for geography, environmental, and urban planning programs at Queen's, Ryerson, and Waterloo. 2. Specifically, for **geospatial programs**, enrollment rates are highest at Waterloo, Ryerson, and Queen's. 3. **Job postings** that list GIS as a required skill is high amongst *government*, *professional*, *scientific* and *technical services*. (Derived from NAICS classifications) 4. The most sought after **skills** for technicians, analysts, specialists, and programmers are knowledge of *GPS*, ability to query using *SQL*, and experience coding using *Python*. (Derived from NOC 2255) 5. The majority of geospatial jobs require *0-2 or 3-5* years working **experience**. 6. Geospatial professionals **earn** between *$50,000 and $75,000+* in salaried roles. 7. **Job outlook** for geospatial positions is *fair*: there is equilibrium between job seekers and job vacancies. 8. The *majority* (**93%**) of geospatial professionals employed are working **full time**. 9. HESA's final conclusion was that there was "strong demand, both in terms of student interest and in terms of job market demand, to support the proposed [certificate] (HESA, pg. 28)." They did point out that we should be aware of unnecessary duplication and to take that into consideration when building our certificate.	Using these NAICS codes to identify industries that utilize GIS skills is not an intuitive process for classification of GIS jobs. Labour demand investigation was restricted to NOC 2255**. This may conflate the numbers for meteorological roles and not capture geospatial roles adequately. Only the top skill for each group was listed here. For a full list, please refer to the HESA report, page 19 Table 10.
Graduate Course	1. A total of *18 individuals* **participated in the course**: 15 graduate students and 1 faculty member enrolled, 1 graduate student and 1 professor audited. 2. Participants were from a **variety of departments** across the university: *the Great Lakes Institute for Environmental Research*, *Earth and Environmental Sciences*, *Computer Science*, *Sociology*, *Chemistry*, and *Biology*. 3. The enrollment rate is significantly higher than average (3-4 students) for an EES graduate course.	The high number of enrollments is encouraging; suggests the certificate will be get the enrollment numbers needed to be successful and that the possibility of extending the certificate to a Master's level is viable. The multidisciplinary nature of the participants is evidence that the certificate should be open to students from all departments on campus, not just EES. SET evaluations, once released, will provide a better indication of how the course was received by participants.

*Earth and Environmental Sciences (EES), Civil and Environmental Engineering (C&EE), Computer Science (CS), Biology (BIO), Economics (ECON), Chemistry and Biochemistry (CHEM), Great Lakes Institute for Environmental Research (GLIER), Sociology Anthropology and Sociology (SAC), and General Science (SCI).

**National Occupational Classification 2255: Technical occupations in geomatics and meteorology
http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=122372&CVD=122376&CPV=2255&CST=01012011&CLV=4&MLV=4.

In addition to the results outlined above, the comments left by students and alumni as part of the last question of their respective surveys also support the conclusion that there is high demand and support for the certificate. The following are comments made by current undergraduate students:

"Though I am not personally interested in the program, I believe it would be a great program to put in place."

"I want to take this certificate program can we get it started soon please."

"I am graduating the Economics program this year and starting the Aeronautics Program Fall 19. The GIS cert would work extremely well with this program and look forward to having the program as an option."

The following comments were made by alumni respondents to the survey:

"I would have loved to take a GIS certificate program there. When I graduated I moved to Toronto and looked into doing one here. I wish I could have just done it during my undergrad."

"It is about time for the U of W to offer this type of course including certification. I am a retired teacher and learned by doing and took certification (limited) at Laurier. The ArcView people were extremely helpful as well. This type of offering should tap an unmet need."

"I think this is a fantastic idea that offers significant, practical, and high "value add" to ANY university education/degree. The skills to be obtained are highly transferrable to numerous professions. I enthusiastically applaud whoever came up with this!!!"

"I went on to study at the College of Geographic Science in Lawrencetown, NS in Remote Sensing. Had there been a program at UW I would have preferred that."

In conclusion, based on all the evidence presented above, the development team feels strongly that there is sufficient student and market demand to implement the proposed GISc Certificate at the University of Windsor. This conclusion is further supported by the third party consultation, HESA, who stated that: 1) "Our review of equivalent programs for curriculum and enrollment and employer demand for the skills and competencies developed by the proposed [certificate] suggests that there are compelling reasons for moving forward with the proposed certificate (HESA, pg. 1)"; and 2) there is "strong demand, both in terms of student interest and in terms of job market demand, to support the proposed [certificate] (HESA, pg. 28)."

B.4.1.1 Percentage of Domestic and International Students (Ministry section 5)

Expected proportion (percentage) of domestic and international students. For graduate programs, identification of undergraduate or master's programs from which students would likely be drawn.

Based on our enrolment strategy, we looked at enrolments into our SOE programs as well as several programs from other departments. The enrolment statistics were obtained from the University of Windsor 2018 Fall USIS/USER Allocated Head Count By Visa Status document developed by the Office of Institutional Analysis. The table below summarizes our findings. In addition, the second table below shows the Fall 2019 enrolment numbers for the School of the Environment, provided by the Office of the Registrar. Based on these numbers, our prediction using the survey results is confirmed and we can confidently estimate that approximately 85% of our students will be domestic and the remainder will be international. Our student surveys corroborated this: >80% of respondents were domestic students.

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University of Windsor Fall 2018 USIS/USER Allocated Head Count of Full-Time Students by Department, Program, and Visa Status			
Department & Program	**Domestic (Fall 2018)**	**International (Fall 2018)**	**Total (Fall 2018)**
Computer Science			
Computer Science General	72	15	87
Computer Science Honours Applied Computing	9	5	14
School of the Environment			
Environmental Science	25	3	28
Environmental Studies	62	5	67
Economics			
Economics General	15	9	24
Bachelor of Arts Honours	8	5	13
Bachelor of Science Honours	8	4	12
TOTAL	199	46	245
PERCENTAGE	81%	19%	100%

University of Windsor Fall 2019 USIS/USER Allocated Head Count of Full-Time School of the Environment Students by Program and Visa Status			
Department & Program	**Domestic (Fall 2019)**	**International (Fall 2019)**	**Total (Fall 2019)**
School of the Environment			
Environmental Science	40	5	45
Environmental Studies	90	12	102
TOTAL	130	17	147
PERCENTAGE	88%	12%	100%

B.4.2 Estimated Enrolments (QAF section 2.1.9; Ministry section 5; Senate Co-op Policy)

Provide details on projected enrolments in the following tables.

For Co-op programs: normally an annual intake of a minimum of 20 students is required for new co-op programs or programs with other experiential learning component.

Projected enrolment levels for the first five years of operation. *(If the program is in operation, use actual and projected data.)*	First Year of Operation	Second Year of Operation	Third Year of Operation	Fourth Year of Operation	Fifth Year of Operation (Steady-state enrolment overall)
In the regular program (non-co-op)	20	30	40	50	50
In the co-op/experiential learning stream (if applicable)	N/A (experiential learning component	N/A (experiential learning component	N/A (experiential learning component is mandatory)	N/A (experiential learning component is mandatory)	N/A (experiential learning component is mandatory)

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	is mandatory)	is mandatory)			
For co-op option: projected number of international students enrolled in the co-op stream					

Annual projected student intake into the first year of the program: *(this may differ from the "first year of operation" projected enrolments which could include anticipated enrolments from students transferring into the second, third, or fourth year of the program)*	20
Annual projected student intake into the first year of the co-op/experiential learning version of the program: *(this may differ from the "first year of operation" projected enrolments which could include anticipated enrolments from students transferring into the second, third, or fourth year of the program)*	20 (experiential learning component is mandatory)

B.4.3 Collaborative Program (QAF section 1.6)

If this is a collaborative program with another college/university, identify partners and describe institutional arrangements for reporting eligible enrolments for funding purposes.

The GISc Certificate is *not* a collaborative certificate with any other college/university.

B.4.4 Societal Need (Ministry section 6)

Describe the tools and methodology used to assess societal need.   *Elaborate on the* *1) dimensions of (e.g., socio-cultural, economic, scientific, or technological),* *2) geographic scope of (e.g., local, regional, provincial, or national), and* *3) anticipated duration of, and trends in,* *societal need for graduates of the new program*   *Evidence of societal need for the program will typically include a review of relevant industry and provincial survey and statistical data, as well as a review of the proposed program by relevant experts in the field.*

To evaluate societal need, the development team assessed the labour and market demand for GISc graduates, the student demand for a GISc Certificate, and the state of the geospatial industry globally and nationally. Specifically, the team utilized the following data sources: 1) stakeholder surveys (undergraduate and high school students, alumni, potential employers, and high school teachers), 2) an in-house geospatial job database, 3) a third party demand and feasibility study conducted by Higher Education Strategy Associates (HESA), and 4) independent research into the current and projected state of GIS as a discipline. ***For a detailed description of the specific methodology for the first three sources, please see the Student and Market Demand (B.4.1) section above.***

The job market investigation reveals that the level of demand for geospatial professionals is high, diverse, secure, and growing. The growth of geospatial jobs has been steadily increasing in the last 20 years and the job outlook for geospatial positions is fair insofar as the number of job seekers equals the number of job vacancies. Geospatial professionals are sought in a variety of disciplines (environment, geomatics services, municipal government, and utilities) and at varying levels of expertise (technicians, analysts, specialists, developers, etc.). 93% of geospatial professionals are employed full time and the majority of these jobs have salaries that range from $50,000 to >$75,000 per year (Appendix 3, page 23). Additionally, the potential employers surveyed expressed support for a geospatial

certificate where they would contribute projects for a capstone/internship course, be guest lecturers for some geospatial courses, and sit on an advisory board to support a certificate and build a local geospatial community.

The results of the stakeholder surveys demonstrate that interest in the certificate is high and that first-year enrollment rates have the potential to be substantial. 88% of university students and 61% of high school students were either interested or very interested in the certificate. The university respondents who were interested or very interested came from varying departments: SOE (33%), C&EE (24%), CS (13%), BIO (7%), ECON (6%), CHEM (6%), GLIER (2%), SAC (2%), and SCI (2%). 70% of university students surveyed and 33% of SOE alumni surveyed would strongly consider submitting an application to the certificate once it is launched. In addition, 68% of SOE alumni stated that they would have enrolled in a GISc Certificate during their time at the university had one been offered.

Our research into the state of the geospatial industry (including GIS, RS, GPS, and UAV technologies) demonstrates that the industry has seen significant growth in services, software development, research and development, and employment. Further, the industry will continue to grow significantly in the near future. Since GIS was pioneered as both a mapping and analytical tool in the early 1960s, it has grown into a multi-billion-dollar industry. According to the *2019 Global Geospatial Industry Outlook & Readiness Index* (GGIORI) report, the global geospatial industry as a whole (i.e., including sub-industries such as global positioning systems [GPS], unmanned aerial vehicles [UAVs], remote sensing technologies/software [RS], etc.) was valued at US$339 billion in 2018 and is projected to increase to US$439.2 billion by 2020 (Geospatial Media and Communications, 2019). Specifically, the global GPS market was valued at US$37.9 billion in 2017 and is expected to be worth US$149.4 billion in 2025 (Grand View Research, 2018). Global RS services accounted for US$10.68 billion in 2017 and is expected to reach US$21.62 billion by 2022 (Markets and Markets, 2017). The global UAV market is estimated to grow from US$2 billion in 2016 to nearly US$127 billion in 2020 (Goines & Brem, 2017).

Canada placed fifth in the world on the *Countries Geospatial Readiness Index of 2019* (CGRI), which evaluates countries based on their "geospatial maturity" (Geospatial Media and Communications, 2019). The CGRI considers a country's geospatial data infrastructure, geospatial and enabling policy framework, geospatial domain education and research institution capacity, user adoption levels at all organization levels, and geospatial industry capacity (strengths, representation, etc.) (Geospatial Media and Communications, 2019). In 2015, Natural Resources Canada published a study titled, *Canadian Geomatics Environmental Scan and Value Study*. According to this study, 2,450 distinct firms make up the geospatial industry in Canada and have contributed $2.3 billion to the national Gross Domestic Product (GDP) and $20.7 billion to the economy in 2013 (GeoConnections, 2015). Geospatial technologies have contributed $21 billion to the GDP and created over 19,000 full-time jobs across Canada as of publication date (GeoConnections, 2015). The study also estimates that use of open geospatial data has added $695 billion to Canada's GDP over time (GeoConnections, 2015). Ontario accounts for 17% of the Canadian employment distribution for geospatial jobs, behind Quebec and the Prairies at 25% and 41%, respectively.

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	Rank 2019	Country	CGRI- 2019 Score (0-100)
LEADERS	1	USA	100.00
	2	United Kingdom	62.16
	3	Germany	49.51
	4	The Netherlands	47.03
	5	Canada	44.45
	6	Denmark	44.06
	7	China	41.19
	8	Singapore	41.16
	9	Belgium	41.11
	10	Switzerland	40.94

Countries Geospatial Readiness Index 2019, Leaders
Source: 2019 Global Geospatial Industry Outlook & Readiness Index, pg. 42
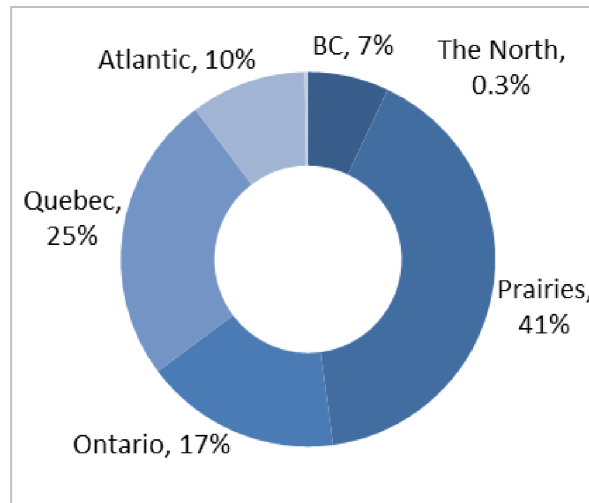
Canadian Regional Geomatics Employment Distribution
Source: 2015 Canadian Geomatics Environmental Scan and Value Study, pg. 17 (GeoConnections, 2015)

With the success of these technologies, and the advancement of the internet and the development of web-based mapping protocols and mobile technologies with mapping capabilities, GISc and geospatial technologies have been thoroughly embraced by a wide variety of disciplines and industries. Traditionally, GISc has predominantly been taught within the disciplines of Geography and Natural Resource Management and has focused primarily on environmental applications. However, GIS is now being applied in areas of business and marketing, health sciences, transportation and navigation, computer science, criminology, etc. As part of the market demand research, the team reviewed over 900 GIS job advertisements posted between 2001 and 2018 on four online classified websites for jobs in Canada, Ohio, and Michigan (Appendix 10). The results of the review showed that GIS professionals are being actively sought in industries that extend beyond geography and the environment. The figure below highlights the distribution of GIS job advertisements amongst these various industries. The widespread use of GIS tools and technologies across numerous industries means an increase in available jobs for GIS professionals. These jobs will be diverse in terms of the technologies and GIS solutions they will utilize and require.

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Percent of Jobs by Industry, Canada and the USA (Ohio and Michigan)
n= 944
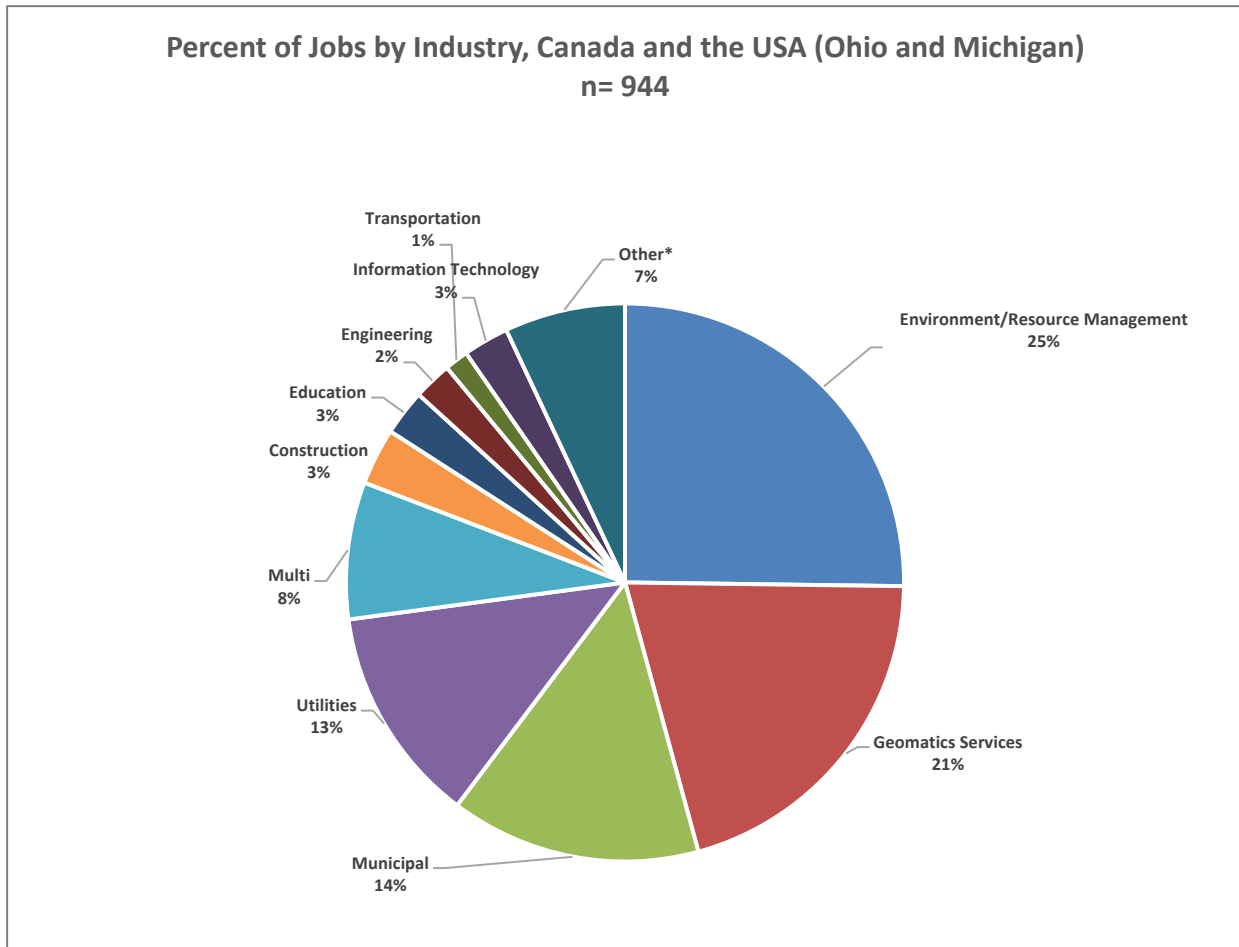
Other: Advertising, Agriculture, Communications, Consulting, Crime/Forensics/Law Enforcement, Development, Distribution, Economics, Emergency Response, Employment, Federal, Fleet Management, Food Services, Health, Insurance, Lumber, Mining, Nautical, Navigation, Planning, Real Estate, Recreation, Sales, and Shipping

This growth has increased the demand for highly skilled geospatial professionals with critical thinking, problem solving and decision-making abilities. In addition, graduates will require comprehensive knowledge of the specific geospatial technologies that dominate the market and how geospatial technologies and methodologies can be applied to a wide variety of real-world problems. In the review of a small sample of 900+ GIS job advertisements in Canada and the USA (Michigan and Ohio only), this increase in demand for GIS professionals is evident. The figure below demonstrates that, from 2001 to 2018, the trend is an increase in positions in the geographic areas. The HESA report, which summarizes a broad market demand study for a GISc Certificate, also concluded that the job outlook for geospatial positions is positive. Specifically, in Ontario, HESA found that the Canadian governments classifies the outlook as "Fair", meaning there is a good balance between the number of GIS professionals seeking jobs and the number of geospatial jobs available.

As part of the development team's Potential Employer Surveys, we asked local and regional businesses and organizations (such as The City of Windsor, the Essex Region Conservation Authority, Union Gas Ltd., EnWIN, ESRI Canada, the United Way, RWDI Consulting Engineers and Scientists, etc.) to comment on the desirability of graduates of a GISc Certificate. Of those who responded to the survey (n=19), 84% said their organization would benefit from such graduates (5% answered 'Maybe') (Appendix 2, page 99) and 79% said that the need for such graduates would increase over the next 5-10 years (16% answered 'Maybe') (Appendix 2, page 100).

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Growth of GIS Jobs in Canada and the USA* from 2001 to 2018

*Michigan and Ohio only
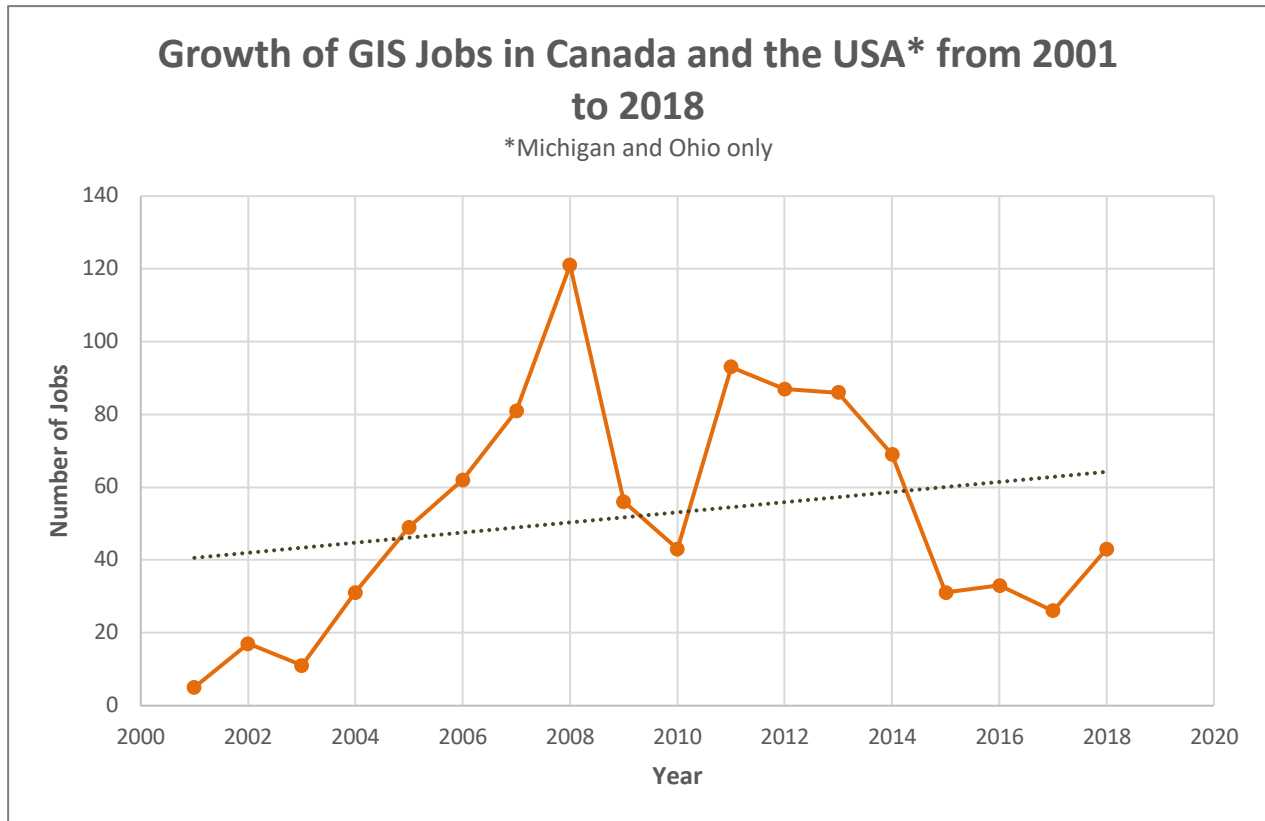
The development team also received letters of support from various local institutions and businesses that communicated their desire to see a GISc Certificate at the University of Windsor as well as their need for geospatial professionals with highly developed technological skills and the ability to think critically about a diverse range of spatial problems (Appendix 4). The institutions and businesses that provided letters include: ENWIN, ESRI Canada, United Way Centraide Windsor-Essex County, WE-SPARK Health Institute, Essex Region Conservation Authority, St. Clair Region Conservation Authority, Lower Thames Valley Conservation Authority, The Town of Tecumseh, The City of Windsor, The City of London, and Environment and Climate Change Canada.

B.4.4.1 Societal Need – Letters, Surveys, Statistics

● *The development of this proposal included consideration of comments or letters solicited from potential employers regarding the need for graduates of the proposed program within their organization and field of endeavour.*	_✔_ Yes *Appendix 4*	__No, explain *below*
● *The development of this proposal included consideration of comments or letters solicited from relevant professional societies or associations about the need for graduates of the proposed program.*	__Yes	_✔_ No, explain *below*
● *The development of this proposal included a review of industry employment surveys for evidence of societal need (indicating numbers of positions in the field, numbers of anticipated new positions in the field, number of positions in the field current being advertised, etc.)?*	_✔_ Yes *Appendix 2 pages 93-106, pages 16-28 Appendix 10*	__ No, explain *below*
● *The development of this proposal included a review of statistical evidence of the number of Ontario students leaving the province to study the field elsewhere in Canada or abroad?*	__Yes	_✔_ No, explain *below*

If yes, append letters, survey or statistics to proposal.

If no, explain: The development of this proposal did not include a review of statistical evidence of the number of Ontario students leaving the province to study the field elsewhere in Canada or abroad because we did not have access to this information. This would require knowledge of a high school student living in Ontario applying to an institution outside of Ontario to a GIS/geospatial/geomatics program specifically. It is unclear whether this data exists, at the level of detail we would require. It is also unclear whether we would be authorized to access such information.

The development of this proposal did not include consideration of comments or letters solicited from relevant professional societies or associations because the professional societies we contacted did not respond to our requests for letters. Our team sent official requests for letters of support to the Canadian Institute of Geomatics and the Canadian Association of Geographers on Friday, January 31, 2020. No response was received.

B.4.5 Duplication (Ministry section 7)

List similar programs offered by other institutions in the Ontario university system. Resources to identify similar programs offered in Ontario include www.electronicinfo.ca, www.electronicinfo.ca/einfo.php, and www.oraweb.aucc.ca/showdcu.html. Also, list similar programs in the geographically contiguous area, e.g., Michigan/Detroit.

The development team identified the available geospatial programs - of all types (e.g., certificate, program, minor, concentration, etc.), at varying levels (e.g., undergraduate, graduate, continuing education, diploma, etc.), and at several institution types (e.g., university, college, technical institute, etc.) – in Ontario, Canada-wide, and in Michigan, USA. In total, 78 programs at 44 institutions were recorded in a database and the following information was tracked for each: location, name, department, program name, institution type, program level, program type, delivery medium (e.g., in-class or online), discipline (e.g., environment, business, etc.), domestic and international cost per course and tuition, courses, admission requirements, and faculty/staff resources (Appendix 11).

Of the 78 programs reviewed, there are six GIS university-level certificates offered in Ontario (see table below). However, of these six, only two are offered at the undergraduate level (orange highlight). The remaining four are continuing education certificates. The following analysis of programs includes all six, however the development team concluded that two undergraduate university certificates would provide the strongest competition to our proposed GISc Certificate.

University	Department	Program Name	Level	Medium	Discipline(s)	Total Number of Required Courses
Queen's University	Department of Geography and Planning	Certificate in Geographic Information Science	Undergraduate	In-Class	Blended (Landscape Ecology, Social, Public Health, Environmental)	10
York University	Faculty of Environmental Studies	Geographic Information Systems and Remote Sensing	Undergraduate	In-Class	Environmental	7
Ryerson University	Department of Geography and Environmental	Certificate in Applied Digital Geography and GIS	Continuing Education	In-Class	Blended (Utilities, Business, Civil,	6

	Studies, Faculty of Arts				Environmental, Social Services)	
Ryerson University	Department of Geography and Environmental Studies, Faculty of Arts	Certificate in Demographic Analysis in GIS*	Continuing Education	In-Class & Online	Demographics	6
Ryerson University	Department of Geography and Environmental Studies, Faculty of Arts	Advanced Certificate in Applied Digital Geography and GIS	Continuing Education	In-Class	GIS	7
York University	Faculty of Environmental Studies	Geographic Information Systems and Remote Sensing	Continuing Education	In-Class	Environmental	7

It should be noted that Ryerson University's Certificate in Demographic Analysis in GIS is no longer accepting new registrants as of Fall 2019 and has been discontinued. Students formally registered in the certificate prior to July 2019 will be able to complete the certificate.

Of these six certificates, all are delivered in-class with an instructor, although Ryerson's continuing education Certificate in Demographic Analysis and GIS does include some online courses. They vary in terms of the disciplines to which they cater their course material. Two certificates are environment focused, with courses in environmental studies and GIS applications to environmental studies. One is strictly GIS-based and offers technical courses such as Spatial Database Management Systems, Advanced GIS Programming, Web Mapping, etc. One certificate focuses on demographics and demographic change, and includes courses such as Principles of Demographic Analysis, Advanced Demography, The Economics of Immigration, etc. Finally, two certificates are what the team has termed "blended", which is a combination of disciplines due to course options with varying topics that the student can tailor to their needs and interest. For example, one certificate blends utilities, business, civics, environment, and social services by offering elective courses such as Digital Geography Applications in Utilities Planning, Digital Geography Applications in Business Decision-Making, Digital Geography Applications for the Municipal Professional, Digital Geography Applications in Environmental Management, and Digital Geography Applications in Community and Social Services.

As part of our research, we also asked Institutional Analysis to confirm the cost per course and tuition rates for the institutions we researched. The most expensive certificate is Ryerson's continuing education Advanced Certificate in Applied Digital Geography and GIS. The least expensive certificate is Queen's University's undergraduate Certificate in Geographic Information Science. Our rates fall in-between these values; therefore, we can be competitive in the province. The table below summarizes the cost per course and tuition rates for both domestic and international students for both institutions. These numbers were sourced from Ryerson and Queen's 2018-2019 Academic Fee schedules and the tuition rates have been verified by the Office of Institutional Analysis at the University of Windsor.

Institution	Cost Per Course Domestic (CAD)	Cost Per Course International (CAD)	Tuition Domestic (CAD)	Tuition International (CAD)
Ryerson	$848.04	$2,120.10	$7,749.00	$26,014.50
Queen's	$225.30	$1,387.13	$3,429.50	$20,856.95

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While we are launching the GISc Certificate as a value-add to an undergraduate degree, ***in the future***, should we exceed our enrolment expectations and evolve geospatial education at the university to also include a Bachelor's or Master's degree, these values will provide insight into how we could set our course costs and tuition rates as a potential cost-recovery model.

Further details of all 78 programs can be found in Appendix 2, pages 9-15 and Appendix 11.

B.4.5.1 Demonstrate that Societal Need and Student Demand Justify Duplication (Ministry section 7)

If the proposed program is similar to others in the system, demonstrate that societal need and student demand justify the duplication. Identify innovative and distinguishing features of proposed program in comparison to similar programs.

The results of the review of existing GIS programs, both nationally and internationally, revealed that other universities and colleges in the province have taken advantage of the growing market and labour demand for geospatial professionals, while the University of Windsor has not. According to our review and the HESA report, Queen's, York, and Waterloo present the strongest competition to the proposed GISc Certificate, suggesting that there is a large geographic gap for geospatial education in the province south of Waterloo, Ontario. This, combined with the proof of local societal need from the perspective of both students and industry, provides the University of Windsor with a significant opportunity to corner the market, draw students back to the Windsor-Essex region, and develop a southwestern Ontario geospatial centre of excellence. Further, our review shows that the existing programs have maintained the status quo by teaching geospatial science within geography and environmental departments with a focus on environmental applications only. Understanding that the market has diversified, this provides the University of Windsor with an opportunity to develop a multi-disciplinary geospatial certificate that will satisfy the newest market and labour trends (e.g., business and marketing, health sciences, transportation and navigation, computer science, criminology, etc.). Finally, analysis of tuition costs across these institutions provided the team with validation that our course costs neither exceeded nor were below the provincial average tuition costs for these types of courses or programs. Since the proposed certificate will be a "value-add" to an undergraduate degree, students will not have to pay additional tuition costs.

B.5 RESOURCES
[The resource impact of a proposal is almost never neutral.]

B.5.1 Resources Available

B.5.1.1 Available Faculty and Staff Resources (QAF sections 2.1.7, 2.1.8, 2.1.9 and 2.1.10)

Describe, in general terms, all faculty and staff resources (e.g., administrative, teaching, supervision) from all affected areas/departments currently available and actively committed to support the proposed program. Please do not name specific individuals in this section.

To teach spatial science successfully students must have access to faculty and staff who are: 1) experts in GISc as opposed to faculty/staff who are just users of GIS; 2) proficient in integrating, using, and maintaining GISc technologies; 3) proficient in utilizing various spatial data for multiple application purposes; and 4) able to communicate with spatial industry partners and local community members.

The School of the Environment (SOE) and the University of Windsor has a variety of available faculty and staff to support the GISc Certificate. The table below summarizes the key individuals (anonymized) from both SOE and the University of Windsor at large who will be instrumental.

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School of the Environment Resources		
Level	**Faculty and Staff Resources**	**Key Services**
Primary	1 full-time GIS AAS Level 3 faculty member with permanence 1 full-time tenured GIS faculty member 1 full-time tenure-track GIS faculty member	- Main hub for spatial education, research, and outreach on campus and in the community - E.g., teaching a variety of spatial courses (undergraduate and graduate level), conducting multidisciplinary spatial research, consultation about the certificate and spatial science in general, outreach to the community (GIS Day, Earth Day, Science Academy, Open House, Computer Science Day)
Secondary	2 full-time (tenure and/or tenure-track) faculty members with GIS experience 1 full-time Experiential Learning AAS faculty member who could aid in teaching a non-GIS certificate course	- Could assist in teaching or facilitating certificate courses if need be - Providing data for assignments as part of the certificate - Act as advisors for the certificate - Aid in the certificate's experiential learning aspects (e.g., ESCI-4911 GIS Capstone Research Project) - Help to facilitate and manage community partnerships with industry for capstone projects
Tertiary	1 geochemistry technician who helps maintain the GIS lab	Provide support to maintain the facility (software and hardware maintenance, software upgrades, etc.)
University of Windsor Resources		
Level	**Faculty and Staff Resources**	**Key Services**
Primary	1 full-time data librarian 1 full-time Geospatial Data Analyst	Provide aid in "locating and acquiring geospatial data, access to GIS software, and GIS technical consultation"
Secondary	1 full-time GIS transportation faculty member 1 full-time economics faculty member with GIS experience	- Provides GIS research to the CBI - Teaches GIS concepts in some Civil & Environmental Engineering courses (undergraduate and graduate level) - May teach spatial concepts in some Economics courses (undergraduate level) - Provides a multidisciplinary perspective of GIS through an Economic lens

B.5.1.1a Faculty Members Involved in the Delivery of the Program

Complete the following table listing faculty members in the AAU offering the proposed program as well as faculty members from other AAUs who are core to the delivery of the proposed program. Indicate in the table the involvement of each faculty member in the new and existing program(s) offered by the AAU.

Faculty Name and Rank (alphabetical)	Graduate Faculty member (for graduate programs only)	Program Affiliation: indicate faculty affiliation to the EXISTING program(s)	Program Affiliation: indicate faculty affiliation to the NEW program

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		Bachelor of Environmental Science	Bachelor of Environmental Studies	Geographic Information Science Certificate
Category 1: Tenured Professors teaching exclusively in the AAU offering the program				
Dr. Ihsan Al-Asam		✓	✓	
Dr. Maria Cioppa		✓	✓	
Dr. Kenneth Drouillard		✓	✓	
Dr. Aaron Fisk		✓	✓	
Dr. Joel Gagnon	✓	✓	✓	
Dr. Phil Graniero		✓	✓	✓
Dr. Christopher Houser		✓	✓	✓
Dr. Hugh MacIsaac		✓	✓	
Dr. Robert (Mike) McKay		✓	✓	
Dr. Ali Polat	✓	✓	✓	
Dr. Iain Samson	✓	✓	✓	
Dr. Frank Simpson		✓	✓	
Dr. Alan Trenhaile		✓	✓	
Dr. Chris Weisener		✓	✓	
Dr. Jianwen Yang	✓	✓	✓	
Category 2: Tenure-track Professors teaching exclusively in this AAU				
Dr. Jill Crossman	✓	✓	✓	✓
Dr. Cameron Procter		✓	✓	✓
Category 3: Ancillary Academic Staff such as Learning Specialists Positions				
Ms. Michelle Bondy		✓	✓	✓
Ms. Alice Grgicak-Mannion		✓	✓	✓
Category 4: Limited-term Appointments teaching exclusively in this AAU				
N/A				
Category 5: Tenure or tenure-track or LTA professors involved in teaching and/or supervision in other AAUs, in				

addition to being a member of this AAU				
N/A				
Category 6: Sessionals and other non-tenure track faculty				
Dr. Neil Porter		✓	✓	
Category 7: Others				
N/A				

B.5.1.1b Faculty Expertise Available and Committed to Supporting the New Program

Assess faculty expertise available and actively committed to the new program. Provide evidence of a sufficient number and quality of faculty who are qualified to teach and/or supervise in the proposed program, and of the appropriateness of this collective faculty expertise to contribute substantially to the proposed program.

Include evidence (e.g., qualifications, research/innovation/scholarly record) that faculty have the recent research or professional/clinical expertise needed to:
- *sustain the program*
- *promote innovation, and*
- *foster an appropriate intellectual climate.*

Append curricula vitae – see Appendix A. CVs are not required for undergraduate diploma or certificate proposals.

The School of the Environment (SOE) employs on a full-time basis one AAS Level 3 with permanence, two tenured faculty members, and two tenure-track faculty members who possess the necessary expertise and experience in GIS, RS, spatial analysis and technologies, etc. with respect to their education, history of teaching responsibilities, and past/present academic research to support teaching of the GISc Certificate. The SOE also employs a full-time Experiential Learning Specialist who will be able to assist in facilitating the fourth-year GIS Capstone Research Project course (ESCI-4911).

Ms. Alice Grgicak-Mannion is a full-time Geospatial Learning Specialist/AAS Level 3 with permanence in the School of the Environment and the Great Lakes Institute for Environmental Research with over 23 years of experience working in the geospatial field. She obtained her Bachelor's Degree in Environmental Studies from the University of Waterloo and has served as the GIS/RS Coordinator and GIS Manager in the School of the Environment before becoming the Geospatial Learning Specialist in 2008. Ms. Grgicak-Mannion's research interests include: geospatial analysis, geospatial technologies, development of air and water pollution models of epidemiological and ecological health studies, geospatial metadata systems, and geospatial curriculum development. As part of her research, she has worked with various external agencies and government entities, such as Environment and Climate Change Canada, Health Canada, the Ontario Ministry of Environment, Conservation and Parks, and Syncrude Ltd. She currently teaches the following courses: ESCI-2121 Principles and Applications of Geographical Information Systems and ESCI-3701 Environmental Modeling and Decision Analysis. In the past she has taught the GLIER Graduate Seminar course (3-years). Since 2006 she has headed the Centre for Geospatial Analysis, a GIS lab at the Great Lakes Institute for Environmental Research, which was initially funded by the Canada Foundation for Innovation and the Ontario Innovation Trust. This laboratory is comprised of 4 workstations, 2 DELL servers and all the latest GIS (ESRI's ArcGIS) and database software packages. The primary function of the laboratory is to use GIS technology for environmental research of the Great Lakes, for example; monitoring movement of invasive species; mapping contaminants; air

pollution and creating a unique geospatial database of GLIER research. The laboratory is maintained by the Centre for Geospatial Analysis' staff and is open to GLIER researchers and their students.

Dr. Phil Graniero is a tenured, full-time Associate Professor in the School of the Environment. He obtained his Bachelor's Degree in Environmental Studies and his Master's in Environmental Studies from the University of Waterloo, and his PhD from the University of Toronto. His research interests include: systems thinking, design thinking, domain modeling and pragmatic approaches to epistemology and ontology, software development methods, modeling and decision support systems, and visualization and communication methods. In the past, Dr. Graniero has headed the Modeling, Evaluation, and Mapping Frameworks Lab, a space for collaborative software design and development. The focus is on developing platforms that are used to create decision-support applications that benefit from: describing, analyzing, and visualizing complex environments (physical, social, or organizational); manipulating human-centric concepts rather than computer-centric structures; connecting to different data sources with different formats and using them together; transforming numerical data into words, events, and visual symbols. Dr. Graniero has supervised ten Master's students and two Postdoctoral Researchers who's research related to spatial modeling and analysis, geomatics, geosimulation, integrated environmental modeling frameworks and spatial decision support systems.

Dr. Chris Houser is a tenured, full-time Professor in the School of the Environment and the Dean of the Faculty of Science. He obtained his Bachelor's Degree in Environmental Science and his Master's in Geography from the University of Guelph, and his PhD in Geography from the University of Toronto at Scarborough. His research interests include: coastal and aeolian geomorphology, coastal erosion, coastal hazards, rip currents, and geo-education. In the past, Dr. Houser has taught a Geostatistics Special Topics course for SOE students. He currently heads the Coastal Research Group at the University of Windsor.

Dr. Cameron Proctor is a tenure-track, full-time Assistant Professor in the School of the Environment. He obtained his Bachelor's Degree in Environmental Science from Trent University, and his PhD from the University of Toronto. His research interests include: investigating the efficacy of remote sensing for tracking root dynamics in peatlands; developing UAVs and close range hyperspectral scanning technologies; quantifying the interface between plant roots and methanogens at the landscape scale using remote sensing; using lab, field, and controlled experiments to investigate the function significance of root borne carbon inputs; exploring plant decomposition using remote sensing as a climate change indicator; and improving models of peatland biogeochemistry by improving simulation of belowground processes. Dr. Proctor currently teaches the following courses: ESCI-4701 Remote Sensing and ESCI-4808 Special Topics: Geostatistics. Prior to his position at the University of Windsor in 2019, Dr. Proctor was a GIS Project Coordinator at the Ontario Federation of Anglers and Hunters, an Information Officer and GIS Analyst at the Ontario Ministry of Natural Resources, and a Data Analyst at Waste Diversion Ontario.

Dr. Jill Crossman is a tenure-track, full-time Assistant Professor in the School of the Environment. She obtained her Bachelor's Degree in Geography from the University of Newcastle-Upon-Tyne, her Master's in Catchment Dynamic and Management, specialising in GIS, from the University of Leeds, and her PhD in Hydroecology from the University of Birmingham. Her research interests include: hydrochemical modeling and monitoring, aquatic biogeochemistry and ecology, and microplastics, and spatial analysis and GIS. She is currently supervising two PhD candidates, one visiting research scholar, and one lab technician in the aforementioned research areas. Dr. Crossman runs the Microplastics research lab in Windsor, establishing new methods for analysing microplastics, for removing them from biosolids, and creating new models for determining their transport and fate through the terrestrial and aquatic environment. She also runs 'ErieWatch', a research program using state of the art in-situ sensors and telemetry to track nutrients, toxins, and algal blooms in real time within the Essex region.

Ms. Michelle Bondy is a full-time Experiential Learning Specialist/AAS in the School of the Environment. She obtained her Bachelor's Degrees in Biological Sciences and Education and her Master's in Biology. Prior to her position as an

Experiential Learning Specialist, Ms. Bondy was an Outreach Coordinator for the University of Windsor, a USci Coordinator for the Faculty of Science, and a Sessional Instructor in Experiential Learning for the Faculty of Science.

B.5.1.1c Extent of Reliance on Adjunct, Limited-term, and Sessional Faculty in Delivering the New Program

Describe the area's expected reliance on, and the role of adjunct, limited-term, and sessional faculty in delivering the proposed program.

The GISc Certificate will ***not*** be relying upon adjunct, limited-term, or sessional faculty for its delivery.

B.5.1.1d Graduate Faculty Qualifications and Supervisory Loads (FOR GRADUATE PROGRAMS ONLY)

Explain how supervisory loads will be distributed, and describe the qualifications and appointment status of faculty who will provide instruction and supervision.

NOT APPLICABLE

B.5.1.1e Financial Assistance for Graduate Students (where appropriate) (FOR GRADUATE PROGRAMS ONLY)

Where appropriate to the program, provide evidence that financial assistance for graduate students will be sufficient to ensure adequate quality and numbers of students.

NOT APPLICABLE

B.5.1.1f Other Available Resources (Ministry sections 3 and 4)

Provide evidence that there are adequate resources available and committed to the proposed program to sustain the quality of scholarship produced by undergraduate students as well as graduate students' scholarship and research activities, including for example:
- *staff support,*
- *library,*
- *teaching and learning support,*
- *student support services,*
- *space,*
- *equipment,*
- *facilities*
- *GA/TA*

The School of the Environment (SOE) maintains a GIS laboratory in room 214 of Memorial Hall that houses 30 networked machines equipped with the necessary geospatial software (ESRI products, ENVI, IDRISI) and statistical software (R and SPSS) to deliver the certificate courses. The University of Windsor maintains over 3000 site licenses for ESRI products, yearly, that can be distributed to students as single-use installations of the software. This will alleviate any issues with over-flow of the GIS lab as students will be able to use the software on their own personal laptops and/or desktop machines. The GIS lab also houses one server (to support student work), multiple routers, UPS systems, and a projection system.

The SOE, through its faculty members, also maintains various spatial technologies such as 10 GPS units, 3 UAVs, 5 digitizers (1 large, 4 small) that will be used as part of various certificate courses. In addition, two faculty members maintain numerous data collection apparatuses that may contribute to providing data for various assignments in several GISc Certificate courses. These specific apparatuses include but are not limited to: 2 nutrient buoys with real-time data sensors, a real-time sensor array, autonomous sub-surface vehicles (e.g., Slocum G2 Gliders), acoustic

telemetry instruments, temperature loggers, multi-parameter water quality sondes and samplers, submersible nitrate analyzers, PCO2 sensors, in situ EDNA collectors, etc.

The Academic Data Centre (ADC) in Leddy Library is a student and faculty support service that is available to assist with geospatial data for our GISc Certificate students and faculty. The ADC currently employs one data librarian and one Geospatial Data Analyst. According to their uwindsor.ca webpage, the ADC provides "expert help on finding datasets, accessing confidential Statistics Canada data, interpreting statistical methods and procedures, creating graphs and maps, or managing [a student's] research data". Students can take advantage of their services to aid in accessing geospatial data for completing assignments and projects. Faculty members can access data for the development of laboratory assignments. Currently, the ADC maintains 8 networked PC workstations with ESRI ArcMap software and statistical packages (SPSS, R) installed. These machines can be used by students or faculty during the ADC hours of operation for completing assignments.

Leddy Library also maintains 20 networked PC workstations with ESRI ArcMap software installed (15 in West, Room 305 and 5 in the public domain). Leddy Library has provided the development team with a formal letter of support for the GISc Certificate and have reiterated the commitment of the ADC to promoting data and geospatial literacy across the university, and specifically to our future GISc Certificate students (Appendix 4).

B.5.1.2 Resource Implications for Other Campus Units (Ministry sections 3 and 4)

Describe the proposed program's reliance on existing resources from other campus units, including for example:
- *existing courses,*
- *equipment or facilities outside the proposer's control,*
- *external resources requiring maintenance or upgrading using external resources*

Provide relevant details.

The GISc Certificate will **not** be relying upon resources from other campus units in terms of providing courses, equipment or facilities, or external resources that require maintenance or upgrading using external resources.

B.5.1.3   Anticipated New Resources (QAF sections 2.1.7, 2.1.8 and 2.1.9; Ministry section 4)

*List all **anticipated new resources** originating from within the area, department or faculty (external grants, donations, government grants, etc.) and committed to supporting the proposed program.*

The School of the Environment will **not** require new resources at present to successfully support the GISc Certificate. However, **if we meet or exceed our projected enrolment levels**, SOE may require additional resources in the future. The table below outlines those potential resource requirements.

Staff:	1 GIS Technician, part-time
GA/TAs:	4 GAs, 1 each for the following courses: ● Geospatial Data Collection & Database Design (ESCI-2701) ● Scripting & Programming in GIS (ESCI-2711) ● Geostatistical Analysis in GIS (ESCI-3761) ● The Geo-Web & Geoportal Development (ESCI-3771)
Space and Facilities:	Renovated Lab Space (Appendix 12)
Equipment (and Maintenance):	40 new workstations 1 new server 15 new GPS units 1 differential GPS unit 10 additional lab licenses for ENVI and IDRISI remote sensing software

	Information Technology Services: implementation of cloud-based services for housing and accessing software

B.5.1.4   Planned Reallocation of Resources and Cost-Savings (QAF section 2.1.7 and 2.1.9; Ministry section 4)

Describe all opportunities for internal reallocation of resources and cost savings identified and pursued by the area/department in preparing this proposal. (e.g., streamlining existing programs and courses, deleting courses, etc.)

To promote cost-savings and to reallocate resources within the department, several existing SOE courses will be modified to make-up the GISc Certificate. Specifically, three courses will undergo minor course changes to update the existing course content to be more in-line with the certificate learning outcomes. Further, one course will undergo a major change and be deleted and replaced with a new course. These courses and the nature of their changes are summarized in the table below.

In addition, two professors will reallocate some time previously dedicated to research and committee involvement to the teaching courses for the GISc Certificate. Further, the teaching load of one professor has been increased to accommodate the new GISc Certificate courses.

New GISc Course	Existing Course	Course Change or Course Deletion
ESCI-1141 Cartography & Digital Mapping	ESCI-2111 Introduction to Aerial Photography and Cartography	Minor Course Change
ESCI-1151 Fundamentals of Geographic Information Systems	ESCI-2121 Fundamentals of Geographic Information Systems and Science	Minor Course Change
ESCI-2721 Introduction to Image Processing & Remote Sensing	ESCI-4701 Remote Sensing	Major Course Change & Deletion
ESCI-3701 Spatial Modeling in GIS	ESCI-3701 Environmental Modeling and Decision Analysis	Minor Course Change

B.5.1.5a Additional Resources Required – Resources Requested (QAF section 2.1.7 and 2.1.9)

*Describe all **additional faculty, staff and GA/TA resources** (in all affected areas and departments) required to run the proposed program.*

The School of the Environment will **_not_** require new faculty, staff, or GA resources at present to successfully support the GISc Certificate. However, **_if we meet or exceed our projected enrolment levels_**, SOE may require additional faculty or staff support in the future. The table below outlines those potential resource requirements.

Faculty:	1 AAS or tenure-track GIS faculty member
Staff:	1 GIS Technician, part-time
GA/TAs:	4 GAs, 1 each for the following courses: ● Geospatial Data Collection & Database Design (ESCI-2701) ● Scripting & Programming in GIS (ESCI-2711) ● Geostatistical Analysis in GIS (ESCI-3761) ● The Geo-Web & Geoportal Development (ESCI-3771)

B.5.1.5b Additional Institutional Resources and Services Required by all Affected Areas or Departments

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*Describe all **additional institutional resources and services** required by <u>all affected</u> areas or departments to run the proposed program, including library, teaching and learning support services, student support services, space and facilities, and equipment and its maintenance.*

The School of the Environment will ***not*** require new resources at present to successfully support the GISc Certificate. However, ***if we meet or exceed our projected enrolment levels***, SOE may require additional resources in the future. The table below outlines those potential resource requirements.

Library Resources and Services:	N/A
Teaching and Learning Support:	N/A
Student Support Services:	N/A
Space and Facilities:	Renovated Lab Space (Appendix 12)
Equipment (and Maintenance):	40 new workstations 1 new server 15 new GPS units 1 differential GPS unit 10 additional lab licenses for ENVI and IDRISI remote sensing software Information Technology Services: implementation of cloud-based services for housing and accessing software

C. Program Details

C.1   Admission Requirements (QAF section 2.1.2)

Describe
- *program-specific admission requirements,*
- *selection criteria,*
- *credit transfer,*
- *arrangements for exemptions or special entry, and*
- *alternative admission requirements, if any, for admission into the program, such as minimum average, additional language requirements or portfolios, recognition of prior work or learning experience (and how this will be assessed), etc.*

Admission requirements to the GISc Certificate are that students meet the admission requirements of their particular four-year undergraduate programs (e.g., Bachelor of Environmental Studies, Bachelor of Computer Science Applied Computing, etc.).

C.1.1 Admission Requirements and Attainment of Learning Outcomes (QAF section 2.1.2)

Demonstrate that admission requirements are sufficient to prepare students for successful attainment of the intended learning outcomes (degree level expectations) established for completion of the program.

The following table summarizes the University of Windsor's posted admission requirements for undergraduate students enrolled in the initial target programs identified in our marketing strategy.

We feel these requirements will be sufficient preparation for students wishing to enrol in the GISc Certificate concurrently with their undergraduate degree. All six programs below require a Grade 12 level English course, which will prepare students for success in the written assignments and oral presentations that will be required throughout the certificate.

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All but one program (BES) require a Grade 12 level math course, which will give students an *extra advantage* in the Geostatistical Analysis course (ESCI-3761). However, a Grade 12 math course is not a necessary requirement to succeed in the certificate. Prior to taking ESCI-3761 Geostatistical Analysis, each certificate student will be required to complete a Statistics prerequisite: either STAT-2910 or SOSC-2500. Either of these prerequisites will serve as the foundation for the course insofar as they will provide the relevant mathematical background required.

For a detailed explanation for why these 6 programs in particular have been used in this discussion, please refer to Section C.3.2.3 Suggested Program Sequencing. The development team reviewed each undergraduate program offered at the University of Windsor (excluding Law and Nursing) to determine which programs are organized in a way that would allow students to fit the 9 (10 course credits) GISc Certificate courses into their schedules (i.e., Do they provide sufficient elective space for 9 additional courses? Does the scheduling of their program courses by year and semester prevent them from taking the GISc Certificate courses?)

Program	Admission Requirement
Bachelor of Environmental Science (BSc)	Required: ● English 4U ● Advanced Functions 4U ● Chemistry 4U ● Biology 4U Recommended: ● Physics 4U ● Calculus & Vectors 4U 70% average in all Science and Math courses. 70% average over six Grade 12 academic courses.
Bachelor of Environmental Studies (BES)	Required: ● English 4U 70% average over six Grade 12 academic courses.
Bachelor of Computer Science General (BCSG)	Required: ● English 4U ● Advanced Functions 4U Recommended: ● Calculus & Vectors 4U Minimum average of 70% plus 70% second Math average.
Bachelor of Computer Science Applied Computing (BCSAP)	Required: ● English 4U ● Advanced Functions 4U Recommended: ● Calculus & Vectors 4U Minimum average of 70% plus 70% second Math average.
Bachelor of Art Economics (BAEcon)	Required: ● English 4U ● Advanced Functions 4U Recommended:

	● Calculus & Vectors 4U ● Mathematics of Data Management 4U
Bachelor of Science Economics (BScEcon)	Required: ● English 4U ● Advanced Functions 4U Recommended: ● Calculus & Vectors 4U ● Mathematics of Data Management 4U A minimum 70% average of all attempted science and math courses is also required.

C.2 Program Curriculum Structure/Program of Study (QAF sections 2.1.4 and 2.1.10)

Provide evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience.

NB: For graduate programs, provide evidence that each graduate student in the program is required to take a minimum of two-thirds of the course requirements from among graduate-level courses. Include course requirements with course numbers and course titles.

Total courses: The GISc Certificate has __*nine fixed courses*__ in total, __*all of which*__ are required courses. Please see the table below for course codes and titles, as well as the faculty research alignments (a ✓ signals when a faculty member's research focus and activities align to each course and its curricula).

For a full description and analysis of the research expertise and alignment to the GISc Certificate courses, please refer to Section B.5.1.1b above.

School of the Environment Professors & Research Alignment to GISc Certificate Courses						
Courses	Ms. Alice Grgicak-Mannion	Dr. Cameron Procter	Dr. Phil Graniero	Dr. Chris Houser	Dr. Jill Crossman	Ms. Michelle Bondy
ESCI-1141 Cartography & Digital Mapping	✓	✓	✓			
ESCI-1151 Fundamentals of Geographic Information Systems	✓	✓	✓			
ESCI-2721 Introduction to Image Processing & Remote Sensing	✓	✓				
ESCI-2701 Geospatial Data Collection & Database Design	✓	✓	✓	✓	✓	
ESCI-2711 Scripting & Programming in GIS	✓	✓	✓		✓	
ESCI-3701 Spatial Modelling in GIS	✓	✓	✓		✓	
ESCI-3761 Geostatistical Analysis in GIS	✓	✓	✓	✓	✓	
ESCI-3771 GeoWeb & Geoportal Development	✓		✓			
ESCI-4911 GIS Capstone Research Project	✓	✓	✓	✓	✓	✓

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Degree requirements: In addition to the student's undergraduate degree requirements, the student must successfully complete _**all nine**_ GISc Certificate courses listed above with a cumulative average of 60% or higher.

Courses used to calculate the major average are: NOT APPLICABLE (NOT A MAJOR)

Description of thesis option (if applicable): There is no thesis option available as part of the GISc Certificate.

Provide requirements for the Co-op/Experiential Learning Component AND a description of how the program requirements differ for students who complete the experiential learning option and those who opt not to (if applicable). _[If the co-op/experiential learning component is new (not part of the existing stand-alone program), a PDC Form B is required]_**:** Students must complete all previous certificate courses with a cumulative average of 60% or higher to be able to enrol in ESCI-4911 GIS Research Capstone Project.

There is no option to opt-out of the experiential learning component. Students who do not obtain a 60% and are unable to enrol in the GIS Capstone Research Project course (ESCI-4911) will not receive a GISc Certificate at graduation.

Explain how credit will be awarded for the experiential learning component (length of component, credit weighting, etc.): ESCI-4911 GIS Capstone Research Project is an 8-month, two-semester course worth 6.0 credits.

Guidelines for experiential learning/co-op work term reports: The final report for the GIS Capstone Research Project course must contain the following:

- **Project description.** Describe in detail the project and its elements. Discuss what the deliverables were and the specific actions taken to meet them. Include the specific details of the methods (e.g., tools, datasets, statistical analysis, software, database structures, etc.).
- **Knowledge gained.** Describe the knowledge gained or enhanced as a result of the project experience. Relate this knowledge to what was learned in specific GISc Certificate courses. Did the courses prepare you to handle the project and meet its deliverables?
- **Skills learned.** Describe the skills that were learned or sharpened through working on the project. Discuss any skills that were learned as part of a GISc Certificate course that were useful to complete the project.
- **Attitudes/values.** Describe the attitudes or values that were deemed to be important for success in the project. Consider attitudes as a way of thinking or behavior, e.g., stubborn, patient, confrontational, etc. Consider values as the things regarded as important in life, e.g., dependability, integrity, hard work, etc.
- **Learning outcomes.** Identify the outcomes or results from the knowledge, skills and attitudes or values described in the above. For example, what can be done for an organization today that could not have been done, or could not have done as well, before undertaking the project?

General length of experiential learning/co-op work term: 8-months

Is the completion of the experiential learning/co-op component a requirement of the program? Yes, the GIS Capstone Research Project course (ESCI-4911) is required for successful completion of the GISc Certificate.

C.3.1 For Graduate Program ONLY (QAF sections 2.1.3 and 3; Senate Co-op Policy)
C.3.1.1 Normal Duration for Completion

Provide a clear rationale for program length that ensures that the program requirements can be reasonably completed within the proposed time period.

NOT APPLICABLE

C.3.1.2 Program Research Requirements

For research-focused graduate programs, provide a clear indication of the nature and suitability of the major research requirements for completion of the degree.

NOT APPLICABLE

C.3.1.3 Fields in a Graduate Program (optional)

Where fields are contemplated, provide the following information:
The master's program comprises the following fields: ...[list, as applicable]
 The PhD program comprises the following fields: ...[list, as applicable]

NOT APPLICABLE

C.3.2   For All Program Proposals

C.3.2.1   Standing Required for Continuation in Program

Minimum average requirements for continuation in the program
Must conform to the regulations for standing required for continuation in the program as set out in Senate policy.

Specify standing required for continuation in the experiential learning option or co-op option of the program, where applicable.

Students must maintain an average of 60% or higher to continue in the GISc Certificate.

C.3.2.2   Standing Required for Graduation

Minimum average requirement to graduate in the program
Must conform to the regulations for standing required for continuation in the program as set out in Senate policy.

Specify standing required for graduation in the experiential learning option or co-op option of the program, where applicable.

Students must obtain a cumulative average of 60% or higher _**in all nine courses**_ to graduate with a GISc Certificate.

C.3.2.3   Suggested Program Sequencing

Provide suggested program sequencing for each year of the program, ensuring that all prerequisites are met in the sequencing.

Where applicable, provide work/study/placement sequencing for each year of the experiential learning/co-op version of the program. Please ensure that all prerequisites are met in the sequencing.
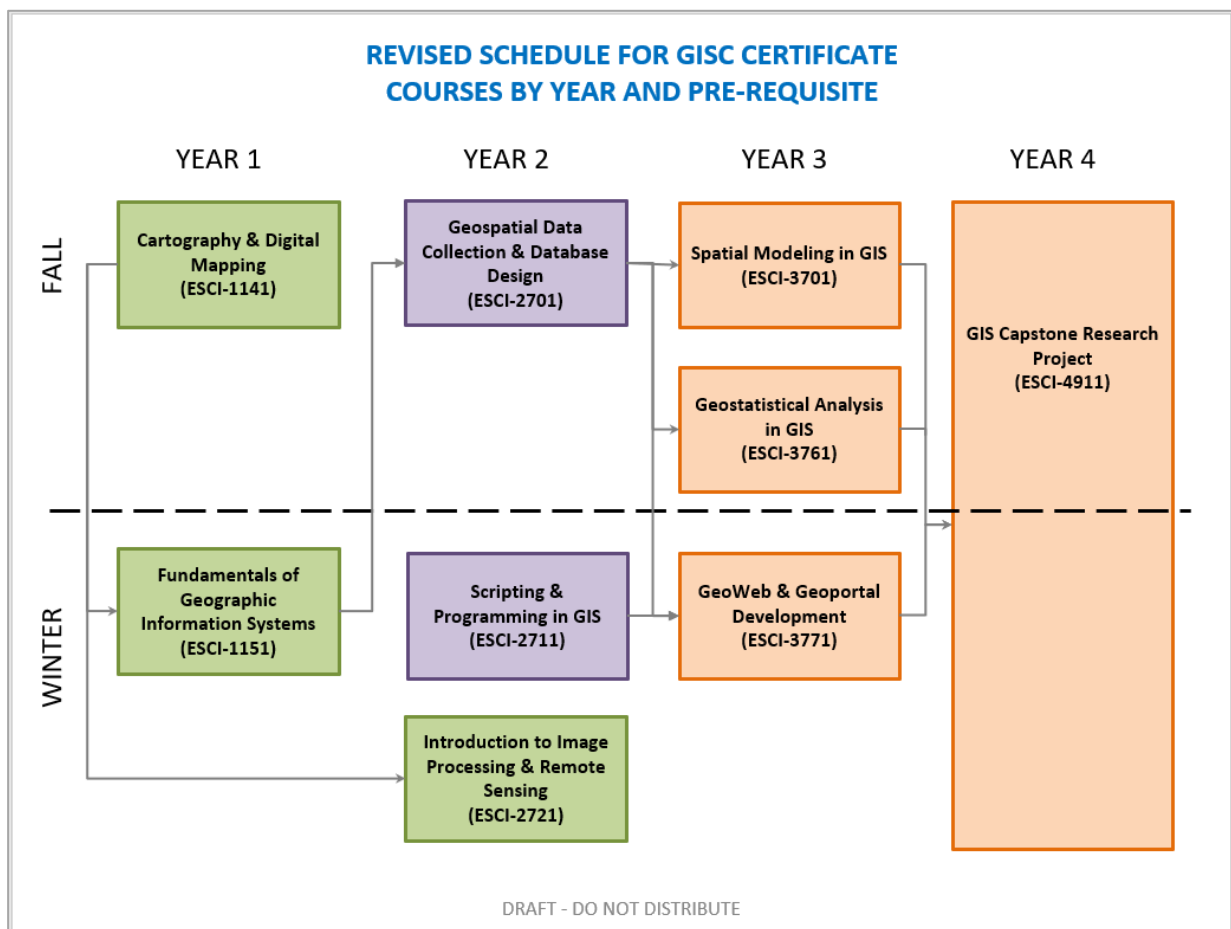
For Co-op programs: The proposed work/study sequence or alternative arrangement should allow for year-round availability of students for employers (if appropriate) and, wherever possible, should meet the guidelines for co-operative education as set out by the Canadian Association for Co-operative Education (see Policy on Co-op Programs).

The development team began with an initial course sequence based on logical flow of course content and prerequisites, and when existing courses are offered currently (fall or winter). To ensure that the students enrolled in SOE's BSc and BES programs can fit the certificate courses into their schedules the team compared these two programs to the certificate in terms of: 1) **program course electives** (need 10+) and 2) **program course sequencing**. The team first examined the number of elective courses open to students in each undergraduate program. Both the BSc and BES programs have at least 10 elective courses available and therefore, their students would be able to take the certificate.

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Second, the team examined the recommended course sequence of each program and compared those recommendations to the initial certificate sequence. Recommended sequences were either found in the 2019 Winter Undergraduate Calendar or created by the team using the Office of the Registrar's 2018 Fall and 2019 Winter Timetables. Based on these resources, the team determined that the BES program sequence aligned with the initial certificate sequence, but the BSc program did not. To accommodate the BSc program, two courses were rearranged to create a revised sequence.

The figure below depicts the nine courses and the final, proposed sequence. The table below outlines each course's pre-requisites. It should also be noted that the Geostatistical Analysis in GIS course (ESCI-3761) will also require students to take either STAT-2910 or SOSC-2500 as a prerequisite.

REVISED SCHEDULE FOR GISC CERTIFICATE COURSES BY YEAR AND PRE-REQUISITE

DRAFT - DO NOT DISTRIBUTE

Course	Pre-Requisite(s)
ESCI-1141 Cartography & Digital Mapping	None
ESCI-1151 Fundamentals of Geographic Information Systems	ESCI-1141 Cartography & Digital Mapping
ESCI-2701 Geospatial Data Collection & Database Design	ESCI-1151 Fundamentals of Geographic Information Systems
ESCI-2711 Scripting & Programming in GIS	None
ESCI-2721 Introduction to Image Processing & Remote Sensing	ESCI-1151 Fundamentals of Geographic Information Systems

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ESCI-3701 Spatial Modeling in GIS	ESCI-2701 Geospatial Data Collection & Database Design, and ESCI-2711 Scripting & Programming in GIS
ESCI-3761 Geostatistical Analysis in GIS	STAT-2910 Statistics for the Sciences, or SOSC-2500 Basic Quantitative Methods in the Social Sciences, and ESCI-2711 Scripting & Programming in GIS
ESCI-3771 GeoWeb & Geoportal Development	ESCI-2711 Scripting & Programming in GIS
ESCI-4911 GIS Capstone Research Project	ESCI-3701 Spatial Modeling in GIS ESCI-3761 Geostatistical Analysis in GIS ESCI-3771 GeoWeb & Geoportal Development

Another primary goal of the certificate is for it to be accessible to UWindsor undergraduate students from other departments outside of SOE. The team tested the revised sequence against other programs to see what would be compatible should students outside of SOE wish to take this certificate (Appendix 13). Using a database of 158 University of Windsor undergraduate programs (Appendix 14), the team identified **seven undergraduate programs** as being both compatible with the four-year GISc Certificate sequence and complementary disciplines to spatial technologies, concepts, and applications:

Initial Program Targets for Marketing the GISc Certificate Internally to the University of Windsor
Bachelor of Computer Science General
Bachelor of Computer Science Honours Applied Computing
Bachelor of Environmental Science Honours
Bachelor of Environmental Studies Honours
Bachelor of Science Economics Honours
Bachelor of Arts Economics Honours
Bachelor of Arts Economics General

The team also identified **six undergraduate programs** that could complete the GISc Certificate in a five-year time period, as opposed to a four-year period. These undergraduate programs would be targeted in a secondary round of marketing once the GISc Certificate has been launched. These programs include:

Secondary Program Targets for Marketing the GISc Certificate Internally to the University of Windsor
Bachelor of General Science
Bachelor of Science Honours Biological Sciences
Bachelor of Science Honours Biological Sciences with Thesis
Bachelor of Science Honours Biochemistry with Thesis
Bachelor of Science Honours Mathematics and Statistics
Bachelor of Human Kinetics (Honours Kinesiology) with Sport Movement Major

Consultations have taken place between the development team and the Department of Economics and Computer Sciences, individually, to confirm that these courses are compatible. Specifically, Dr. Nurlan Turdaliev (Department Head, Economics) and Dr. Dan Wu (Undergraduate Advisor, Computer Science) have approved the selection of their respective undergraduate programs. Further, Dr. Turdaliev submitted a formal letter of support for the GISc Certificate to the development team in his capacity as the Head of the Department of Economics (Appendix 4).

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Please review pages 13-16 of Appendix 7 for full details of the methodology used in this exercise.

After identifying these seven programs and confirming that the GISc Certificate courses were accessible to students from a scheduling perspective at the year and semester level, the development team investigated potential conflicts at the course level (i.e., dates and times of course offerings). Utilizing the Office of the Registrar's Fall 2019 and Winter 2020 Undergraduate Timetables, the development team created individual timetables that map the required courses for each program. The team then superimposed the three existing GIS/Remote Sensing courses that will be part of the certificate (ESCI-1141 Cartography & Digital Mapping, ESCI-1151 Fundamentals of Geographic Information Systems, and ESCI-2721 Introduction to Image Processing & Remote Sensing) onto those schedules to determine if there were any conflicts. All program timetables were then compared to adjust the schedules of these three courses to eliminate as many conflicts as possible. The final suggested timetables for each of the seven programs can be reviewed in Appendix 15.

There was only one schedule conflict that could not be resolved. ESCI-1151 Fundamentals of Geographic Information Systems conflicts with MATH-1020 Mathematical Foundations in Year 1 Winter semester for students enrolled in the Bachelor of Science Honours Economics undergraduate program. The SOE will consult with the Department of Economics to explore the ways in which this conflict may be resolved.

As each new course for the GISc Certificate is introduced and opened for enrollment, these program timetables will be utilized to determine the ideal schedule that will avoid as many conflicts as possible.

C.4 LEARNING OUTCOMES (Degree Level Expectations) (QAF section 2.1.1, 2.1.3, and 2.1.6)

COMPLETE THIS TABLE FOR UNDERGRADUATE PROGRAMS

In the following table, provide the specific learning outcomes (degree level expectations) that constitute the overall goals of the Combined program or Concurrent offering (i.e., the intended skills and qualities of graduates of this program). Link each learning outcome to the <u>Characteristics of a University of Windsor Graduate</u>" by listing them in the appropriate rows.

A learning outcome may link to more than one of the specified Characteristics of a University of Windsor Graduate. All University of Windsor programs should produce graduates able to demonstrate each of the nine characteristics. Program design must demonstrate how students acquire all these characteristics. All individual courses should contribute to the development of one or more of these traits: a program in its entirety must demonstrate how students meet all of these outcomes through the complete program of coursework.

Proposers are strongly encouraged to contact the Centre for Teaching and Learning for assistance with the articulation of learning outcomes (degree level expectations).

For Combined Programs and Concurrent Offerings: The program learning outcomes would include the outcomes for the two standalone programs with a few additional outcomes to reflect the benefits of pursuing the two disciplines in an integrated manner. [For learning outcome A, the integration of knowledge can be within a program and between the two programs.]

For programs with an Experiential Learning or Co-op Option: Include learning outcomes for the program with a few additional outcomes highlighted to reflect the benefits of pursuing the experiential learning/co-op option.

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Program Learning Outcomes (Degree Level Expectations) *This is a sentence completion exercise. Please provide a minimum of 1 learning outcome for each of the boxes associated with a graduate attribute.* At the end of this program, the successful student will know and be able to:	Characteristics of a University of Windsor Graduate A UWindsor graduate will have the ability to demonstrate:	COU-approved Undergraduate Degree Level Expectations
A. • Confidently convey comprehensive knowledge of various spatial software (proprietary and open source), spatial technologies (e.g., GIS, Remote Sensing, Global Positioning Systems, Unmanned Aerial Vehicles, Web Mapping Portals, Spatial Mobile Applications, LiDAR, etc.), and numerous spatial and computer science-based theories to analyze natural, human-made, and artificial systems and environments and their relationships. (Also relevant to C, D)	A. the acquisition, application and integration of knowledge	1. Depth and Breadth of Knowledge 2. Knowledge of Methodologies 3. Application of Knowledge 5. Awareness of Limits of Knowledge
B.	B. research skills, including the ability to define problems and access, retrieve and evaluate information (information literacy)	1. Depth and Breadth of Knowledge 2. Knowledge of Methodologies 3. Application of Knowledge 5. Awareness of Limits Knowledge
C. • Describe the impact spatial technologies have on society, industry, policy and regulation, and education and research. (Also relevant to A, B, E)	C. critical thinking and problem-solving skills	1. Depth and Breadth of Knowledge 2. Knowledge of Methodologies 3. Application of Knowledge 5. Awareness of Limits of Knowledge
D. • Utilize industry-standard open source and proprietary spatial software and technologies. (Also relevant to A, F, G, H) • Collect, visualize, model, and analyze various geospatial data for database development, critical thinking, and decision-making purposes in different context. (Also relevant to A, B, C, E, F, G, H, I) • Develop and program various spatial applications for the internet, mobile devices, workflow automation, etc. (Also relevant to A, B, C, E, F, G, H, I)	D. literacy and numeracy skills	4. Communication Skills 5. Awareness of Limits of Knowledge

E. • Explain in detail the institutional, municipal, provincial, and federal policies, regulations, and ethical standards related to spatial data capture, usage, and liability. • Articulate and argue from multiple stakeholder perspectives the ethical issues related to privacy and data capture through various means (ex. unmanned autonomous vehicles (UAVs). • Comply with all relevant policies, regulations, and ethical standards in all assignments requiring data capture and usage.	E. responsible behaviour to self, others and society	5. Awareness of Limits of Knowledge 6. Autonomy and Professional Capacity
F. • Communicate and promote spatial results to various stakeholders (e.g., peers, mentors, researchers, and community and industry members). (Also relevant to A, B, C, D, E, G, H, I)	F. interpersonal and communications skills	4. Communication Skills 6. Autonomy and Professional Capacity
G. • Design, implement, manage, and present a substantial spatial project. (Also relevant to A, B, C, D, E, F, H, I).	G. teamwork, and personal and group leadership skills	4. Communication Skills 6. Autonomy and Professional Capacity
H.	H. creativity and aesthetic appreciation	2. Knowledge of Methodologies 3. Application of Knowledge 6. Autonomy and Professional Capacity
I.	I. the ability and desire for continuous learning	6. Autonomy and Professional Capacity

C.4.1 Program Structure and Regulations Ensure Learning Outcomes Can be Met

Describe how the program's structure and regulations ensure that its specified learning outcomes can be met by successful students.

To ensure that the GISc Certificate courses would be successful in satisfying the certificate learning outcomes, all outcomes, courses, and achievement levels were mapped in the UWindsor CuMA application. The resulting map in the figure below demonstrates that the nine certificate courses address each of the GISc Certificate learning outcomes effectively. There are no gaps between the courses and the certificate learning outcomes and there is a balanced gradient of Introductory, Reinforcement, and Mastery (IRM) classifications with no gaps from year one to year four; course content evolves seamlessly from introduction to mastery levels.

Courses to Program Outcomes: GISc. Certificate (all courses)
GISc. Certificate (47)
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	ACD PLO 1	ABCE PLO 2	ADFGH PLO 3	BCDEFGI PLO 4	BCDEFGI PLO 5	BCDEFGI PLO 6	CFGHI PLO 7
First Year							
ESCI-1141	Ia		Ia	Ia			Ia
ESCI-1151	I	I	R	R		I	R
ESCI-2721	I	R	R	I	I	I	R
Second Year							
ESCI-2701	R	R	R	R	I	R	R
ESCI-2711	I	I	R	R	I	R	R
Third Year							
ESCI-3701	R	R	R	R	R	R	R
ESCI-3761	M	M	M	M	M	M	M
ESCI-3771	M	M	M	M	M	M	M
Fourth Year							
ESCI-4911	M	M	M	M	M	M	M

Legend
ESCI-1141 Cartography and Digital Mapping
ESCI-1151 Fundamentals of Geographic Information Science/Systems
ESCI-2721 Introduction to Image Processing and Remote Sensing
ESCI-2701 Geospatial Data Collection and Database Design
ESCI-2711 Scripting and Programming in GIS
ESCI-3701 Spatial Modelling in GIS
ESCI-3761 Geostatistical Analysis in GIS
ESCI-3771 GeoWeb and Geoportal Development
ESCI-4911 GIS Capstone Research Project

C.4.2 Impact of Experiential Learning Component on Attainment of Learning Outcomes

> *For programs with an experiential learning or co-op component: describe how the experiential learning/co-op component changes the emphasis or the means of achieving the intended learning outcomes for the program.*

The GIS Capstone Research Project course (ESCI-4911) is the culmination of all the spatial knowledge and skills that students will have learned throughout the first eight courses of the GISc Certificate. The course will require critical spatial thinking to identify the proper tools, models, datasets, visualizations, interpretations, and/or other skill sets for tackling specific spatial problems. Further, students will acquire and apply project management techniques that will guide them in the proper execution and presentation of a large-scale spatial project in a timely and cost-effective manner. Ultimately, this course is an opportunity for students to apply said knowledge, skills, and techniques in a practical, real-world setting and test their mastery of each.

C.4.3   Mode of Delivery (QAF section 2.1.5)

> *Demonstrate that the proposed modes of delivery are appropriate to meet the program learning outcomes. Discuss online vs. face-to-face (e.g., lecture, seminar, tutorial, lab) modes of delivery, as well as specialized approaches intended to facilitate the acquisition of specific skills, knowledge, and attitudes.*

The courses that make up the GISc Certificate will be taught via lectures, hands-on labs, and capstone project-based work. According to Balram (2019), who edited the book *GIScience Teaching and Learning Perspectives*, the recommended teaching approaches to maximize the understanding and retention of geospatial concepts, theories, and skills, is to hybridize traditional lecture-based teaching methods with experiential-based learning methods (i.e., lab assignments and capstone projects). The result of this hybridization is a critical spatial thinker who can tackle

issues such as spatial data, spatial processing and analysis, and spatial outputs and communication, using a wide range of different spatial skills and abilities that could be transferable to solve any real-world problems.

Further, from a technical standpoint, adopting both traditional methods will provide students with hands-on experience related to: 1) the utilization and maintenance of spatial technologies (GIS, RS, GPS, UAVs); 2) the importation of various spatial and non-spatial data to construct large geodatabases (big data, cloud-based environments); 3) the assessment of various data through QA/QC protocols; 4) the construction of applications and the modelling of processes through programming and scripting (machine learning and prediction); 5) the spatial, statistical, and scientific analyses of different problems; and 6) the communication of various cartographic outputs (paper maps, web-based mapping). By understanding the complexity of the technicalities listed above and the heavy reliance on information technologies in geospatial science, students will appreciate the need to consistently update and maintain the currency of their knowledge and skills by tracking and anticipating new trends in the discipline.

Finally, utilizing both traditional and experiential methods to facilitate teaching will provide opportunities for personal enhancement, understanding professional etiquette, and understanding the intricacies of project management. Students will be taught how to interact with: peers from different disciplines and incorporate different perspectives into their spatial projects, their instructors to build a constructive feedback structure for the assessment of their work, and colleagues from the spatial industry in a professional manner. These interactions will be assessed through presentations, emails, proposals, maps, web-interfaces, etc. These life skills are transferable to every aspect of life after graduation. The conceptual, technical, and interpersonal skills discussed above will be progressively taught and developed throughout all nine courses of the certificate so that our graduates evolve into the ideal critical spatial thinker that the market is looking for.

C.5 Student Workload

Provide information on the expected workload per course credit (3.0) of a student enrolled in this new program. (For assistance with this exercise, proposers are encouraged to contact the Centre for Teaching and Learning.)

Expected Workload per 3.0 Course Credit/Week	Average Time *per week* the Student is Expected to Devote to Each Component Over the Course of the Program
Lectures	2 (12/6)
Tutorials	
Practical experience	2
Service or experiential learning	
Independent study	1 (3/6, rounded)
Reading and work for assessment, including meeting classmates for group work/project assignments (essays, papers, projects, laboratory work, etc.)	6 (36/6)
Studying for tests/examinations	1 (⅚, rounded)
Other: *[specify]*	
Compare the student workload for this program with other similar programs in the AAU: There are no similar programs in the School of the Environment on which to base a comparison.	

D. MONITORING AND EVALUATION (QAF section 2.1.6)

Describe and explain the appropriateness of the proposed methods of assessing student achievement given the intended learning outcomes and degree level expectations.

Please also refer to Section B.2.1 and Section C.4.3.

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Student achievement will be monitored through tests, group assignments, independent written assignments, laboratory work, project-based work with an industry partner, etc. While all monitoring methods will give instructors an opportunity to assess a student from multiple perspectives, each method does lend itself to specific aspects of a student's academic performance. For example, the written assignments provide an opportunity to gauge a student's ability to articulate their understanding of geospatial concepts and theories. The group assignments will allow for evaluation of a student's interpersonal, time-management, and delegation skills. The laboratory assignments will allow students to showcase their technical skills and proficiencies with various spatial software packages and geospatial technologies. Finally, the project-based work, especially regarding the capstone course, will allow a student to showcase all of these skills in a real-world setting and allow an instructor to assess the level of mastery a student has achieved.

Student achievement will be evaluated and monitored by course grades assigned by the individual instructor of each course. Students in the GIS Capstone Research Project course (ESCI-4911) will be evaluated by their course instructors and their industry partner. In addition, all instructors will form an advisory board to oversee the courses and their curricula to maintain consistency to the emerging industry trends, logical progression through the courses, and the attainment of the learning outcomes.

D.1 Plan for Documenting And Demonstrating Student Performance Consistent with Learning Outcomes

Describe the plan for documenting and demonstrating student performance level and demonstrate its consistency with the stated learning outcomes and degree level expectations.

The documentation and demonstration of student performance will vary by each course and will be the sole responsibility of the course instructor. The GIS Capstone Research Project course (ESCI-4911) will involve the joint assessment of students by both the instructor and the industry partner. Student performance will be assessed based on grades achieved on independent and group assignments, tests, and projects, and documented by comparison with similar level students in the same course. Grades will be documented, tracked, and communicated using spreadsheets, BlackBoard, and feedback on assignments. Documenting student performance in this way provides an opportunity for each student to compare their results to their peers (anonymously) and reflect on their performance and how they may improve.

E.   EXPERIENTIAL LEARNING/CO-OP COMPONENT ONLY (Senate Co-op Policy)
[Complete this section ONLY if the proposed program includes an experiential learning or co-op component involving paid or unpaid placements.]

E.1 Experiential Learning Component and Nature of Experience

Describe the experiential learning component and the nature of the experience (field placement, required professional practice, service-learning, internship, etc.)

The experiential learning component of the GISc Certificate is a capstone project course (ESCI-4911 GIS Capstone Research Project) to be completed in the fourth and final year of the student's undergraduate degree. The course will require students to design, manage and complete a research project that emphasises the use of GISc for a specific application. Students can either work in groups of 3 to 4 or individually based on the scope and complexity of the project. Each group or individual will select a suitable spatial problem, with guidance from the instructor, and try to solve the problem by acquiring, organizing, and analyzing data within a GIS by using the necessary theories, tools, programs, etc. that they learned throughout the certificate. The project selected may be provided by and completed in partnership with a local/regional business, organization, or corporation. The course would also take advantage of the existing relationships that the Office of Experiential Learning has made with local businesses, etc. who would be able to provide projects with a significant geospatial component.

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E.2 Knowledge and Skills Brought to the Workplace

Provide a description of the knowledge and skills that students will be bringing to the workplace/placement based on the curriculum.

Upon completing the first eight courses of the certificate, students will bring the following skills and knowledge into the projects to be completed for the GIS Capstone Research Project course (ESCI-4911):

- Create, read, and interpret cartographic maps (cartographic process; cartographic elements and influence of distance, location, elevation, gradient, direction; nominal/ordinal/interval measurement levels; map design fundamentals)
- Read and interpret aerial photographs and satellite imagery
- Spatial and aspatial data collection, (GPS, UAVs, Total Survey Station, online portals, platform and sensor) processing (projection transformations, coordinate reference system conversions, corrections and derivations), display, and interpretation
- Enterprise geodatabase construction and administration
- Metadata development
- Information Management Principles
- Cartographic software skills (ArcGIS, QGIS)
- Online mapping
- Fundamental geospatial concepts and their application
- Georeferencing and digitization
- Fatabase design, development, and querying
- Vector and raster data analysis and conversions
- Data quality assurance/quality control
- Geospatial workflows
- Spatial modeling and validation procedures (conceptual, process, mathematical, hybrid, fuzzy logic, representation)
- Decision-making (Decision-Making Support System)
- Pattern recognition and classification of imagery
- Scripting and programming using various languages
- Create form and console applications using an Interactive Development Environment (IDE)
- build desktop and web applications
- Spatial distribution and pattern analysis, interpolation, hot-spot analysis, weighted regressions
- Build web mapping protocols for mobile environments
- Utilize cloud-based environments for data storage and retrieval
- Integrate web-based protocols into workplace environments (organization, workflow, personnel, security)
- Design online systems for archiving and sharing spatial data
- Design interfaces and tools within GUIs, APIs using various programming languages
- Integrate metadata systems and online mapping systems
- Report writing
- Communication skills (verbal, presentation, written)
- Critical thinking skills
- Time and project management
- Group work and leadership skills

E.3 Evidence of Availability of Placements

Provide evidence of the availability of an adequate number of positions of good quality both inside and outside the Windsor area (including names and contact information of potential employers, written statements or surveys from potential employers; and employer feedback concerning the hiring of graduates).

Provide a summary of the types of positions that would be suitable at each level of work-term.

How will these placements/opportunities be developed?

[NB: For co-op programs, the majority of Ontario placements should qualify for the Co-op Education tax credit. See Policy on Co-op Programs for more details.]

The development team, as part of the potential employer survey, identified 15 groups who expressed an interest in volunteering to be a part of the GIS Capstone Research Project course (ESCI-4911). The course would also take advantage of the existing relationships that the Office of Experiential Learning has made with local businesses, etc. who would be able to provide projects with a significant geospatial component. There are also several researchers/professors at the University of Windsor who have expressed an interest in taking on GISc Certificate students to work on aspects of their research. All these individuals and organisations are summarised in the table below.

Organization	Name	Title	Email
United Way/Centraide Windsor-Essex County	Mr. Frazier Fathers	Director, Continuous Improvement and Advocacy	ffathers@weareunited.com
Union Gas Ltd./Enbridge Gas	Mr. Frank Seguin	GIS Cartographic Specialist/Analyst	fseguin@uniongas.com
Lower Thames Valley Conservation Authority	Mr. Jason Wintermute	Water Management Supervisor	jason.wintermute@ltvca.ca
University of Windsor, Economics	Dr. Andrea Craig	Assistant Professor	andrea.craig@uwindsor.ca
Stantec	Mr. Jeremy Matthews	Ontario Land Surveyor	Jeremy.Matthews@stantec.com
City of Windsor	Mr. Jason Scott	Planning Supervisor	jscott@citywindsor.ca
Fisheries and Oceans Canada	Dr. David Yurkowski	Postdoc DFO	dyurkowski1@gmail.com
ENWIN Utilities	Ms. Nicole Ouellette	Manager, Geomatics	nouellette@enwin.com
ENWIN Utilities	Mr. Justin Orton	GIS Analyst	jorton@enwin.com
City of Windsor	Mr. Allison Charko	GIS Supervisor	acharko@citywindsor.ca
RWDI Consulting Engineers and Scientists	Ms. Carol McClellan	GIS Specialist	cam@rwdi.com
MacKay, MacKay & Peters Limited: Professional Land Surveyors and Mappers	Mr. Ross Clarke	President	ross.a.clarke@gmail.com

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ESRI Canada	Mr. Iain Greensmith	Account Manager, Education	igreensmith@esri.ca
Environment and Climate Change Canada	Ms. April White	Program Officer	april.white@canada.ca
Essex Region Conservation Authority	Mr. Tom Dufour	Geomatics Technician	tdufour@erca.org
University of Windsor, SOE/GLIER	Dr. Aaron Fisk	Professor, Science Director of RAEON	afisk@uwindsor.ca
University of Windsor, Civil & Environmental Engineering	Dr. Hanna Maoh	Associate Professor	maohhf@uwindsor.ca
University of Windsor, SOE/GLIER	Dr. Ken Drouillard	Professor	kgd@uwindsor.ca
University of Windsor, Integrative Biology	Dr. Nigel Hussey	Professor	nehussey@uwindsor.ca
University of Windsor, Aeronautics Leadership Program	Ms. Tamsin Bacon	Program Coordinator	tamsin.bacon@uwindsor.ca

The projects that students will be completing will approximate the following types of positions in the geospatial field: GIS programmer, GIS data developers, GIS technician, GIS analyst, or GIS cartographer. Several individuals and businesses that have expressed an interest in partnering with the GISc Certificate through the capstone course have provided letters of support that highlight potential capstone projects (Appendix 4).

Dr. Andrea Craig in the Department of Economics suggested that a potential capstone project may be to "publicly available GIS data to identify characteristics that make a neighbourhood desirable. This would involve i) reviewing literature from different disciplines and brainstorming characteristics that may make a neighbourhood desirable for different households, ii) using publicly available GIS data quantify these characteristics, iii) analyzing the relationship between these characteristics and measures of neighbourhood satisfaction from the Canadian Housing Survey, and iv) digitally mapping the significant characteristics for Windsor".

Dr. Aaron Fisk, a professor in the School of the Environment and at the Great Lakes Institute for Environmental Research and the Science Director of RAEON, indicated that students will be needed to process, organize, and assess for quality control / quality assurance of water chemistry data collected via buoys, environmental data collected via autonomous underwater gliders, and fish movement data collected via acoustic telemetry tags.

The City of Windsor's Geomatics Department expressed a strong interest in providing capstone projects and made a commitment to discussing what those potential projects could be with Ms. Grgicak-Mannion in the near future.

Environment and Climate Change Canada, who has worked with Ms. Grgicak-Mannion in the past to develop a geospatial data portal that acts as a practical data management and assessment tool for the Area of Concern Program (specifically the Detroit River and St. Clair River AOCs) suggested that there is a potential to "[expand] the portal to include other AOCs" with the help of students enrolled in the GISc Capstone Research course (ESCI-4911).

The Essex Region Conservation Authority provided the following as a list of potential capstone projects: "floodplain mapping, internet mapping & field data collection applications, spatial data model development for species observation records, hydrology modeling (geometric network) for DEM correction and terrain manipulation".

The Lower Thames Valley Conservation Authority suggested that potential projects may include "potential flood damage assessments, hydrologic modelling, analysis to estimate water quality in unmonitored watersheds, natural heritage assessments, or assisting us with making our spatial data more accessible internally as well as to the public".

United Way/Centraide Windsor-Essex County wrote that they "conduct a significant amount of research on poverty, educational attainment and youth opportunity, and other social determinants of health in our community. We feel that there is substantial opportunity for students to take on geospatial projects examining these community factors and contributing to community dialogue on important issues".

The Windsor-Essex Catholic District School Board is also in "full support of providing or being part of fourth year undergraduate capstone projects associated with GIS programming. Weather and climate associated with the severe weather events, flooding and rising lake levels experienced in the Windsor-Essex region is of particular interest to our board. As a result, the need to have a consistent method of data collection, visual representation and analysis is required…Having university students acting as mentors in this endeavour promotes citizen science, the use of GIS and its associated benefits in real time".

Projects will be developed by the industry partners in collaboration with the instructors of the GIS Capstone Research Project course, taking into consideration both the learning outcomes of the course and the needs of the industry partner at that moment in time. Students will be matched to a project based on their interests, skills and knowledge achievement level, and compatibility with the industry partner. This matching process will be facilitated using an online catalogue of project "advertisements" and student CV/resume profiles. The process will also consist of interviews to determine compatibility between students and industry partners.

E.4 Mechanism for Supervision of Placements (QAF section 2.1.9)

Describe the mechanism that will be established for the supervision of experiential learning placements.

Students in the GIS Capstone Research Project course (ESCI-4911) will be supervised by the two instructors leading the course and the individual facilitating their project topic (e.g., a researcher, an employee at a local organization or company, etc.). Meetings between the students and these supervisors will take place on a regular basis (e.g., bi-weekly, monthly, etc.) and regular progress reports will be submitted to the supervisors by each student. Meetings can take place in person or remotely through teleconferencing if the participating industry partner is not located within Windsor. Students and supervisors will also have open contact through email and phone at any given point throughout the course for feedback and guidance.

E.5 Fees Associated with Experiential Learning Component

Provide information on the fees associated with the experiential learning component, if applicable. NB: all proposed fees must be approved as part of the University's operating budget, via the Ancillary Fee Committee.

There will be no fees associated with the ESCI-4911 GIS Capstone Research Project course.

E.6 AAU Council Approval of New Co-op Component

Please obtain signatures for the following statement.

Not applicable.

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<u>References</u>

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University Consortium for Geographic Information Science. (2019). *GIS&T body of knowledge*. [Online] Available at: https://gistbok.ucgis.org/ [Accessed 12 January 2020].

Appendices may be viewed by contacting the University Secretariat:
1. CDF Stage III Application Report
2. Comprehensive Research Summary
3. HESA Report
4. Letters of Support
5. SKO Communication's GISc. Certificate Visual Brand Model
6. SKO Communication's GISc. Certificate Conceptual Brand Design & Marketing Plan
7. CDF Stage II End Report
8. CDF Stage I End Report, Stage II Application
9. Stakeholder Surveys
10. GIS Job Market Database
11. Existing GIS Programs Database
12. GISc. Certificate Lab Space Concept Design
13. Short List Program Sequences
14. University of Windsor Undergraduate Program Database
15. Suggested Schedules

University of Windsor
Senate

5.5.3a: **Environmental Science (GISc) – New Course Proposal (Form D)**

Item for: **Approval**

Forwarded by: **Program Development Committee**

MOTION: That the following course be approved:^
             ESCI-3761 Geostatistical Analysis in GIS

^Subject to approval of the expenditures required.

Rationale/Approvals:
- The new course has been approved by the School of the Environment Council, the Faculty of Science Coordinating Council, and the Program Development Committee.
- Supporting documentation for the proposed changes can be accessed by contacting the University Secretariat at ext. 3325, or through the May 11, 2020 Combined Program Development Committee PDF meeting filed posted on the PDC website at: http://www.uwindsor.ca/secretariat/59/pdc-agendas-and-minutes. To access this particular item, go to 5.30.

University of Windsor
Senate

*5.6.1:   **Student Medical Note Standardized Form – Revisions**

Item for: **Approval**

Forwarded by: **Academic Policy Committee**

MOTION: That the revisions to the student medical note standardized form be approved.

Rationale:
- The Senate Policy on Acceptance of Medical Notes from Regulated Health Care Professionals states that "the University of Windsor will accept medical notes or certificates signed by any health care professional regulated under either the Health Professions Act (RHPA) or the Social Services Work Act or equivalent in any other provincial/state jurisdiction." A standardized form that Faculties may wish to adopt was approved as part of the policy. The medical note form is to be completed by a regulated health care professional.
- The revised form has gone through a lengthy consultation process across several areas, beginning with suggestions by the Faculty of Nursing, and reviewed by the Office of the Associate Vice-President, Student Experience, the Student Counselling Services, Student Accessibility Services, Health Services,Nursing and the Academic Policy Committee. The changes to the standardized form are being proposed for greater clarity.
- As noted in the policy, Faculties are encouraged to adopt this standardized form. Faculties that choose to continue with their own form are to ensure adherence to privacy regulations. For example, the form should not require a statement of diagnosis or nature of disability.
- See attached for revision to student medical note form entitled: *Verification of Student Illness or Injury.* The form is heavily based on the University of Toronto's Illness Verification form.

Verification of Student Illness or Injury – PROPOSED NEW FORM

University of Windsor

To be completed <u>only</u> by a health care professional regulated under either the Health Professions Act (RHPA) or the Social Services Work Act, or equivalent in any other provincial/state jurisdiction. If you are also seeking disability-related academic accommodation(s), please visit Student Accessibility Services, room 117 Dillon Hall.

1. <u>TO BE COMPLETED BY THE STUDENT</u>:   STUDENT#_____

I, (please print)_____authorize this practitioner to provide the information on this form relating to my request for special consideration to the University of Windsor, and to verify the information as required.

_____   _____
STUDENT SIGNATURE   DATE

2. <u>TO BE COMPLETED BY THE LICENSED PRACTITIONER</u>: *Indicate below the effect of the illness, injury, etc on the student's ability to learn, communicate, concentrate, participate in activities as well as his/her decision-making capacity and motivation.*

Initial the most relevant category		Degree of Incapacitation on Academic Functioning	Timeline for Contact with Student		
			Start Date	**End Date (Anticipated End Date)**	**Saw Only Once**
	Severe	Completely unable to function at any academic level e.g. unable to attend classes, or fulfill any academic obligations.			
	Serious	Significantly impaired in ability to fulfill academic obligations e.g. unable to complete an assignment, unable to write a test/examination.			
	Moderate	May be able to fulfill some academic obligations but performance considerably affected e.g. able to attend some classes, decreased concentration, assignments may be late.			
	Mild	Likely to be able to fulfill academic obligations, but performance affected to a minor degree, with mild impairment and minimal symptoms			
	Negligible	Unlikely to have an effect on ability to fulfill academic obligations			
	Self-Reported	Student informs me they were ill previous to examination date			
(If Needed) Additional Consideration or Restrictions Relating to Academic Work OR Academic-Related Work Placements:					

> **If there is a need for temporary or ongoing academic accommodations due an illness or injury, students should make an appointment with an Advisor in Student Accessibility Services which is located in room 117 Dillon Hall.**

3. VERIFICATION BY THE LICENSED PRACTITIONER:
This form is based on examination and applicable documented history at the time of illness or injury, or within a reasonable period of time after the illness. I certify that this assessment falls within my legislated scope of practice.

                                                                                          Business stamp, with address and telephone

_____
NAME (Please Print)

_____
Licensing Body and REGISTRATION #

_____   _____
SIGNATURE   DATE

The University of Windsor respects personal privacy. Personal information that is provided on this form is used by the University to verify effects of illness or injury on your (the student's) capabilities and necessary related purposes. At all times, it will be protected in accordance with the Freedom of Information and Protection of Privacy Act. If you have questions, please contact Student Accessibility Services. NOTE: Alteration or falsification of information on this form may constitute an academic offence under UWindsor's Student Code of Conduct.
Completion of this form does not guarantee that special consideration will be granted. Incomplete forms will not be processed.
In some appeal situations, the University may require additional information from you or your practitioner to decide whether or not to grant or confirm special consideration.

Student and Health Care Provider – KEEP COPY FOR YOUR FILES

Current Form

Student Medical Certificate

University of Windsor

A. TO BE COMPLETED BY THE STUDENT:

I, _____, hereby authorize this health care professional to provide the information collected on this form to the University of Windsor to support my request for special academic consideration for medical reasons.

_____   _____   _____
Signature   Student No.   Date

This personal information is being collected under the authority of the University of Windsor Act 1962/63 and will be used for administrative and academic record-keeping, academic integrity purposes, and the provision of services to students. Please contact the Associate Dean of the Faculty in which you are seeking academic consideration with questions about the collection, use, and disclosure of this information.

B. TO BE COMPLETED BY THE HEALTH CARE PROFESSIONAL:

1. I hereby certify that I examined and/or assessed the above-named student on

   _____.

   (Insert the date(s))

2. I am providing the following information for use by the University of Windsor in assessing what special consideration, if any, should be given to this student in respect of missed or affected classes, labs, assignments, tests, examinations, or clinical/practicum/field placements. **I understand that I may be contacted by the University to verify this information,** but will not be requested to provide further information without the consent of the student.

   Normally, it is not necessary to disclose the nature of the illness or the treatment, but it is essential to know the effect the illness and treatment had, or will have, on the student's ability to do his or her academic work. With the student's permission you may include the diagnosis or any pamphlets you feel would be of assistance to the University of Windsor in assessing the circumstances.

   Date of the onset of the problem (or most recent episode if problem is chronic):_____

   Expected duration of the problem or most recent episode:

   ☐ 24 hours   ☐ 2 days

   ☐ 3 days   ☐ 4 days

   ☐ 5 days   ☐ Other (please indicate) _____

C. VERIFICATION *(A stamp, business card, or letterhead is acceptable.)*
This form is based on examination and applicable documented history at the time of illness or injury, not after the fact. I certify that this assessment falls within my legislated scope of practice.

Name: (please print) _____

Registration No. _____

Signature: _____

Address: _____

Telephone No. _____

University of Windsor
Senate

*5.6.2:   **BSc in Environmental Science Admission Requirements – Revisions**

Item for: **Approval**

Forwarded by: **Academic Policy Committee**

MOTION: That the proposed revisions to the admission requirements for the Bachelor of Science (Honours) in Environmental Science be approved.

Proposed Revisions:
[revisions are in bold and strikethrough]

ENG4U, MHF4U, SCH4U, and SBI4U.
MCV4U and SPH4U are recommended. ~~SPH4U is recommended. MCV4U is strongly recommended.~~
A minimum 70% average of all ~~attempted~~ **required** science and math courses is also required.

Rationale:
- Housekeeping changes to clarify existing language.
- The proposed changes have been approved by the School of the Environment Council, the Faculty of Science Coordinating Council, and the Academic Policy Committee.

University of Windsor
Senate

5.6.3: **Internationalization Annual Report (2019)**

Item for: **Information**

Forwarded by: **Academic Policy Committee**

1. Executive Summary

A. Introduction

Internationalization has been one of the most critical factors shaping the Canadian higher education sector in the last three decades. As a term initially used widely in the 1980's to promote international studies, educational exchange and technical assistance (Klasek, 1992) it has evolved as a transformative process in response to and as agents of the pervasive force of globalization to the integration of an international, global, intercultural and comparative perspectives into the teaching/learning process and program content. It shapes the institutional ethos and values and touches the entire higher education enterprise (Hudzik 2011).

Comprehensive internationalization impacts all aspect of campus life and is framed by our external relationships, frames of reference, partnerships, and relations. It is used more and more to discuss the international dimension of higher education and can include the following key activities: academic and student mobility; cross-cultural learning; and, development of institutional partnerships and networks. However, because it means different things to different people, it is used in a myriad of ways. As argued by Jane Knight, a seminal scholar in this space, although it is encouraging to see increased attention to and use of internationalization, there is often a great deal of confusion about what it means, including at the University of Windsor.

It is relatively safe to say that most people on campus equate internationalization to in-bound fee-paying international students and not vast number and types of international initiatives undertaken by higher education institutions under the two interdependent pillars of internationalization "at home" and "abroad". At present, we have not adopted a clear working definition for internationalization @ UWindsor, nor articulated a framework to guide these activities; however, as you will read later this report, we hope to undertake collaborative steps in 2020 to better foster comprehensive internationalization on campus.

In this report, we attempt to outline a broad selection of international activities to show internationalization as an institutional imperative, not just a desired possibility. The global reconfiguration of economies, systems of trade, research, communications, and the impact of global forces on local life, dramatically expand the need for comprehensive internationalization to ensure we prepare graduates, our community, and society for the future.

2019 was a productive year in terms of internationalization activities, including those related to recruitment, collaborations, and engagement. This report summarizes these activities.

Covid-19 Amendment:
This report covers the period of January 1 – December 2019; however, we would be remiss not to recognize the current impact of the Covid-19 pandemic on our internationalization efforts, specifically student and academic mobility. Increasing the diversity of our student population is a top priority of the University, even prior to Covid-19. As outlined in the Annual Report below, a review of our international recruitment and admissions practices was undertaken to support this priority; however, colleagues should recognize that given Covid-19 is a global pandemic, a more diverse student body would likely be equally affected by the widespread impacts of this disease, including global travel bans and restrictions.

B.   Goals and Objectives of Reporting Year

The American Council on Education defines comprehensive internationalization as "a strategic and integrated approach to internationalization in which institutions articulate internationalization as an institutional goal (if not priority), develop an internationalization plan driven by sound analysis, and seek to bring together the usually disparate and often marginalized aspects of internationalization" (Olson, Green, & Hill, 2006). In keeping with this definition, this report has been complied through the work of multiple areas who work across the institution over the last year to engage internal and external partners in internationalization efforts to enrich our campus and the extended community, including:

Academic Faculties
Centre for Teaching and Learning
International Student Centre
Office of the Associate Vice-President - Enrolment Management (AVP-EM)
Office of International Collaboration
Office of Institutional Analysis
Office of the Provost and Vice-President Academic
Office of the Registrar
Office of the Vice-President, Research and Innovation
Student Recruitment

C.   Successes

Partially implemented a new **International Mobility Management** system (MoveOn) to enable the collection, collaboration, and management of mobility activity from across the institution in one place, online, thereby, making a better experience for students and staff, reducing administration, making the international office more effective and efficient, creating more time to focus on what matters most – the student.

1.   Partially implemented a new **International Partnership Management** system within MoveON to record partner relations in one place, online in a purpose-built CRM to better manage agreements, renewals and interactions that can be accessed across the University. It will enable us to promote and nurture our international presence to both internal stakeholders and new potential partners and report on international relations to help achieve our internationalization goals.

2.   **International recruitment** has moved from the former Office of the Vice-Provost International Development into Student Recruitment, thereby centralizing recruitment operations into one location and leadership team.

3.   Supported a full **review of international recruitment and admissions practices** conducted by Pamela Barrett and Associates from Barton Carlyle. The review included identification of practices to proactively manage global risks, evaluation of international recruitment and admissions practices via value stream mapping and in-person interviews, allocation of resources and to provide a roadmap on how to improve effectiveness of institutional efforts with the goal of developing a comprehensive International Recruitment Strategy for the next 3 – 5 years. The outcomes of this engagement will help the institution better navigate the increasingly competitive global recruitment landscape.

4.   To better support our internationalization agenda and international student recruitment activities, the University established an **in-country office in New Delhi, India** to provide outreach counseling, application support, and agent management in South Asia (India, Sri Lanka, and Bangladesh), the Middle East, and Africa. In 2019, we welcomed to our team Neharika Kataria, as a Student Recruitment Advisor, who is based in our India office. We continue to refine the engagement and business practices associated with the increased bandwidth associated with having in-country representatives, including how they interact with prospective students, applicants, agents, counsellors, consultants and parents and the coordination of effort with their Canadian counterparts and colleagues.

D. <u>**Challenges**</u>

We continue to operate with a limited budget, small staff complement and competing priorities, reducing the number of initiatives underway at any given time. However, we continue to collaborate with other areas (or Faculties, AAUs, and individual faculty members) to further internationalize the University. At a macro level, the University of Windsor faces challenges that are outside of the institution's control, such as increased global competition, visa denials, and limited growth/opportunities. These realities require the institution to adapt its recruitment strategy and make further investments in promoting the institution abroad.

At a micro level, inequitable inbound international student mobility continues to place pressure on some faculties (i.e., Faculty of Graduate Studies) and disciplines (i.e., STEM) more than others. UWindsor, like other Canadian Higher Educational Institutions (HEIs), faces financial and credit risks associated to the lack of diversity in our international student body with a vast majority of students originating from India, China, Nigeria, etc. In addition, English language training enrolment has decreased over time as incoming students are either meeting language proficiency requirements prior to their admission and/or academic programs no longer considering English language learners as "competitive" (i.e., rejecting students with an IELTS 5.5) vs. conditionally admitting into ELIP.

2. Report

A. <u>**Area's Goals and Objectives and the University's Strategic Plan**</u>

1. *Provide an exceptional and supportive undergraduate experience*
   - Facilitate recruitment, conversion, and successful transition into all undergraduate programs
   - Provide pathway programs to enable access to high quality undergraduate education
   - Establish a system to enable Faculties to communicate to students how an international experience can be incorporated into their degree
   - Increase student participation in mobility programs
   - Enhance supports available to international students to ensure that they have a rich learning and cultural experience
   - Promote articulation programs
   - Implement feedback and evaluation processes to monitor program quality

2. *Pursue strengths in research and graduate education*
   - Facilitate the exchange of scholars (professors, advanced graduate fellows, and/or researchers), professional staff members, and students for study and research at international partner institutions
   - Promote the exchange of research materials and information between collaborating international institutions
   - Promote joint research activities, seminars, and academic meetings in the fields of interest between collaborating international institutions

3. *Recruit and retain the best faculty and staff*
   - Facilitate opportunities for both academic and non-academic staff to participate in mobility programs, such as ERASMUS+, etc.

4. *Engage Windsor-Essex community*
   - Build partnerships within the community to increase awareness of Windsor-Essex as a study destination and pathways to the University's programs and services
   - Build partnerships with school boards and private schools to proactively recruit graduating international students

5. *Promote international engagement*
   - Increase the capacity of our students, faculty, staff and alumni to engage internationally
   - Enhance our global presence
   - Support the development and communication of strategic partnerships, including short-term, issues-based partnerships and within all areas of geographic focus
   - Facilitate connections to support UWindsor international collaborations for both research and student learning

B. **Future Actions/Initiatives**

1. Develop and implement a strategy to **diversify our international student population**, including undertaking sustained intensive recruitment activities, raising awareness across a broad, relevant range of markets, proactively managing and incentivizing third-party agents, streamlining admissions processes and enhancing the provision and delivery of international student supports.

2. A core element of the University's internationalization efforts is building, cultivating and maintaining relationships with international organizations to expand networks and increase impact, but are they strategic?

   To strategize our internationalization efforts, create an **International Partnership Assessment Rating System** (IPARS) to assess existing university partnerships (i.e., academic programs and collaborations, mobility programs and research collaborations), identify top partners in each country, develop strategic partnerships, and decide whether to re-engage a stalled partnership, or eliminate it. This system would enable UWindsor to ensure that we are entering into agreements that advance our international goals and vision. Rubrics will be determined through consultation with senior executive leaders, Faculty associate deans and International Office staff to ensure creation of a comprehensive system.

3. In collaboration with Office of the Provost and Vice-President Academic, and other campus-stakeholders, investigate feasibility and benefits of establishing a **Global Engagement / International Advisory Committee** to guide, support, encourage, develop and facilitate international engagement, such as: development of an international strategy, fostering internationalization across all academic disciplines, supporting international teaching partnerships, engaging international institutions and global business to produce world-leading research, supporting experiential education opportunities though international mobility and further engage with overseas alumni.

4. Advocate for the University's adoption of a **Comprehensive Internationalization Framework**, or the strategic, coordinated process that seeks to align and integrate policies, programs and initiatives to position the University of Windsor as more globally orientated and internationally connected. Elements to consider maybe an articulated institutional commitment to internationalization, the leadership, structure and staffing to implement internationalization, inclusion of an international perspective or experience into student learning, and supporting both the outward flow of domestic students to other countries to engage in an education abroad experience and the inward flow of international students to study at UWindsor.

5. **Recognize synergies within Student Recruitment**: Evaluate current practice for the recruitment of both domestic and international students, identify shared activities, possible areas of synergy and address any duplication of efforts. Collaborate with colleagues in the Registrar's Office to better support their efforts in adjudicating applications, specifically, supporting incomplete applicants, follow-up and conversion activities.

6. Develop and implement a clear, fulsome and coherent **International Enrolment Management** (IEM) plan, including:
   a. Coordination and collaboration of internationalization
   b. Management of enrolment operations (e.g. reporting and real-time interventions)
   c. Market analysis and insights (e.g. conducting ongoing market research, intelligence and analysis)
   d. Enrolment communications
   e. Financial investments towards enhancing international scholarships and student/scholar supports (i.e., pre-departure and transition support program)
   f. Enhancement of recruitment and admissions practices, including administration, analysis and development of global enrolment partner networks

7. **Evaluate the academic success of international students** based on their method of satisfying the University of Windsor's English language proficiency requirements, such as provision of an acceptable score in a standardized language examination, successful completion of the University's English Language Improvement

Program (ELIP) or country- and institutional-specific exemptions. Possibly include analysis and reporting on comparative academic success of international students, such as GPAs, graduation rates, employment and settlement.

8. Evaluate and action any recommendations outlined in the Barton Carlyle **International Recruitment and Admissions review**.

9. Finish the implementation of the MoveOn **International Partnership Management and Mobility Platform.**

10. A significant portion of our international students engage the services of a third-party recruitment partner to help in navigating the global higher education sector. These agents are a critical partner in our multi-faceted recruitment strategy and must be better supported, especially if we seek them to actively promote the institution to highly qualified students.

Therefore, investigate the feasibility of **enhancing the University's Agent Management System (AMS)** to enable authorized educational agents to have timely access to vital information to support their work on our behalf, including view offer status and letters of acceptance, upload visa/study permit information, and view deposit / payment receipts for their clients. Evaluate agent activity including quality of applicants and conversion rates.

C.   Recommendations for Senate consideration (if any)

Knight (2003) defines internationalization as "the intentional process of integrating an international, intercultural or global dimension into the purpose, functions and delivery of post-secondary education, in order to enhance the quality of education and research for all students and staff, and to make a meaningful contribution to society".

To determine if we sit upon the spectrum "internationalization", it would be beneficial if the PDC form and/or UWinsite Student system could include a method to identify and articulate how the course(s)/degree learning outcomes builds an international, intercultural or global dimension within the curriculum, if applicable. This also provides an opportunity to raise awareness of the process with faculty, staff, and students.

References:
Hudzik, J. K. (2011). Comprehensive internationalization. From concept to action. Washington, DC, NAFSA: Association of International Educators.

Klasek, C. B. (1992). Bridges to the future: Strategies for internationalizing higher education. Association of International Educators

Knight, J. (2003). "Updated definition of internationalization." International Higher Education 3**3**: 2-3.

Olson, C. L., Green, M. F., & Hill, B. A. (2006). *A handbook for advancing comprehensive internationalization: What institutions can do and what students should learn*. American Council on Education.

University of Windsor
Senate

*5.7.1:   **Senate Standing Committees – Membership**

Item for: **Approval**

Forwarded by: **Senate Governance Committee**

MOTION: That the Senate Standing Committees membership for 2020-2021 be approved.

*see attached.

2020-2021 Senate Standing Committee Membership

Program Development Committee		
Member	**Term**	**Notes**
Provost and Vice President, Academic (or designate) Dr. Douglas Kneale	Ex-officio	
Dean of Graduate Studies (or designate) Dr. Patricia Weir	Ex-officio	
Vice-Provost, Teaching and Learning (or designate) Dr. Erika Kustra (designate)	Ex-officio	
Faculty of Business Administration		
Dr. Maureen Sterling (S-2020)	2019-2021	
Faculty of Education		
Dr. Ken Montgomery (S- Ex- officio)	2019-2021	
Faculty of Engineering		
Dr. Randy Bowers	2019-2021	
Faculty of Human Kinetics		
Dr. Kevin Milne	2020-2022	
Faculty of Law		
Ms. Maggie Liddle	2020-2022	
Faculty of Nursing		
Dr. Jamie Crawley	2020-2022	
Faculty of Science		
Dr. Jeremy Rawson	2019-2021	
Dr. Nurlan Turdaliev (S-2020)	2019-2021	
Faculty of Arts Humanities & Social Sciences (at least one from Social Science & one from Arts)		
Arts/Humanities – Dr. Jeremy Worth	2019-2021	
Social Sciences – Dr. John Sutcliffe	2020-2022	
Social Sciences – Dr. Greg Chung-Yan* (S -2020) Chair	2019-2021	
Librarian Representative		
Ms. Karen Pillon	2019-2021	
Student Representation (1 year terms) Five students (including at least one graduate, one part-time undergraduate, two full-time undergraduates) Emily Fraser (UWSA), Pedro Kantati, (UWSA), Aman Patel (GSS), Diana Marion (OPUS), Mitul Konsadariya (GSS) Additional		

*At least three members must be members of Senate (satisfied).

Academic Policy Committee		
Member	**Term**	**Notes**
Associate Vice President Academic (or designate) Prof. Jeffrey Berryman	Ex-officio	
Vice-Provost, Teaching and Learning (or designate) Dr. Erika Kustra (designate)	Ex-officio	
Faculty of Business Administration		
Dr. Fazle Baki (S-2020)	2019-2021	
Faculty of Education		
Dr. Terry Sefton (S-2020)	2020-2022	
Faculty of Graduate Studies		
Dr. Rashid Rashidzadeh	2019-2021	
Faculty of Engineering		
Dr. Jill Urbanic	2020-2022	
Faculty of Law		
Dr. Anneke Smit	2019-2021	
Faculty of Human Kinetics		
Dr. Scott Martyn	2019-2021	
Faculty of Nursing		
Ms. Judy Bornais	2020-2022	
Faculty of Science		
Dr. Maria Cioppa	2020-2022	
Faculty of Arts, Humanities & Social Sciences (One from Social Sciences & one from Arts/Humanities)		
Arts/Humanities – Dr. Antonio Rossini (S-2021) Chair	2019-2021	
Social Sciences - Dr. Wansoo Park	2020-2022	
Librarian Representative		
Mr. Scott Cowan (S-2021)	2019-2021	
Student Representation (1 year terms) Four students (including one graduate, one part-time undergraduate, two full-time undergraduates). Emily Fraser (UWSA), Mohammed Abdulaziz (UWSA), Aman Patel (GSS), Janice Mcadam (OPUS)		

*At least three members must be members of Senate (satisfied).

Senate Student Caucus		
Member	**Term**	**Notations**
Associate Vice-President, Student Experience Mr. Ryan Flannagan	Ex-officio	
Director, Campus Services Mr. Dave McEwen	Ex-officio	
Faculty of Business Administration		
Dr. Brent Furneaux	2020-2022	
Faculty of Education		
Dr. Geri Salinitri	2019-2021	
Faculty of Engineering		
Dr. Ofelia Jianu (S -2020)	2020-2022	
Faculty of Law		
Prof. Ruth Kuras (S-2020)	2019-2021	
Faculty of Human Kinetics		
Dr. Sean Horton	2019-2021	
Faculty of Nursing		
Dr. Lorna de Witt	2019-2021	
Faculty of Science		
Dr. Shashi Jasra	2020-2022	
Faculty of Arts, Humanities & Social Sciences		
Dr. Phebe Lam (S-2020) – Chair	2020-2022	
Librarian Representative		
Ms. Sharon Munro	2020-2022	
Student Representation (1 Year Terms) Eleven Students (2 graduate students, 2 part-time undergraduate, 4 full-time undergraduate, 1 international, 1 residence student, 1 student at large) (1 student from this group would be elected co-chair): Aman Patel (GSS), Mitul Konsadariya (GSS), Bernarda Doctor (OPUS), Donna Patterson (OPUS), Emily Fraser (UWSA), Mohammed Abdulaziz (UWSA), Linden Crain (UWSA), TBA (UWSA), TBA (International), TBA (Residence), TBA (Native Students' Alliance)		

*At least three members must be members of Senate.

Senate Governance Committee		
Member	**Term**	**Notations**
President (Chair) Dr. Rob Gordon	Ex-officio	
Provost and Vice President, Academic (or designate) Dr. Douglas Kneale	Ex-officio	
Faculty of Business Administration		
Dr. Mitch Fields (S-Ex-officio)	2019-2021	
Faculty of Education		
Dr. Bonnie Stewart	2020-2022	
Faculty of Engineering		
Dr. Jacqueline Stagner	2020-2022	
Faculty of Law		
Prof. Reem Bahdi (S-2020)	2020-2022	
Faculty of Human Kinetics		
Dr. Michael Khan (S-Ex-officio)	2019-2021	
Faculty of Nursing		
Dr. Linda Patrick (S-2020)	2020-2022	
Faculty of Science		
Dr. Rick Caron	2020-2022	
Faculty of Graduate Studies		
Dr. Jill Crossman	2020-2022	
Faculty of Arts, Humanities & Social Sciences		
Dr. Maureen Muldoon (S-2020)	2020-2022	
Dr. Michael Darroch	2020-2022	
Librarian Representative		
Mr. Pascal Calarco (S-ex-officio)	2019-2021	
Student Representation (all vacant 1year terms) Five student Senate members (including at least one graduate, one part-time undergraduate, two full-time undergraduates). Biane Deghaiche (UWSA), Linden Crain (UWSA), Mitul Konsadariya (GSS), Ed King (OPUS).		

*At least half must be members of Senate.

University of Windsor
Senate

5.7.2: **Proposed Bylaw Revisions**
[Bylaws 5, 8, 10, 11, 12, 13, 14, 16, 17, 20]

Item for: **Approval**

Forwarded by: **Senate Governance Committee**

MOTION 1: That the proposed changes to Bylaw 20 be approved. *[REFERRED BACK TO COMMITTEE]*

Proposed Revisions
[revisions are in bold and strikethrough]

1.1 Regular appointments
(i) A regular appointment will be to a position within a given AAU or two AAUs and in the case of an appointment to two AAUs the appointment shall be called a joint appointment. ~~In addition, a~~ **A** regular appointment ~~may be~~ made to a position within a given AAU and ~~in a~~ **within another** non-AAU based program/**academic body** ~~or other non-administration unit~~ within the University ~~and~~ shall be called a hybrid appointment.

1.3.1 A Limited Term Appointment is a full-time appointment to a position at any academic rank in the University for a specified length of time.

A Limited Term appointment will be to a position within a given AAU or two AAUs and in the case of an appointment to two AAUs the appointment shall be called a joint appointment. ~~In addition, a~~ **A** Limited Term appointment m~~ay be~~ made to a position within a given AAU and within another **non-AAU based program/**academic body within the University ~~and~~ shall be called a hybrid appointment.

1.5 Cross-appointments
A faculty member may hold or be appointed to a cross-appointment in a different AAU(s), in which case the appointment shall be called joint appointment, or in a non-AAU based program**/academic body** ~~(s) or other non-administration unit(s)~~, in which case the appointment shall be a hybrid appointment, subject to the following provisions: …

2.1.3 For hybrid appointments the appointments committee shall be composed as follows:
  * […]
  * one student representative from the AAU elected by and from the students in the AAU**, and one student, elected by and from the students of the non-AAU based program or the non-AAU based academic body, if there is no such program**
  * student alternates, to a maximum of two **per AAU and non-AAU based program/academic body**, may be elected by and from the students ~~in the AAU~~ **of the appropriate body** to serve as representatives in cases where the elected student representative is unable to participate for an extended period of time due to program requirements (e.g., co-op or field placements, internships, etc.). In all instances, there shall be no alternating among and between student representatives during the course of a single search.

Rationale:
  * Brings consistency to language around hybrid appointments. Ensures student representation from non-AAU based programs on appointments committees, consistent with other bylaw provisions.

MOTION 2: That the proposed changes to Bylaws 5, 8, 10, 11, 12, 13, 14, 16, 17, and 20 be approved.

<u>**Proposed Revisions**</u>
[revisions are in bold and strikethrough]

<u>Bylaw 20 revision:</u>

2.2.5 Records shall be kept of all the proceedings. All appointments committee ~~records and proceedings of the~~ meetings ~~related to appointments~~ shall be held *in camera* and **the proceedings, discussions, records and any materials** kept strictly confidential. The ~~AAU/Library Head~~ **Chair(s) of the appointments committee** shall prepare an annual report on each appointment to the Office of Human Rights, Equity and Accessibility**, following the format outlined in Appendix A**. The University of Windsor's five designated groups are: aboriginal persons, persons with disabilities, sexual minorities, visible minorities, and women. ~~The reporting format to be used for each appointment is in Appendix A.~~

<u>Add to the other bylaws related to searches/appointments:</u>
Records shall be kept of all the proceedings. All meetings of the Search Committee shall be held *in camera* and the proceedings, discussions, records and any materials kept strictly confidential. A report, following the format outlined in Appendix A, shall be submitted to the Office of Human Rights, Equity and Accessibility, following the conclusion of the Search. The University of Windsor's five designated groups are: aboriginal persons, persons with disabilities, sexual minorities, visible minorities, and women.

Rationale:
- In response to recommendation made in the RCEE report, the language in Bylaw 20 (for faculty appointments) is being introduced to the other bylaws related to searches/appointments. All Senate search committees will be required to report on the number of applicants/candidates who self-identified as members of a designated group.
- Clearer wording related to appointments committee proceedings.

Appendix A

Report to the Office of Human Rights, Equity and Accessibility

Column 1			Column 2			Column 3			Column 4			Column 5		
# of aboriginal persons			# of persons with disabilities			# of sexual minorities			# of visible minorities			# of women		
applying	short-listed	interviewed	applying	short-listed	interviewed	applying	short-listed	interviewed	applying	short-listed	interviewed	applying	short-listed	interviewed

Table continued from above:

Column 6	Column 7	Column 8		Column 9	
		Offer made to (mark with an "X"):		Offer accepted by (mark with an "X"):	
Total # of designated group applicants (do not double count individuals)*	Total # of all applicants (designated and non-designated)	Designated group member	Non-designated group member	Designated group member	Non-designated group member

*An applicant may be a member of multiple designated groups categories. As such, the sum of the numbers from the first five columns may be greater than the total number designated group members. For the "total number of designated group members" column, each applicant is to be counted only once.

VPRI Report to Senate
May 22, 2020

Dr. K. W. Michael Siu
Vice-President, Research and Innovation

University of Windsor

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Critical Research Committee: Criteria and Rubric

- Urgency & time-sensitiveness

- Impact on collaborators

- Funding agencies timelines & deliverables

- Impact on physical & economic health

- Contribution to student training

- Delivery of consumables and supplies

- Physical distancing / working in pairs

- Access to public space & field

- Maintenance & calibration

- Emergency response

University of Windsor

Research Safety Committee & Working Group

- Research Safety Committee
  - New mandate: examine & approve health & safety aspects of specific projects
- Research Planning Working Group
  - Receive input from and work with first two committees
  - Implement resumption of research processes
  - Ensure pan-university comparability
  - Confirm provision of other relevant services will be in place
    - Facilities
    - Housekeeping
    - Receiving

University of Windsor