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## FACULTY OF SCIENCE

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### COUNCIL OF THE FACULTY OF SCIENCE

**Notice of Meeting**  
**Tuesday, October 8, 2019**  
**at 3:00pm – 4:30pm**  
**306 Lumbers**

#### **Agenda**

1. Call to Order and Approval of Agenda
2. Chair's Remarks
3. Approval of Minutes of September 10, 2019
4. Business Arising
5. Inquiries and Communications
  - Senate Synopsis of meetings held on September 26, 2019.
6. Dean's Report to Council
7. Associate Deans' and Head of Bethune College Remarks
8. Reports from Science Representatives on Senate Committees
9. Reports from Standing Committees of Council
  - 9.1 Executive Committee
    - 9.1.1 Ratification and Call for Nominations for Senate and Standing Committee of Council (item for action)
    - 9.1.2 Vacancies report on the Standing Committees of FSc Council (items for action)
  - 9.2 Curriculum Committee (Consent agenda items)
10. Other Business
  - 10.1 Grad across the Faculties: Local decision-making facility alongside FGS and Senate pan-university oversight
  - 10.2. Presentation on the President's Council on Internationalization - Issue Paper Review by Vinitha Gengatharan, Executive Director, York International



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## FACULTY OF SCIENCE

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COUNCIL OF THE FACULTY OF SCIENCE

**Tuesday, September 10, 2019**  
**at 3:00pm – 4:30pm**  
**306 Lumbers**

### **Minutes**

**Attendance:** M. H. Armour (Chair), EJ Janse vanRensburg, M. Xu, J. Amanatides, R. Metcalfe, P. Delaney, M. McCall, D. Hossain, M. Hough, J. Steeves, W. Taylor, G. Audette, N. Madras, C. Caputo, R. Fournier, D. Golemi-Kotra, P. Potvin, P. Lakin-Thomas, M. Bayfield, C. Storry, C. Bucking, G. Zoidl, A. Weiss & S. Siyakatshana (Assistant Secretary)

**Guests:** H. McLellan & J.J Sequeira

#### **1. Call to Order and Approval of Agenda**

The Chair of Council called the meeting to order and the Agenda was adopted as presented.

#### **2. Chair's Remarks**

M. H. Armour read the Acknowledgement From The Land script, which honours and respect the Aboriginal People.

She welcomed Council members to the first meeting of the 2019-2020 academic year.

### **3. Approval of Minutes of May 14, 2019**

A motion was moved, seconded and carried to approve the Minutes of Council.

### **4. Business Arising**

There was no business Arising from the Minutes.

### **5. Inquiries and Communications**

Council noted the Senate Synopses of meetings held on May 23 and June 27, 2019.

### **6. Dean's Report to Council**

EJ Janse van Rensburg, the Interim Dean welcomed Council members to the meeting and presented his report to them. He updated Council on the barbeque luncheon hosted by the Office of the Dean held on August 29<sup>th</sup> as well as the 2019 Summer Undergraduate Research Conference. He remarked that the first prizes for both the Oral Presentations awarded to Kevin Borsos (supervisor A.Kumarakrishnan) and Poster Presentations - Nadar Allam (supervisors Ozzy Mermut & Bill Pietro) all went to the students from the department of Physics and Astronomy.

The Dean stated that the 2015-2020 Strategic Plan was now coming to an end and consultations on the new strategic plan were already under way.

The Dean highlighted the following events:

- BeeCon 2019 - Southern Ontario Bee Researchers Symposium was organized by Dr. Laurence Packer and research assistants, Sheila Dumesh, and Liam Graham.
- The one-meter telescope was installed at the Allan I. Carswell Observatory.

The following are the Science Communicators in Residence for our faculty;

- B.D. Colen Reporter, Editor and Photographer and would be in residence from September. 3 to December 20, 2019 and January 6 to April 24, 2020. He noted that Colen comes in once a week and he encouraged faculty to utilize him.
- Lison Motluk Science Journalist will be in residence from October 28 to December. 20, 2019
- Patchen Barss Science Journalist & Author will be in Residence on January. 6 to March 13, 2020.

The Dean stated that the total domestic students' enrolment numbers were down by 4.58% while international students' enrolment numbers were up by 15.51%.

The Dean welcomed the new administrative leaders and faculty members as follows,

- Gerald Audette, Associate Dean, Faculty Affairs

- Vera Pavri, Department Chair, Science & Technology Studies.

New faculty members:

*Biology*

- Christopher Jang, Assistant Professor, Teaching Stream
- Birgit Schwarz, Assistant Professor, Teaching Stream
- Sandra Rehan, Assistant Professor
- Nikola Kovic, Assistant Professor

*Chemistry*

- Tao (Toby) Zeng, Assistant Professor
- Tihana Mirkovic, Assistant Professor, Teaching Stream
- Trevor VandenBoer, Assistant Professor

*Mathematics and Statistics*

- Andrew McEachern, Assistant Professor, Teaching Stream
- Jude Kong, Assistant Professor (starting in January)

*Division of Natural Science*

- Robin Marushia, Assistant Professor, Teaching Stream

*Physics and Astronomy*

- Claire David, Assistant Professor (Fermilab)
- Deborah Harris, Professor (Fermilab)
- Elaina Hyde, Assistant Professor, Teaching Stream (starting in November)
- Nassim Bozorgnia, Assistant Professor (starting in January)
- Saeed Rastgoo, Sessional Assistant Professor-CLA (starting in January)

Welcome to the new administrative staff:

- Jacquelin De Faveri, Research Officer
- Jervis Sequeira, Faculty Research Administrator
- Jonathan Cevallos, Facilities Manager
- Juan Lemus, Systems Administrator
- Lan Tran, Science Academic Advisor
- Matthew Murray, Operations Manager, Chemistry

Congratulations to our newly-promoted colleagues:

- Carol Bucking (Biology) promotion to Associate Professor
- Derek Wilson (Chemistry) promotion to Full Professor
- Seyed Moghadas (Mathematics & Statistics) promotion to Full Professor
- Edward Furman (Mathematics & Statistics) promotion to Full Professor

- Patrick Ingram (Mathematics & Statistics) promotion to Associate Professor
- Sean Tulin (Physics & Astronomy) promotion Associate Professor
- Matthew George (Physics & Astronomy) promotion to Associate Professor, Teaching Stream
- Tom Kirchner (Physics & Astronomy) promotion to Full Professor
- Vera Pavri (STS) promotion to Associate Professor, Teaching Stream
- Robin Metcalfe (STS) promotion to Associate Professor, Teaching Stream

Dean Janse VanRensburg congratulated three biology researchers who received \$2.27 million in CIHR funding:

- Chun Peng (Biology), along with co-applicants Arturo Orellana (Chemistry), Yi Sheng (Biology), and Derek Wilson (Chemistry) received a CIHR grant of \$879,750.
- Gary Sweeney received a CIHR grant of \$722,926 and Mark Bayfield received a CIHR grant of \$669,376.
- Arturo Orellana (Chemistry) received a \$440,000 NSERC CRD Grant with F. Hoffmann-La Roche to work on perfecting new methods of making pyridines.
- Two chemistry researchers will receive a total of \$253,181 in research project funding through the Ontario Research Fund (ORF)

- Cora Young will receive \$138,555 and Ryan Hili will receive \$114,626.
- Amro Zayed (Biology) is the lead on a new research grant worth close to \$10 million. Genome Canada officially announced results of the 2018 Large-Scale Applied Research Project Competition in July.
- Steven Connor (Biology) will receive \$125,000 in funding for his research project which looks at mechanisms contributing to autism spectrum disorder.
- Nikolaus Troje (Biology) received a Tier 1 CRC in Reality Research and Joel Zylberberg (Physics & Astronomy) received a Tier 2 CRC in Computational Neuroscience.
- Joel Zylberberg (Physics & Astronomy) was appointed an Associate Fellow of CIFAR's prestigious program, Learning in Machines and Brains.
- Cora Young (Chemistry) was named to the Talented 12 list of up-and-coming young scientists Chemical & Engineering News (American Chemical Society).

Dean Janse van Rensburg informed Council that ten new faculty appointments had been approved for the 2020/2021 academic year.

He reminded faculty of the Research and Teaching Awards with a nomination deadline of November 29, 2019. He encouraged faculty to nominate their colleagues.

The Dean announced the following upcoming events,

- The Allan I. Carswell Observatory to hold a sneak peak with the telescope on September 26th. He encouraged faculty and staff together with their families to attend. Faculty of Science at York University and Toronto Public Library to hold Library Series at the Toronto Public Libraries as follows;
  - September 26: Professor Chris Caputo - The Chemistry Behind Tattoos
  - October 2: Professor Cora Young - Every Breath you Take: The Chemistry of Air
  - November 7: Professor Pierre Potvin - The Periodic Table of the Elements: 150 Years and Still Growing
  - November 13: Professor Hovig Kouyoumdjian: The Science of Beer-Making: More Than Barley, Water, Hops and Yeast The Secrets of Our Dark Universe
  - November 18: Professor Derek Jackson - The Five Senses of Holiday Chemistry

## **7. Associate Deans' and Head of Bethune College Remarks**

Associate Dean Gerald Audette made the following reminders;

- retired faculty to give nine months' notice for teaching in the next academic year.

- faculty wishing to retire 1 July, 2020 to give their nine months' notice.

- Sabbatical reports are due on November 1, 2019, from faculty members who just returned from sabbatical leave.

G. Audette also highlighted the tenure and promotion memo included in the Council package and appealed to the File Preparation Committees as well as the Adjudicating Committees to review the memo and adhere to policy guidelines in order to avoid unnecessary delays in the tenure and promotion process.

Associate Dean J. Steeves introduced Jacquelin De Faveri, the Research Officer and asked faculty members to take advantage of the developmental support in writing research grants. She reminded faculty to be mindful of submission deadlines so their proposals can be developed on time. Lastly, she encouraged faculty to nominate colleagues for the various upcoming awards.

EJ Janse van Rensburg provided a report on behalf of the Associate Dean A. Mills. He reported that the Interdisciplinary BSc Specialized Honours Program in Neuroscience had been approved by the Provost's Office.

He also encouraged faculty members to sign up and participate at the University fair. He stated that their presence and participation was necessary as it helped to enhance and improve our student recruitment

efforts.

## **8. Reports from Science Representatives on Senate Committees**

There was no report.

## **9. Reports from Standing Committees of Council**

### 9.1 Executive Committee

*Ratification and Call for Nominations for Senate and Standing Committee of Council*

A motion was moved, seconded and carried to ratify all nominations as presented.

*Vacancies report on the Standing Committees of FSc Council*

The Chair of Council highlighted the outstanding vacancies on the Standing Committees of Council Council noted the following outstanding vacancies;

Senate – member at large, one vacancy

Appeals Committee – member at large, one vacancy

Petitions Committee – member at large, one vacancy  
*(this vacancy has since been filled)*

Senate Review Committee, Tenure and Promotion – one vacancy, alternate member, Chemistry department  
Committee on Research & Awards – one vacancy, STS department

Curriculum Committee – members at large, two vacancies

Student representatives – vacancies to be filled in October

M. H. Armour encouraged faculty to self-nominate or encourage their colleagues to participate on these committees.

Council noted and passed a motion to approve all annual reports from the Standing Committees of Council as presented.

## **10. Other Business**

*Grad across the Faculties: Local decision-making facility alongside FGS and Senate pan-university oversight & Graduate Committee*

Council noted the items above and requested J. Steeves, who was attending the relevant meeting on the following day to provide more information to Council at the next meeting.

A motion was moved, seconded and carried to adjourn the meeting.

Meeting adjourned.

M. H. Armour, Chair of Council

S. Siyakatshana, Assistant Secretary of Council

# The Senate of York University

## Synopsis

The 659th Meeting of Senate held on Thursday, September 26, 2019

### Remarks

The Chair of Senate, Professor Franck van Breugel of the Lassonde School of Engineering, greeted continuing and new Senators, and urged Senators to join in celebrating graduating students at Fall Convocation ceremonies.

Noting that 2019-2020 is the final year of the current University Academic Plan (UAP), President Rhonda Lenton highlighted the progress made to date on priorities articulated in the Plan and the importance of consolidating progress this year as we look ahead to the next UAP. One forum for discussion will be the [President's Town Hall](#), scheduled for October 10, where community members are encouraged to share input on progress on University priorities and major strategic initiatives.

Provost and Vice-President Academic Lisa Philipps delivered a presentation and gathered Senate's input on the Strategic Mandate Agreement (SMA3) metrics and principles for the establishment and implementation of the SMA3 at York, highlighting the importance of continuing to align the weighting of the metrics and the University's academic priorities in SMA3.

President Lenton also reported on the following items:

- the senior administrative team's review of resource plans across the University to facilitate enhanced investment in areas identified as priorities during the budget consultation held in 2018-2019
- the new business plan for Markham Centre Campus, to be brought forward to the Board of Governors for approval on October 8, and the planned next steps if Board approval is obtained
- the individuals who will be honoured with honorary degrees at Fall Convocation, whose names will be shared with the University community shortly

The monthly "Kudos" report on the achievements of members of the York community can be accessed with other documentation for the meeting.

### Reports

#### Academic Colleague to the Council of Ontario Universities

The Academic Colleague to the Council of Ontario Universities (COU), Professor Andrea Davis, reported on the discussions at the Colleagues' August meeting which focused on SMA3 metrics, the measuring and reporting of faculty outputs, and research and innovation in Canada. Senator Davis briefed Senators on a subsequent COU meeting where Colleagues received an update on the provincial government's definition

# The Senate of York University

## Synopsis

of experiential education for the purpose of measuring universities' success on the experiential learning SMA3 metric.

### Approvals

Senate approved a motion submitted by Provost Philipps to:

- declare September 27, 2019 a day of academic accommodation for which no student shall receive an academic penalty for not attending classes
- ask faculty members through the Deans / Principal to establish reasonable extensions of deadlines for graded work due on that date, and to provide reasonable academic accommodations to students who choose to attend the Global Climate Strike activities, including reasonable alternative access to materials covered during their absence that does not alter the academic standards associated with the missed activity

On the recommendation of its Executive Committee, Senate elected Brian Huss (Liberal Arts & Professional Studies) and Saskia Van Viegen (Liberal Arts & Professional Studies) to the Senate Appeals Committee, Michael Rotondi (Health) to the Senate Committee on Awards, and Benjamin Geva (Osgoode) to the Tenure and Promotions Committee.

Having been provided Notice of Motion in May 2019, Senate approved the following revisions to the Senate Rules and Procedures recommended by its Executive Committee:

- a reduction of the time allotted for a Senator to speak to a motion
- non-substantive changes and additions to enhance clarity on the duties of the Chair, committee meeting quorum, and meeting agenda and order of business

Senate approved the recommendations of its Academic Standards, Curriculum and Pedagogy Committee to:

- revise the Senate Pass/Fail Grades Policy, effective September 1, 2019
- change the degree and admission requirements and delete and create Graduate Fields within the MAsc in Electrical and Computer Engineering, Graduate Program in Electrical Engineering and Computer Science, Lassonde / Graduate Studies, effective FW 2019-2020
- delete Graduate Fields and change the requirements of the qualifying program for the MA in Translation Studies, Graduate Program in Translation Studies, Glendon / Graduate Studies, effective FW 2019-2020
- change the diploma requirements for the Graduate Diploma in Health Industry Management, Schulich / Graduate Studies, effective FW 2019-2020

# The Senate of York University

## Synopsis

- authorize the granting of degrees at the University's convocations held in Fall 2019, February 2020 (Convocation In Absentia) and Spring 2020, and individually to students at any point during the year who have fulfilled the degree program requirements for receipt of degrees

## Committee Information Reports

### Executive (Professor Alison Macpherson, Vice-Chair)

The Executive Committee's information items included the following:

- its approval of Senate Committee members nominated by Faculty Councils
- its priorities for 2019-2020
- the results of the Senator and Senate committee member surveys conducted in June and the Committee's planned follow-up activities
- the University Secretariat's initiatives in support of governance and Senate in 2019-2020
- Senate meeting dates for 2019-2020 with changes approved for December
- actions taken under Summer Authority
- Senate attendance in 2018-2019 and a consolidated report on actions taken by Senate in 2018-2019, available for review on the Senate website

### Academic Policy, Planning and Research (Professor Carl Ehrlich, Chair)

APPRC reported on the following items:

- preliminary information about the planned approach to the University Academic Plan renewal process, with more details to be shared at an upcoming Senate meeting
- its participation in a budget consultation led by the Provost and AVP Finance
- its confirmation of priorities for 2019-2020
- the membership of its Sub-Committees for 2019-2020

### Academic Standards, Curriculum and Pedagogy (Professor Kim Michasiw, Chair)

ASCP reported on the membership of its sub-committees for 2019-2020 and its approval of an editorial correction to the calendar copy for the Specialized Honours BSc program in Neuroscience, Department of Biology, Science / Departments of Psychology and Kinesiology & Health Science, Health.

# **The Senate of York University**

## **Synopsis**

### **Additional Information about this Meeting**

Please refer to the full Senate agenda and supplementary material posted online with the September 26, 2019 meeting for details about these items.

<http://secretariat.info.yorku.ca/senate/meeting-agendas-and-synopses/>

### **October Meeting of Senate**

Senate's next meeting will be held at 3:00 p.m. on Thursday, October 24, 2019.

## **2019-2020 FSc Report on vacancies for Senate and FSc Standing Committees**

### **Ratification of Nominations**

#### **Petitions Committee**

Iouldouz Raguimov, member at large (2019-2022)

#### **Senate Review Committee T & P**

Valeria Tsoukanova, alternate member, Department of Chemistry (2019-2022)

Derek Wilson (term 2019-2020) to replace Mohammad Yousaf, Department of Chemistry

#### **Appeals Committee**

Rene Fournier, member at large (2019-2022)

**2019-2020 FSc Report on vacancies for Senate and FSc Standing Committees**

<b>**Outstanding Vacancies**</b>				
Senate	1 vacancy Member at Large			
Committee on Research and Awards	1 vacancy member - STS department			
Curriculum Committee	2 vacancies Members at Large			
<i>Student Representatives - to be filled in October</i>				
Committee	Rules of Faculty Council - membership	Meeting time / Membership	Term From To	
Senate	According to the York University Secretariat based on the Senate Rules and Procedures governing the size and composition of Senate, the Faculty of Science shall have twelve members, including a minimum of two Chairs. According to The Rules of Council (Science), Faculty representation shall include the Director of Natural Science, three Department Chairs, and terms shall be for	As per Senate website		
	Dean, Ex officio	EJ Janse vanRensburg	Designated	
	Member at large	G. Audette	Designated 2022	
	Member at large	VACANT	2019 2020	
	Member at large	J. Lazenby, Department of STS	2019 2022	
	Member at large	T. Baumgartner, Chemistry	2018 2021	
	Member at large	B. Pietro, Chemistry	2019 2022	
	Member at large	P. Lakin-Thomas, Biology	2019 2022	
	Member at large	D. Wilson, Chemistry	2018 2021	
	Department Chair	R. Tsushima, Biology	2018 2021	
	Department Chair	R. Fournier, Chemistry	2019 2022	
	Department Chair	P. Szeptycki, Mathematics & Statistics	2019 2022	
	Director of NATS	J. Clark	Designated	
	Student representative	Robert Cheung	2018 2021	
	Student representative	Romina Noormohammadi	2019 2022	
	FSc Reps on Senate Committees			
	Senate Executive	1 member from FSc	Paul Szeptycki	2018 2020
Academic Policy, Planning and Research Committee (APPRC)	1 member from FSc	R. Tsushima, Biology	2017 2020	
Sub-Committee on Honorary Degrees & Ceremonies	1 member from FSc	W. Liu, Math & Statistics	2017 2020	
Executive Committee	The <u>Executive Committee</u> shall be chaired by the Chair of Council and include the Vice-Chair of Council, the Secretary of Council, and one member elected from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, and Science and Technology Studies/Natural Science, the Dean of the Faculty of Science ( <i>ex officio</i> ), one student member of Council, and one of the staff members elected to Council.	The Executive Committee will normally meet the first Tuesday of each month (September to May) from 1:30 pm - 3:00 pm in LUM 305B		
	Chair of Council	M. H. Armour	2019 2020	
	Vice-Chair of Council	C. Storry	2019 2020	
	Dean, Ex officio	EJ Janse vanRensburg	Designated	
	Asst. Dean - SEM & SEP	A. Mun	Designated	
	Office of the Dean, staff representative	M. Hough	2019 2020	
	Undergraduate Student Rep	VACANCY	2019 2020	
	Biology	A. Hilliker	2018 2021	
	Chemistry	S. Krylov	2019 2022	
	Math & Stats	N. Madras	2019 2022	
	Physics & Astronomy	R. Lewis	2019 2020	
	STS	R. Metcalfe	2019 2022	
	APPC	The <u>Academic Policy and Planning Committee</u> shall include the Dean or designate ( <i>ex officio</i> ), the Master of Norman Bethune College and one member elected from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, and Science and Technology Studies/Natural Science, one student member of Council, and one of the staff members elected to Council.	APPC will normally meet the last Thursday of each month (September to April) from 9:00 am - 10:30 am	
Associate Dean, Faculty Affairs, Ex officio		G. Audette	Designated	
Head of Bethune College		J. Amanatides	Designated	
Undergraduate Student Rep		VACANCY	2019 2020	
Elected staff representative		M. Xu	2019 2020	
Biology, also representing STS		J. Clark	2019 2022	
Chemistry		R. McLaren	2019 2022	
Math & Stats		J. Heffernan	2019 2022	
Physics & Astronomy		J. Zylberberg	2019 2020	
STS		VACANCY (represented by J. Clark)	2019 2022	
Curriculum Committee		The <u>Curriculum Committee</u> shall include the Dean and an Associate Dean ( <i>ex officio</i> ), the Chair or nominee from each teaching Division or Department, three members elected by Council and two student members of Council.	The Curriculum Committee will normally meet every last Tuesday of each month (September to April) from 1:30 pm - 3:00 pm	
	Member at Large	J. Clark	2019 2022	
	Member at Large	VACANCY	2019 2022	
	Dean, Ex officio	EJ Janse van Rensburg	Designated	
	Associate Dean - Students, Ex officio	A. Mills	Designated	
	Undergraduate Student Rep (two vacancies)	2 VACANCIES	2019 2020	
	Biology	S. Connor	2019 2022	
	Chemistry	P. Potvin	2019 2022	
	Math & Stats	J. Grigull (Fall) M. Chen (Winter)	2019 2022	
	Physics & Astronomy	P. Hall	2019 2020	
	STS	E. Hamm	2019 2022	
	Member at Large	VACANCY	2019 2022	
	CEAS	The <u>Committee on Examinations and Academic Standards</u> shall consist of an Associate Dean ( <i>ex officio</i> ), five members elected by Council from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy and Science and Technology Studies/Natural Science, and one student member of Council.	CEAS will normally meet every alternate Wed / Thurs from 1:00 - 3:00 pm year round.	

**2019-2020 Fsc Report on vacancies for Senate and Fsc Standing Committees**

<b>**Outstanding Vacancies**</b>			
Senate	1 vacancy Member at Large		
Committee on Research and Awards	1 vacancy member - STS department		
Curriculum Committee	2 vacancies Members at Large		
<i>Student Representatives - to be filled in October</i>			
Committee	Rules of Faculty Council - membership	Meeting time / Membership	From Term To
	In addition to the above membership of the committee, Council shall elect an alternate member from each of the Departments specified above. The alternate member shall be the person polling the next highest number of votes to those elected to the committee from each Department. The alternate for the student member will be selected by the Science Student Caucus from one of its Members at Large. An alternate can only vote in the event that first elected members are not in attendance.		
	Associate Dean - Students, Ex officio	A. Mills	Designated
	Undergraduate Student Rep	VACANCY	2019 2020
	Undergraduate Student Rep	VACANCY	2019 2020
	Biology	C. Jang/ALT B. Schwartz	2019 2022
	Chemistry	D. Jackson (2020) / R. McLaren	2017/2020 2020/2023
	Math & Stats	M. Chen /ALT. Y. Fu	2019 2022
	Physics & Astronomy	S. Tulin/ALT. S. Jerzak	2019 2020
	STS	J. Lazenby/VACANCY	2019 2022
<b>Petitions</b>	The <u>Petitions Committee</u> for the purpose of hearing student petitions shall consist of an Associate Dean (ex officio), six members of Council, and two student members of Council. The Committee may divide the workload by splitting the Committee membership into two panels of four people each. A quorum shall consist of either (a) two faculty voting faculty members and one student member or (b) three voting faculty members.	Each panel meets once a month on Wednesday or Thursday from 2:30 pm - 4:00 pm	
	Associate Dean, Ex officio	A. Mills	Designated
	Undergraduate Student Rep	VACANCY	2019 2020
	Undergraduate Student Rep	VACANCY	2019 2020
	Member at Large	I. Raguimov	2019 2022
	Biology	A. Hilliker	2017 2020
	Chemistry	W. J. Pietro	2019 2022
	Physics & Astronomy	D. Harris (F), S. Rastgoo (W)	2019 2020
	Math & Stats	Y. Gao	2019 2022
	STS	S. P. Domenikos	2019 2022
	Member at Large	P. Peskun	2017 2020
<b>SRC T &amp; P Committee</b>	The <u>Committee on Tenure and Promotions</u> shall consist of one currently tenured member from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy and Science and Technology Studies/Natural Science elected by Council, and one student member of Council. No member of the Committee shall be a member of another Tenure and Promotions Committee at any time during their tenure on this committee.  In addition to the above membership of the committee, Council shall elect an alternate member from each of the Units mandated above. The alternate member shall be the person polling the next highest number of votes to those elected to the committee from each Department. The alternate for the student member shall be selected by the Science Student Caucus from one of its Members-at-Large on an annual basis. An alternate can only vote in the event that existing members are not in attendance.	SRC T & P Committee will normally meet the last Friday of each month (September to May) from 9:00 am - 11:00 am in LUM 305B	
	Associate Dean - Faculty, Ex officio	J. Steeves	Designated
	Undergraduate Student Rep	VACANCY	2019 2020
	Biology	J. Clark / ALT - V. Saridakis	2017 2020
	Chemistry	D. Wilson/ALT - V. Tsoukanova	2019 2020/2022
	Physics & Astronomy	M. George/ALT S. Menary	2019 2022
	Math & Stats	A. Wong (Fall) S. Wang (Winter) ALT D. Liang	2019 2022
	STS	D. Lungu/ALT Vacancy	2018 2021
<b>CoTL</b>	Currently, the Committee on Teaching and Learning shall consist of a minimum of two Faculty members from each department, the Associate Dean – Students, one Librarian, one staff member, one undergraduate student, and two graduate students, in addition to other members invited as provided for by the Rules. Graduate students and staff nominees will indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote.	CoTL normally meets every third Thursday of each month (September to May) from 10:00 am - 11:30 am	
	Associate Dean - Students, Ex officio	A. Mills	
	Graduate Student Representative	Snezhana Kirusheva	2018 2020
	Graduate Student Representative	Amanda Liczner	2018 2020
	Undergraduate Student Rep	VACANCY	2019 2020
	Steaacie Librarian	Ilo-Katryn Maimets	Designated
	IT Representative	V. Gotcheva	Designated
	Teaching Commons Rep	Y. Su	Designated
	Staff representative, Elected	D. Hossain	2019 2020
	Biology	T. Kelly	2017 2020
	Biology	S. Connor (to replace C. Bucking for 1yr)	2019 2020
	Chemistry	H. Kouyoumjian	2017 2020
	Chemistry	C. Caputo	2018 2021
	Physics & Astronomy	E. Hyde (Fall, starting November 1st)	2019 2020
	Physics & Astronomy	N. Bozorgnia (Winter)	2019 2020
	Math & Stats	A. Chow	2017 2020
	Math & Stats	W. Liu	2018 2021
	STS	R. Marushia	2019 2022

**2019-2020 FSc Report on vacancies for Senate and FSc Standing Committees**

<b>**Outstanding Vacancies**</b>				
Senate	1 vacancy Member at Large			
Committee on Research and Awards	1 vacancy member - STS department			
Curriculum Committee	2 vacancies Members at Large			
<i>Student Representatives - to be filled in October</i>				
Committee	Rules of Faculty Council - membership	Meeting time / Membership	From	Term To
<b>Committee on Research &amp; Awards</b>	The <u>Committee on Research and Awards</u> shall consist of one member elected by Council from each of Biology, Chemistry, Mathematics and Statistics, Science and Technology Studies/Natural Science, and Physics and Astronomy, one student member of Council and an Associate Dean ( <i>ex officio</i> ) who will serve as the Chair.	The Research & Awards Committee will meet when grants and awards need to be adjudicated.		
	Associate Dean - Research & Graduate Education, ex officio	Jennifer Steeves		Designated
	Undergraduate Student Rep	VACANCY	2019	2020
	Biology	R. Kwong	2017	2020
	Chemistry	S. Morin	2019	2022
	Physics & Astronomy	C. David	2019	2020
	Math & Stats	Huaiping Zhu	2019	2022
	STS	VACANCY	2019	2022
<b>Appeals</b>	The <u>Appeals Committee</u> for the purpose of hearing student appeals shall consist of four elected faculty members from Science units, an Associate Dean ( <i>ex officio</i> ) and two student members of Council. A quorum shall consist of either (a) two faculty members and one student member or (b) three faculty members.	Meeting is held once a month and times are polled by the Committee Secretary.		
	Associate Dean - Research & Graduate Education, ex officio	Jennifer Steeves		Designated
	Undergraduate Student Rep	VACANCY	2019	2020
	Undergraduate Student Rep	VACANCY	2019	2020
	Member at Large	R. Fournier	2019	2022
	Biology	L. Donaldson	2017	2020
	Chemistry	M. Hempstead	2017	2020
	Physics & Astronomy	W. van Wijngaarden	2019	2020
	Math & Stats	A. Pietrowski	2018	2022
	STS	M.H. Armour	2018	2022

# York University

## COUNCIL OF THE FACULTY OF SCIENCE

### Report of the Science Curriculum Committee

September 2019

The Faculty of Science Curriculum Committee has reviewed proposals for changes to course information and degree requirements and recommends to the Executive Committee that the following changes be submitted to Council for approval.

Details regarding these proposals (and regarding other minor changes to Calendar/Repository course descriptions and prerequisites which were approved by the Committee but are not reported here) are included in the working papers of September 24, 2019, meeting of the Curriculum Committee, which are on file for your inspection in the Office of the Dean, with all members of the Curriculum Committee or by contacting the Secretary of the Committee at [tin@yorku.ca](mailto:tin@yorku.ca)

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#### 1.1 Biology

- 1.1.1 Change in prerequisite/co-requisite: SC/BIOL 4305 3.0 “Controversies in the Modern Life Sciences”
- 1.1.2 Change in calendar description: SC/BIOL 4360 4.0 “Biomedical Sciences Stream”, **Specialized Honours Stream, Honours Major Biomedical Science Stream, Honours Major/Minor Biomedical Science Stream, Honours Major Program (iBSc) Biomedical Science Stream.**

#### 1.4 Mathematics & Statistics

- 1.4.1 Change in degree credit exclusion(s): SC/MATH 1581 3.0 “Business Mathematics 1”.
- 1.4.2 Change in degree credit exclusion(s): SC/MATH 2280 3.0 “The Mathematical Theory of Interest”
- 1.4.3 Change in existing course: SC/MATH 3901 0.0, SC/MATH 3902 0.0, SC/MATH 3903 0.0, SC/MATH 3904 0.0 “Mathematic and Statistics Internship Work Term”
- 1.4.4 Change in calendar description: “Applied Math program” in Specialized Honours, Honours Majors and Bachelor (BA and BSc)
- 1.4.5 Change in calendar description: “Mathematics for Education Program” in Specialized Honours, Honours Majors and Bachelors (BA and BSc)
- 1.4.6 Change in calendar description: “Pure Math Program” in Specialized Honours, Honours Major and Bachelor (BA and BSc)
- 1.4.7 Change in calendar description: “Statistics Program” in Specialized Honours, Honours Majors and Bachelors (BA and BSc)

#### 1.5 Neuroscience

- 1.5.1 Change in calendar description: “Neuroscience Program”

1.6 Division of Natural Science

1.6.1 Change in title and calendar description: SC/NATS 1795 6.0 “The Physics of Time and Timekeeping

1.6.2 Change in NCR: SC/NATS 1830 6.0 “Mysteries of Everyday Materials.

# Changes to Existing Course

**Faculty:**
**Department:**

Biology

**Date of Submission:**

March 2019

**Course Number:**

SC/BIOL 4305 3.00

**Effective Session:**

Summer 2020

**Course Title:**

Controversies in the Modern Life Sciences

**Type of Change:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> in pre-requisite(s)/co-requisite(s)            | <input type="checkbox"/> in cross-listing                        |
| <input type="checkbox"/> in course number/level                                    | <input type="checkbox"/> in degree credit exclusion(s)           |
| <input type="checkbox"/> in credit value   | <input type="checkbox"/> regularize course (from Special Topics) |
| <input type="checkbox"/> in title (max. 40 characters for short title)             | <input type="checkbox"/> in course format/mode of delivery *     |
| <input type="checkbox"/> in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> retire/expire course                    |
| <input type="checkbox"/> other (please specify):                                   | <input type="checkbox"/>   |

**Change From:**

The study of past and contemporary controversies in genetics, evolutionary theory and ecology. The focus is on analyzing the diverse aims, concepts, theories, techniques and institutional strategies which have shaped the development of modern biology.  
Prerequisite: SC/BIOL 2040 4.00.

**To:**

The study of past and contemporary controversies in genetics, evolutionary theory and ecology. The focus is on analyzing the diverse aims, concepts, theories, techniques and institutional strategies which have shaped the development of modern biology. Prerequisite: SC/BIOL 2040 4.00 **3.00**.

**Rationale:**

This change is housekeeping. We haven't offered SC/BIOL 2040 4.00 since 2011, when it was replaced by SC/BIOL 2040 3.00.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

\* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

**Changes to the Biomedical Sciences Stream list of possible BIOL courses in the:  
Specialized Honours Program Biomedical Science Stream  
Honours Major Biomedical Science Stream  
Honours Major/Minor Biomedical Science Stream  
Honours Major Program (iBSc) Biomedical Science Stream**

Rationale: BIOL 4360 is no longer offered as a 4.0 credit course as the lab was removed several years ago. This is a clean-up of calendar copy.

<b>Change from:</b>	<b>Change to:</b>
<p><b>Specialized Honours Program Biomedical Science Stream</b></p> <p>Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00; SC/BIOL 2020 3.00; SC/BIOL 2021 3.00; SC/BIOL 2040 3.00; SC/BIOL 2070 3.00; SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00; SC/BIOL 3100 2.00; SC/BIOL 4000 8.00 or SC/BIOL 4000 3.00;</li> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 68 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030 4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155 3.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155</li> </ul>	<p><b>Specialized Honours Program Biomedical Science Stream</b></p> <p>Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00; SC/BIOL 2020 3.00; SC/BIOL 2021 3.00; SC/BIOL 2040 3.00; SC/BIOL 2070 3.00; SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00; SC/BIOL 3100 2.00; SC/BIOL 4000 8.00 or SC/BIOL 4000 3.00;</li> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 68 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030 4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155 3.00, SC/BIOL 3350 4.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155</li> </ul>

<p>3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 3350 4.00, SC/BIOL 4360 4.00, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</p> <ul style="list-style-type: none"> <li>• within the 68 biology credits, at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>	<p>3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 4360 3.00, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</p> <ul style="list-style-type: none"> <li>• within the 68 biology credits, at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>
<p><b>Honours Major Biomedical Science Stream</b> Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2040 3.00, SC/BIOL 2070 3.00, SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00;</li> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3100 2.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 51 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030 4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3100 2.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155</li> </ul>	<p><b>Honours Major Biomedical Science Stream</b> Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2040 3.00, SC/BIOL 2070 3.00, SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00;</li> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3100 2.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 51 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030 4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3100 2.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155</li> </ul>

<p>3.00, SC/BIOL 4000 3.00, SC/BIOL 4000 8.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155 3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 3350 4.00, SC/BIOL 4360 4.00, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</p> <ul style="list-style-type: none"> <li>• within the 51 biology credits at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>	<p>3.00, SC/BIOL 3350 4.00, SC/BIOL 4000 3.00, SC/BIOL 4000 8.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155 3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 4360 3.00, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</p> <ul style="list-style-type: none"> <li>• within the 51 biology credits at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>
<p><b>Honours Major/Minor Biomedical Science Stream</b> Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2040 3.00, SC/BIOL 2070 3.00, SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00;</li> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3100 2.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 51 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030</li> </ul>	<p><b>Honours Major/Minor Biomedical Science Stream</b> Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2040 3.00, SC/BIOL 2070 3.00, SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00;</li> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3100 2.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 51 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030</li> </ul>

<p>4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3100 2.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155 3.00, SC/BIOL 4000 3.00, SC/BIOL 4000 8.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155 3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 3350 4.00, SC/BIOL 4360 <b>4.00</b>, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</p> <ul style="list-style-type: none"> <li>• within the 51 biology credits at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>	<p>4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3100 2.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155 3.00, SC/BIOL 3350 4.00, SC/BIOL 4000 3.00, SC/BIOL 4000 8.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155 3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, <b>SC/BIOL 4360</b> <b>3.00</b>, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</p> <ul style="list-style-type: none"> <li>• within the 51 biology credits at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>
<p><b>Honours Major Program (iBSc) Biomedical Science Stream</b> Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2040 3.00, SC/BIOL 2070 3.00, SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00;</li> </ul>	<p><b>Honours Major Program (iBSc) Biomedical Science Stream</b> Major requirements:</p> <ul style="list-style-type: none"> <li>• SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00;</li> <li>• one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00;</li> <li>• SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00, SC/BIOL 2020 3.00, SC/BIOL 2021 3.00, SC/BIOL 2040 3.00, SC/BIOL 2070 3.00, SC/CHEM 2020 3.00 and SC/CHEM 2021 3.00; a minimum of one of SC/BIOL 2030 4.00 or SC/BIOL 2060 3.00;</li> </ul>

<ul style="list-style-type: none"> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 42 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030 4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3100 2.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155 3.00, SC/BIOL 4000 3.00, SC/BIOL 4000 8.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155 3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 3.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 3350 4.00, SC/BIOL 4360 4.00, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</li> <li>• within the 42 biology credits at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>	<ul style="list-style-type: none"> <li>• a minimum of nine credits chosen from the following courses: SC/BIOL 3060 4.00; SC/BIOL 3070 4.00; SC/BIOL 3110 3.00; SC/BIOL 3130 3.00; SC/BIOL 3150 4.00; SC/BIOL 3155 3.00; SC/BIOL 4010 3.00;</li> <li>• additional biology credits from the following courses, as required, for an overall total of 42 biology credits: SC/BIOL 2010 4.00, SC/BIOL 2030 4.00, SC/BIOL 2060 3.00, SC/BIOL 3010 3.00, SC/BIOL 3060 4.00, SC/BIOL 3070 4.00, SC/BIOL 3071 3.00, SC/BIOL 3100 2.00, SC/BIOL 3110 3.00, SC/BIOL 3120 3.00, SC/BIOL 3130 3.00, SC/BIOL 3140 4.00, SC/BIOL 3150 4.00, SC/BIOL 3155 3.00, SC/BIOL 3350 4.00, SC/BIOL 4000 3.00, SC/BIOL 4000 8.00, SC/BIOL 4010 3.00, SC/BIOL 4020 3.00, SC/BIOL 4030 3.00, SC/BIOL 4061 3.00, SC/BIOL 4110 4.00, SC/BIOL 4141 3.00, SC/BIOL 4150 3.00, SC/BIOL 4151 3.00, SC/BIOL 4155 3.00, SC/BIOL 4200 3.00, SC/BIOL 4220 4.00, SC/BIOL 4270 3.00, SC/BIOL 4285 4.00, SC/BIOL 4290 4.00, SC/BIOL 4310 3.00, SC/BIOL 4320 3.00, SC/BIOL 4360 3.00, SC/BIOL 4370 3.00, SC/BIOL 4380 3.00, SC/BIOL 4410 3.00, SC/BIOL 4450 4.00, SC/BIOL 4510 3.00;</li> <li>• within the 42 biology credits at least 18 credits must be at the 3000 level or higher, of which at least 12 credits must be at the 4000 level. This must also include a minimum of seven credits from 3000 level or higher biology courses with an associated laboratory component.</li> </ul>
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# Changes to Existing Course

**Faculty: Science**

**Department:**

Mathematics & Statistics

**Date of Submission:**

June 1, 2019

**Course Number:**

1581 3.00

**Effective Session:**

Fall 2020

**Course Title:**

Business Mathematics I

## Type of Change:

- |  |   |
|--|---|
| <input type="checkbox"/> in pre-requisite(s)/co-requisite(s)                       | <input type="checkbox"/> in cross-listing                         |
| <input type="checkbox"/> in course number/level                                    | <input checked="" type="checkbox"/> in degree credit exclusion(s) |
| <input type="checkbox"/> in credit value   | <input type="checkbox"/> regularize course (from Special Topics)  |
| <input type="checkbox"/> in title (max. 40 characters for short title)             | <input type="checkbox"/> in course format/mode of delivery *      |
| <input type="checkbox"/> in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> retire/expire course                     |
| <input type="checkbox"/> other (please specify):                                   | <input type="checkbox"/>  |

## Change From:

Introduction to interest rates (simple, compound), annuities (ordinary, due, deferred), amortization (mortgages, other debts), sinking funds, bonds (face value, bond rate, price, yield rate) and depreciation (straight line, constant percentage). Prerequisite: Ontario Grade 11 mathematics or equivalent. Course credit exclusion: SC/MATH 2580 6.00 (prior to Fall 2010), GL/MATH 2680 6.00, SC/MATH 2280 3.00.

## To:

Introduction to interest rates (simple, compound), annuities (ordinary, due, deferred), amortization (mortgages, other debts), sinking funds, bonds (face value, bond rate, price, yield rate) and depreciation (straight line, constant percentage). Prerequisite: Ontario Grade 11 mathematics or equivalent. Course credit exclusion: SC/MATH 2580 6.00 (prior to Fall 2010), SC/MATH 2280 3.00, **GL/ECON1950 3.0, GL/MATH 1950 3.0**, GL/MATH 2680 6.00, **GL/MODR 1950 3.0**.

**Rationale:**

<sup>11</sup>

All of GL/ECON 1950 3.0, GL/MATH 1950 3.0, GL/MODR 1950 3.0 have SC/MATH 1581 listed as CCE. We propose to above change to make the CCEs work in both directions.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

\* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

# Changes to Existing Course

**Faculty: Science**

**Department:**

Mathematics & Statistics

**Date of Submission:**

June 1, 2019

**Course Number:**

2280 3.00

**Effective Session:**

Fall 2020

**Course Title:**

The Mathematical Theory of Interest

**Type of Change:**

- |  |   |
|--|---|
| <input type="checkbox"/> in pre-requisite(s)/co-requisite(s)                       | <input type="checkbox"/> in cross-listing                         |
| <input type="checkbox"/> in course number/level                                    | <input checked="" type="checkbox"/> in degree credit exclusion(s) |
| <input type="checkbox"/> in credit value   | <input type="checkbox"/> regularize course (from Special Topics)  |
| <input type="checkbox"/> in title (max. 40 characters for short title)             | <input type="checkbox"/> in course format/mode of delivery *      |
| <input type="checkbox"/> in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> retire/expire course                     |
| <input type="checkbox"/> other (please specify):                                   | <input type="checkbox"/>  |

**Change From:**

Topics include measurement of interest, annuities, amortization of loans, bonds, sinking funds and depreciation. The course is at a level which will prepare students for the interest theory portion of the Society of Actuaries examinations. Prerequisite: SC/MATH 1014 3.00 or SC/MATH 1310 3.00 or SC/ISCI 1401 3.00 or SC/ISCI 1410 6.00. Course credit exclusions: SC/MATH 1581, SC/MATH 2580 6.00, SC/MATH 2581 3.00, GL/MATH 2680 6.00.

**To:**

Topics include measurement of interest, annuities, amortization of loans, bonds, sinking funds and depreciation. The course is at a level which will prepare students for the interest theory portion of the Society of Actuaries examinations. Prerequisite: SC/MATH 1014 3.00 or SC/MATH 1310 3.00 or SC/ISCI 1401 3.00 or SC/ISCI 1410 6.00. Course credit exclusions: SC/MATH 1581, SC/MATH 2580 6.00, SC/MATH 2581 3.00, **GL/ECON1950 3.0, GL/MATH 1950 3.0**, GL/MATH 2680 6.00, **GL/MODR 1950 3.0**.

**Rationale:**<sup>13</sup>

All of GL/ECON 1950 3.0, GL/MATH 1950 3.0, GL/MODR 1950 3.0 have SC/MATH 2280 listed as CCE. We propose to above change to make the CCEs work in both directions.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

\* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

# Changes to Existing Course

**Faculty: Science**

**Department:**

Mathematics & Statistics

**Date of Submission:**

June 1, 2019

**Course Number:**

3901 0.0, 3902 0.0, 3903 0.0,  
3904 0.0

**Effective Session:**

Fall 2020

**Course Title:**

Mathematic and Statistics Internship Work Term

**Type of Change:**

- |  |  |
|--|--|
| <input type="checkbox"/> in pre-requisite(s)/co-requisite(s)                       | <input type="checkbox"/> in cross-listing                        |
| <input type="checkbox"/> in course number/level                                    | <input type="checkbox"/> in degree credit exclusion(s)           |
| <input type="checkbox"/> in credit value   | <input type="checkbox"/> regularize course (from Special Topics) |
| <input type="checkbox"/> in title (max. 40 characters for short title)             | <input type="checkbox"/> in course format/mode of delivery *     |
| <input type="checkbox"/> in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> retire/expire course                    |
| <input checked="" type="checkbox"/> other (please specify): Correct a typo         | <input type="checkbox"/>   |

**Change From:**

Qualified Honours or Specialized Honours students gain relevant work experience as an integrated complement to their academic studies, reflected in the requirements of a learning agreement and work term report. Students are required to register in this course for each four month work term, with the maximum number of work term courses being four (16 months). Students in this course are assigned a Faculty Supervisor/Committee. During the course, students are expected to work at least 480 hours. Prerequisites: Enrollment is by permission only. Criteria for permission include: (1) that students have a cumulative GPA and an average of math GPA of at least 7.5; (2) that Applied Mathematics students have successfully completed SC/MATH 3241 3.00, SC/MATH 3271 3.00 and at least one of one SC/MATH 3242 3.00, SC/MATH 3260 3.00, SC/MATH 3171 3.00 and SC/MATH 3172 3.00; that Pure Mathematics students have successfully completed at least two of SC/MATH 3001 3.00, SC/MATH 3010 3.00 and SC/MATH 3021 3.00; that Statistics students have successfully completed SC/MATH 3131 3.00, SC/MATH 3300 3.00, SC/MATH 3.00, and SC/MATH 3430 3.00; that Actuarial Science students have successfully completed SC/MATH 2280 3.00, SC/MATH 2281 3.00, SC/MATH 2131 3.00 and passed at least one professional exam; that Mathematics for Education students have successfully completed SC/MATH 3052 3.00; (3) that students are enrolled full-time in the Honours or Specialized Honours program; (4) that students have not been absent for more than two consecutive years as

**To:**

Qualified Honours or Specialized Honours students gain relevant work experience as an integrated complement to their academic studies, reflected in the requirements of a learning agreement and work term report. Students are required to register in this course for each four month work term, with the maximum number of work term courses being four (16 months). Students in this course are assigned a Faculty Supervisor/Committee. During the course, students are expected to work at least 480 hours. Prerequisites: Enrollment is by permission only. Criteria for permission include: (1) that students have a cumulative GPA and an average of math GPA of at least 7.5; (2) that Applied Mathematics students have successfully completed SC/MATH 3241 3.00, SC/MATH 3271 3.00 and at least one of one SC/MATH 3242 3.00, SC/MATH 3260 3.00, SC/MATH 3171 3.00 and SC/MATH 3172 3.00; that Pure Mathematics students have successfully completed at least two of SC/MATH 3001 3.00, SC/MATH 3010 3.00 and SC/MATH 3021 3.00; that Statistics students have successfully completed SC/MATH 3131 3.00, SC/MATH 3330 3.00, SC/MATH 3.00, and SC/MATH 3430 3.00; that Actuarial Science students have successfully completed SC/MATH 2280 3.00, SC/MATH 2281 3.00, SC/MATH 2131 3.00 and passed at least one professional exam; that Mathematics for Education students have successfully completed SC/MATH 3052 3.00; (3) that

**Rationale:**

15

To correct a typo involving a course number.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

\* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

## Proposed Changes to the Specialized Honours, Honours Majors and Bachelors (BA and BSc) Requirements of the Applied Math Program in the Academic Calendar

### Rationale:

- Change the format of the BA requirements to explicitly list the degree requirements, and to match the format of the BSc requirements.
- Minor changes to the wording to make the requirements for BA and BSc programs consistent.
- Add the missing “Math 3410” requirement to Specialized Honours (BSc)

Change from	Changes	Change to
<p>The Department of Mathematics and Statistics offers BA, Honours BA, BSc and Honours BSc degree programs in applied mathematics. Students in the BSc and Honours BSc programs must take courses in foundational science.</p> <p><b>Mathematics/Statistics Core</b></p> <p>All Honours degree candidates must complete the mathematics/statistics core: <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</p> <p><b>Bachelor of Arts Programs</b></p> <p>All BA and Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science Regulations Governing Undergraduate Degree Requirements section).</p> <p>All BA and Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science Regulations Governing</p>	<p>The Department of Mathematics and Statistics offers BA, Honours BA, BSc and Honours BSc degree programs in applied mathematics. Students in the BSc and Honours BSc programs must take courses in foundational science.</p> <p><del>Mathematics/Statistics Core</del></p> <p><del>All Honours and Bachelor degree candidates must complete the mathematics/statistics core: <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</del></p> <p><b>Bachelor of Arts Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><del>All BA and Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science Regulations Governing</del></p>	<p>The Department of Mathematics and Statistics offers BA, Honours BA, BSc and Honours BSc degree programs in applied mathematics. Students in the BSc and Honours BSc programs must take courses in foundational science.</p> <p><b>Bachelor of Arts Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>

<p>Undergraduate Degree Requirements section and, in so doing, must also satisfy the course, credit and standing requirements specified below.</p>	<p><del>Undergraduate Degree Requirements section).</del></p> <p><del>All BA and Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science Regulations Governing Undergraduate Degree Requirements section and, in so doing, must also satisfy the course, credit and standing requirements specified below.</del></p>	
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<b>Bachelor of Arts Program (BA)</b>	<b>Bachelor of Arts Program (BA)</b>	<b>Bachelor Program (BA)</b>
<p><b>To graduate in a Bachelor Program.</b> A minimum cumulative overall grade point average of 4.00 (C) is required in order to be eligible to graduate with a BA degree (Bachelor Program).</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1131 3.00</a>;</li> <li>• <a href="#">SC/MATH 1200 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>;</li> <li>• <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3171 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3333 3.00</a>;</li> <li>• at least 3 additional credits at the 3000 or 4000 level.</li> <li>• additional elective credits, as required for an overall total of at least 90 credits, of which at least 18 credits are at the 3000 level or higher.</li> </ul>	<p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3171 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3333 3.00</a>;</li> <li>• at least 3 additional MATH credits at the 3000 or 4000 level.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits.</p> <p><b>D. Upper level:</b> a minimum of 18 credits must be at the 3000 level or above.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 90 credits.</p> <p><b>F. Standing requirement:</b> to graduate in a Bachelor Program requires successful completion of all Faculty requirements and</p>	<p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3171 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3333 3.00</a>;</li> <li>• at least 3 additional MATH credits at the 3000 or 4000 level.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits.</p> <p><b>D. Upper level:</b> a minimum of 18 credits must be at the 3000 level or above.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 90 credits.</p> <p><b>F. Standing requirement:</b> to graduate in a Bachelor Program requires successful completion of all Faculty requirements and</p>

	<p>departmental required courses and a minimum cumulative credit-weighted grade point average of 4.00 (C) over all courses completed.</p> <p><b>To graduate in a Bachelor Program.</b> A minimum cumulative overall grade point average of 4.00 (C) is required in order to be eligible to graduate with a BA degree (Bachelor Program).</p> <ul style="list-style-type: none"> <li>• <del>LE/EECS 1560 3.00;</del></li> <li>• <del>SC/MATH 1021 3.00;</del> <del>SC/MATH 1131 3.00;</del> <del>SC/MATH 1200 3.00;</del> <del>SC/MATH 1300 3.00;</del> <del>SC/MATH 1310 3.00;</del></li> <li>• <del>SC/MATH 2022 3.00;</del> <del>SC/MATH 2030 3.00;</del> <del>SC/MATH 2041 3.00;</del> <del>SC/MATH 2270 3.00;</del> <del>SC/MATH 2310 3.00;</del> <del>SC/MATH 2280 3.00;</del></li> <li>• <del>SC/MATH 3171 3.00;</del> <del>SC/MATH 3330 3.00;</del> <del>SC/MATH 3333 3.00;</del></li> <li>• <del>at least 3 additional credits at the 3000 or 4000 level</del></li> <li>• <del>additional elective credits, as required for an overall total of at least 90 credits, of which at least 18 credits are at the 3000 level or higher.</del></li> </ul>	<p>departmental required courses and a minimum cumulative credit-weighted grade point average of 4.00 (C) over all courses completed.</p>
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<p><b>Bachelor of Arts Honours Programs (Honours BA)</b></p> <p><b>To graduate in an Honours program</b> requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Specialized Honours BA Program</b></p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li><a href="#">SC/MATH 2001 3.00</a>;</li> <li><a href="#">SC/MATH 2041 3.00</a>;</li> <li><a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3001 3.00</a>;</li> <li><a href="#">SC/MATH 3241 3.00</a>;</li> <li><a href="#">SC/MATH 3242 3.00</a>;</li> <li><a href="#">SC/MATH 3271 3.00</a>;</li> <li><a href="#">SC/MATH 3410 3.00</a>;</li> <li><a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li><a href="#">SC/MATH 4090 3.00</a>;</li> <li>at least nine additional credits selected from mathematics courses without second digit 5 at the 4000 level, for an overall total of at least 65 credits from major mathematics courses;</li> <li>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</li> </ul>	<p><del><b>Bachelor of Arts Honours Programs (Honours BA)</b></del></p> <p><del><b>To graduate in an Honours program</b> requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</del></p> <p><b>Honours Programs (BA)</b></p> <p><b>Specialized Honours BA Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li><a href="#">SC/MATH 2001 3.00</a>;</li> <li><a href="#">SC/MATH 2041 3.00</a>;</li> <li><a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3001 3.00</a>;</li> <li><a href="#">SC/MATH 3241 3.00</a>;</li> <li><a href="#">SC/MATH 3242 3.00</a>;</li> <li><a href="#">SC/MATH 3271 3.00</a>;</li> <li><a href="#">SC/MATH 3410 3.00</a>;</li> <li><a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a></li> </ul>	<p><b>Honours Programs (BA)</b></p> <p><b>Specialized Honours BA Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li><a href="#">SC/MATH 2001 3.00</a>;</li> <li><a href="#">SC/MATH 2041 3.00</a>;</li> <li><a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3001 3.00</a>;</li> <li><a href="#">SC/MATH 3241 3.00</a>;</li> <li><a href="#">SC/MATH 3242 3.00</a>;</li> <li><a href="#">SC/MATH 3271 3.00</a>;</li> <li><a href="#">SC/MATH 3410 3.00</a>;</li> <li><a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a></li> </ul>
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	<p>and <u>SC/MATH 3172 3.00</u>;</p> <ul style="list-style-type: none"> <li>• <u>SC/MATH 4090 3.00</u>;</li> <li>• at least nine additional MATH credits at the 4000 level, for an overall total of at least 63 credits from major mathematics courses;</li> </ul> <p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <u>LE/EECS 1560 3.00</u>;</li> <li>• <u>SC/MATH 2001 3.00</u>;</li> <li>• <u>SC/MATH 2041 3.00</u>;</li> <li>• <u>SC/MATH 2270 3.00</u>;</li> <li>• <u>SC/MATH 3001 3.00</u>;</li> <li>• <u>SC/MATH 3241 3.00</u>;</li> <li>• <u>SC/MATH 3242 3.00</u>;</li> <li>• <u>SC/MATH 3271 3.00</u>;</li> <li>• <u>SC/MATH 3410 3.00</u>;</li> <li>• <u>SC/MATH 3260 3.00</u> or both <u>SC/MATH 3171 3.00</u> and <u>SC/MATH 3172 3.00</u>;</li> <li>• <u>SC/MATH 4090 3.00</u>;</li> <li>• <del>at least nine additional credits selected from mathematics courses without second digit 5 at the 4000 level, for an overall total of at least 65 credits from major</del></li> </ul>	<p>and <u>SC/MATH 3172 3.00</u>;</p> <ul style="list-style-type: none"> <li>• <u>SC/MATH 4090 3.00</u>;</li> <li>• at least nine additional MATH credits at the 4000 level, for an overall total of at least 63 credits from major mathematics courses;</li> </ul> <p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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	<p>mathematics courses; • additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</p>	
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Specialized Honours BA Program - Financial Mathematics Stream	Specialized Honours BA Program - Financial Mathematics Stream	Specialized Honours BA Program - Financial Mathematics Stream
<ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 2281 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>;</li> <li>• <a href="#">SC/MATH 3242 3.00</a>;</li> <li>• <a href="#">SC/MATH 3271 3.00</a>;</li> <li>• <a href="#">SC/MATH 3282 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>;</li> <li>• <a href="#">SC/MATH 4143 3.00</a>;</li> <li>• <a href="#">SC/MATH 4430 3.00</a> or <a href="#">SC/MATH 4431 3.00</a>;</li> <li>• <a href="#">SC/MATH 4931 3.00</a></li> <li>• The following courses are recommended but not required: <a href="#">AP/ECON 1000 3.00</a>; <a href="#">AP/ECON 1010 3.00</a>; <a href="#">AP/ECON 2300 3.00</a>; <a href="#">AP/ECON 2350 3.00</a>; <a href="#">AP/ECON 4400 3.00</a>.</li> <li>• additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</li> </ul>	<p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 2281 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>;</li> <li>• <a href="#">SC/MATH 3242 3.00</a>;</li> <li>• <a href="#">SC/MATH 3271 3.00</a>;</li> <li>• <a href="#">SC/MATH 3282 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>;</li> <li>• <a href="#">SC/MATH 4143 3.00</a>;</li> <li>• <a href="#">SC/MATH 4430 3.00</a> or <a href="#">SC/MATH 4431 3.00</a>;</li> <li>• <a href="#">SC/MATH 4931 3.00</a></li> <li>• The following courses are recommended but not required: <a href="#">AP/ECON 1000 3.00</a>; <a href="#">AP/ECON 1010 3.00</a>;</li> <li>• <a href="#">AP/ECON 2300 3.00</a>;</li> <li>• <a href="#">AP/ECON 2350 3.00</a>;</li> <li>• <a href="#">AP/ECON 4400 3.00</a>.</li> </ul>	<p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 2281 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>;</li> <li>• <a href="#">SC/MATH 3242 3.00</a>;</li> <li>• <a href="#">SC/MATH 3271 3.00</a>;</li> <li>• <a href="#">SC/MATH 3282 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>;</li> <li>• <a href="#">SC/MATH 4143 3.00</a>;</li> <li>• <a href="#">SC/MATH 4430 3.00</a> or <a href="#">SC/MATH 4431 3.00</a>;</li> <li>• <a href="#">SC/MATH 4931 3.00</a></li> <li>• The following courses are recommended but not required: <a href="#">AP/ECON 1000 3.00</a>; <a href="#">AP/ECON 1010 3.00</a>;</li> <li>• <a href="#">AP/ECON 2300 3.00</a>;</li> <li>• <a href="#">AP/ECON 2350 3.00</a>;</li> <li>• <a href="#">AP/ECON 4400 3.00</a>.</li> </ul>

	<p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <del><u>LE/EECS 1560 3.00;</u></del></li> <li>• <del><u>SC/MATH 2001 3.00;</u></del></li> <li>• <del><u>SC/MATH 2131 3.00;</u></del></li> <li>• <del><u>SC/MATH 2270 3.00;</u></del></li> <li>• <del><u>SC/MATH 2280 3.00;</u></del></li> <li>• <del><u>SC/MATH 2281 3.00;</u></del></li> <li>• <del><u>SC/MATH 3241 3.00;</u></del></li> <li>• <del><u>SC/MATH 3242 3.00;</u></del></li> <li>• <del><u>SC/MATH 3271 3.00;</u></del></li> <li>• <del><u>SC/MATH 3282 3.00;</u></del></li> <li>• <del><u>SC/MATH 3330 3.00;</u></del></li> <li>• <del><u>SC/MATH 4090 3.00;</u></del></li> <li>• <del><u>SC/MATH 4143 3.00;</u></del></li> <li>• <del><u>SC/MATH 4430 3.00 or</u></del></li> <li>• <del><u>SC/MATH 4431 3.00;</u></del></li> <li>• <del><u>SC/MATH 4931 3.00</u></del></li> <li>• <del>The following courses are recommended but not required: <u>AP/ECON 1000 3.00;</u></del></li> <li>• <del><u>AP/ECON 1010 3.00;</u></del></li> <li>• <del><u>AP/ECON 2300 3.00;</u></del></li> <li>• <del><u>AP/ECON 2350 3.00;</u></del></li> <li>• <del><u>AP/ECON 4400 3.00.</u></del></li> </ul>	<p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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	<ul style="list-style-type: none"><li>• <del>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</del></li></ul>	
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<p><b>Honours Major, Honours Double Major and Honours Major/Minor BA Program</b></p> <p>The Honours Major in applied mathematics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BA or with an Honours Minor in another subject area in an Honours Major/Minor BA program. The double major or major/minor BA may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p> <ul style="list-style-type: none"> <li>the applied mathematics Honours Major requirements below;</li> <li>the course requirements for the second major or the minor;</li> <li>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</li> </ul>	<p><b>Honours Major, Honours Double Major and Honours Major/Minor BA Program</b></p> <p>The Honours Major in applied mathematics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BA or with an Honours Minor in another subject area in an Honours Major/Minor BA program. The double major or major/minor BA may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p> <ul style="list-style-type: none"> <li><del>the applied mathematics Honours Major requirements below;</del></li> <li><del>the course requirements for the second major or the minor;</del></li> <li><del>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</del></li> </ul>	<p><b>Honours Major, Honours Double Major and Honours Major/Minor BA Program</b></p> <p>The Honours Major in applied mathematics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BA or with an Honours Minor in another subject area in an Honours Major/Minor BA program. The double major or major/minor BA may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p>
<p><b>Honours Major BA Program</b></p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li><a href="#">SC/MATH 2041 3.00</a>;</li> <li><a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3241 3.00</a>; one</li> </ul>	<p><b>Honours Major BA Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural</li> </ul>	<p><b>Honours Major BA Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural</li> </ul>

<p>of <a href="#">SC/MATH 3242 3.00</a> or <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>; <a href="#">SC/MATH 3271 3.00</a>;</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 4090 3.00</a>;</li> <li>• nine additional credits at the 4000 level, selected from mathematics courses without second digit 5, for an overall total of at least 51 credits from major mathematics courses.</li> </ul>	<p>Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</p> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>;</li> <li>• <a href="#">SC/MATH 3271 3.00</a>;</li> <li>• one of <a href="#">SC/MATH 3242 3.00</a> or <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>;</li> <li>• nine additional MATH credits at the 4000 level, for an overall total of at least 51 credits from major mathematics courses.</li> <li>• the course requirements for the second major or the minor.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits. Not applicable to double majors and major/minor programs.</p> <p><b>D. Upper level:</b> a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 120 credits.</p> <p><b>F. Standing requirement:</b> to</p>	<p>Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</p> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>;</li> <li>• <a href="#">SC/MATH 3271 3.00</a>;</li> <li>• one of <a href="#">SC/MATH 3242 3.00</a> or <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>;</li> <li>• nine additional MATH credits at the 4000 level, for an overall total of at least 51 credits from major mathematics courses.</li> <li>• the course requirements for the second major or the minor.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits. Not applicable to double majors and major/minor programs.</p> <p><b>D. Upper level:</b> a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 120 credits.</p> <p><b>F. Standing requirement:</b> to</p>
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	<p>graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <del>LE/EECS 1560 3.00;</del></li> <li>• <del>SC/MATH 2041 3.00;</del></li> <li>• <del>SC/MATH 2270 3.00;</del></li> <li>• <del>SC/MATH 3241 3.00; one of SC/MATH 3242 3.00 or SC/MATH 3260 3.00 or both SC/MATH 3171 3.00 and SC/MATH 3172 3.00; SC/MATH 3271 3.00;</del></li> <li>• <del>SC/MATH 4090 3.00;</del></li> <li>• <del>nine additional credits at the 4000 level, selected from mathematics courses without second digit 5, for an overall total of at least 51 credits from major mathematics courses.</del></li> </ul>	<p>graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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Honours Minor BA Program	Honours Minor BA Program	Honours Minor BA Program
<p>The Honours Minor in applied mathematics consists of:</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• six credits chosen from the following: <a href="#">SC/MATH 2041 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>, either <a href="#">SC/MATH 2022 3.00</a> or <a href="#">SC/MATH 2222 3.00</a>;</li> <li>• at least 12 more credits, including at least 6 credits from: <a href="#">SC/MATH 3090 3.00</a>, both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>, <a href="#">SC/MATH 3241 3.00</a>, <a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 3271 3.00</a> or <a href="#">SC/MATH 3410 3.00</a>, and the remaining credits from mathematics courses without second digit 5 at the 3000 level or higher, for an overall total of at least 30 credits from major mathematics courses.</li> </ul>	<p>The Honours Minor in applied mathematics consists of:</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• six credits chosen <del>from the following:</del> <a href="#">SC/MATH 2041 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>, <del>either</del> <a href="#">SC/MATH 2022 3.00</a> or <a href="#">SC/MATH 2222 3.00</a>;</li> <li>• at least 12 more credits, including at least 6 credits from: <a href="#">SC/MATH 3090 3.00</a>, both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>, <a href="#">SC/MATH 3241 3.00</a>, <a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 3271 3.00</a> or <a href="#">SC/MATH 3410 3.00</a>, and <del>the remaining credits from MATH courses at the 3000 level or higher, for an overall total of at least 30 credits from major mathematics courses.</del></li> </ul>	<p>The Honours Minor in applied mathematics consists of:</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• six credits chosen from <a href="#">SC/MATH 2041 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>, <a href="#">SC/MATH 2022 3.00</a>;</li> <li>• at least 12 more credits, including at least 6 credits from: <a href="#">SC/MATH 3090 3.00</a>, both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>, <a href="#">SC/MATH 3241 3.00</a>, <a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 3271 3.00</a> or <a href="#">SC/MATH 3410 3.00</a>, and the remaining credits from MATH courses at the 3000 level or higher, for an overall total of at least 30 credits from major mathematics courses.</li> </ul>

<b>Bachelor of Science Programs</b>	<b>Bachelor of Science Programs</b>	<b>Bachelor of Science Programs</b>
<p>The mathematics/statistics honours core is defined as (24 credits):  <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>	<p>The mathematics/statistics honours core is defined as (24 credits):  <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>	<p>The mathematics/statistics honours core is defined as (24 credits):  <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>
<b>Bachelor Program (BSc)</b>	<b>Bachelor Program (BSc)</b>	<b>Bachelor Program (BSc)</b>
<p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul>
<p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1131 3.00</a>;</li> <li>• <a href="#">SC/MATH 1200 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>;</li> <li>• <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3171 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3333 3.00</a>;</li> </ul>	<p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <del><a href="#">SC/MATH 1021 3.00</a></del>;</li> <li>• <del><a href="#">SC/MATH 1131 3.00</a></del>;</li> <li>• <del><a href="#">SC/MATH 1200 3.00</a></del>;</li> <li>• <del><a href="#">SC/MATH 1300 3.00</a></del>;</li> <li>• <del><a href="#">SC/MATH 1310 3.00</a></del>;</li> <li>• <del><a href="#">SC/MATH 2022 3.00</a></del>;</li> <li>• <del><a href="#">SC/MATH 2030 3.00</a></del>;</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <del><a href="#">SC/MATH 2310 3.00</a></del>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3171 3.00</a>;</li> </ul>	<p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2041 3.00</a>;</li> <li>• <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3171 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3333 3.00</a>;</li> <li>• at least 3 additional MATH credits at the 3000 or 4000 level.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines</p>

<ul style="list-style-type: none"> <li>at least 3 additional math credits at the 3000 and 4000 level;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 18 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 90 credits.</p> <p>F. Standing requirement: a minimum overall grade point average of 4.00 (C) is required in order to be eligible to graduate with a BSc degree (Bachelor Program).</p>	<p><a href="#">SC/MATH 3330 3.00</a>; <a href="#">SC/MATH 3333 3.00</a>;</p> <ul style="list-style-type: none"> <li>at least 3 additional MATH credits at the 3000 or 4000 level.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 18 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 90 credits.</p> <p>F. Standing requirement: a minimum overall grade point average of 4.00 (C) is required in order to be eligible to graduate with a BSc degree (Bachelor Program).</p>	<p>outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 18 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 90 credits.</p> <p>F. Standing requirement: a minimum overall grade point average of 4.00 (C) is required in order to be eligible to graduate with a BSc degree (Bachelor Program).</p>
<p><b>Bachelor of Science Honours Programs (Honours BSc)</b></p> <p><b>Specialized Honours BSc Program</b></p>	<p><b>Bachelor of Science Honours Programs (Honours BSc)</b></p> <p><b>Honours Program (BSc)</b></p> <p><b>Specialized Honours BSc Program</b></p>	<p><b>Honours Program (BSc)</b></p> <p><b>Specialized Honours BSc Program</b></p>
<p>A. General education:</p> <ul style="list-style-type: none"> <li>non-science requirement: 12 credits;</li> <li>mathematics: satisfied within the major requirements;</li> <li>computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a></li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>non-science requirement: 12 credits;</li> <li>mathematics: satisfied within the major requirements;</li> <li>computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>,</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>non-science requirement: 12 credits;</li> <li>mathematics: satisfied within the major requirements;</li> <li>computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or</li> </ul>

<p><a href="#">3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</p> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">SC/MATH 2001 3.00</a>; <a href="#">SC/MATH 2041 3.00</a>; <a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3001 3.00</a>; <a href="#">SC/MATH 3241 3.00</a>; <a href="#">SC/MATH 3242 3.00</a>; <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li><a href="#">SC/MATH 4090 3.00</a>;</li> <li>at least nine additional credits selected from mathematics courses without second digit 5 at the 4000 level, for an overall total of at least 65 credits from major mathematics courses;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits for the Honours program.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses</p>	<p><a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</p> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">SC/MATH 2001 3.00</a>; <a href="#">SC/MATH 2041 3.00</a>; <a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3001 3.00</a>; <a href="#">SC/MATH 3241 3.00</a>; <a href="#">SC/MATH 3242 3.00</a>; <a href="#">SC/MATH 3271 3.00</a>; <a href="#">SC/MATH 3410 3.00</a>;</li> <li><a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li><del><a href="#">SC/MATH 3271 3.00</a></del>;</li> <li><a href="#">SC/MATH 4090 3.00</a>;</li> <li>at least nine additional MATH credits at the 4000 level, for an overall total of at least 63 credits from major mathematics courses;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits for the Honours program.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses</p>	<p><a href="#">SC/PHYS 1010 6.00</a>.</p> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">SC/MATH 2001 3.00</a>; <a href="#">SC/MATH 2041 3.00</a>; <a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3001 3.00</a>; <a href="#">SC/MATH 3241 3.00</a>; <a href="#">SC/MATH 3242 3.00</a>; <a href="#">SC/MATH 3271 3.00</a>; <a href="#">SC/MATH 3410 3.00</a>;</li> <li><a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li><a href="#">SC/MATH 4090 3.00</a>;</li> <li>at least nine additional MATH credits at the 4000 level, for an overall total of at least 63 credits from major mathematics courses;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits for the Honours program.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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<p>completed.</p> <p><b>Specialized Honours BSc Program - Financial Mathematics Stream</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>; <a href="#">SC/MATH 2131 3.00</a>; <a href="#">SC/MATH 2270 3.00</a>; <a href="#">SC/MATH 2280 3.00</a>; <a href="#">SC/MATH 2281 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>; <a href="#">SC/MATH 3242 3.00</a>; <a href="#">SC/MATH 3271 3.00</a>; <a href="#">SC/MATH 3282 3.00</a>; <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>; <a href="#">SC/MATH 4143 3.00</a>; <a href="#">SC/MATH 4430 3.00</a> or <a href="#">SC/MATH 4431 3.00</a>; <a href="#">SC/MATH 4931 3.00</a></li> <li>• The following courses are recommended but not required: <a href="#">AP/ECON 1000 3.00</a>; <a href="#">AP/ECON 1010 3.00</a>; <a href="#">AP/ECON 2300 3.00</a>; <a href="#">AP/ECON 2350 3.00</a></li> </ul>	<p>completed.</p> <p><b>Specialized Honours BSc Program - Financial Mathematics Stream</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>; <a href="#">SC/MATH 2131 3.00</a>; <a href="#">SC/MATH 2270 3.00</a>; <a href="#">SC/MATH 2280 3.00</a>; <a href="#">SC/MATH 2281 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>; <a href="#">SC/MATH 3242 3.00</a>; <a href="#">SC/MATH 3271 3.00</a>; <a href="#">SC/MATH 3282 3.00</a>; <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>; <a href="#">SC/MATH 4143 3.00</a>; <a href="#">SC/MATH 4430 3.00</a> or <a href="#">SC/MATH 4431 3.00</a>; <a href="#">SC/MATH 4931 3.00</a></li> <li>• The following courses are recommended but not required: <a href="#">AP/ECON 1000 3.00</a>; <a href="#">AP/ECON 1010 3.00</a>; <a href="#">AP/ECON 2300 3.00</a>; <a href="#">AP/ECON 2350 3.00</a>;</li> </ul>	<p><b>Specialized Honours BSc Program - Financial Mathematics Stream</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>; <a href="#">SC/MATH 2131 3.00</a>; <a href="#">SC/MATH 2270 3.00</a>; <a href="#">SC/MATH 2280 3.00</a>; <a href="#">SC/MATH 2281 3.00</a>;</li> <li>• <a href="#">SC/MATH 3241 3.00</a>; <a href="#">SC/MATH 3242 3.00</a>; <a href="#">SC/MATH 3271 3.00</a>; <a href="#">SC/MATH 3282 3.00</a>; <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4090 3.00</a>; <a href="#">SC/MATH 4143 3.00</a>; <a href="#">SC/MATH 4430 3.00</a> or <a href="#">SC/MATH 4431 3.00</a>; <a href="#">SC/MATH 4931 3.00</a></li> <li>• The following courses are recommended but not required: <a href="#">AP/ECON 1000 3.00</a>; <a href="#">AP/ECON 1010 3.00</a>; <a href="#">AP/ECON 2300 3.00</a>; <a href="#">AP/ECON 2350 3.00</a>; <a href="#">AP/ECON 4400 3.00</a>.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines</p>
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<p><a href="#">3.00</a>; <a href="#">AP/ECON 4400 3.00</a>.</p> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits for the Honours program.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in applied mathematics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and</p>	<p><a href="#">AP/ECON 4400 3.00</a>.</p> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits for the Honours program.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in applied mathematics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and</p>	<p>outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements;</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above;</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits for the Honours program.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in applied mathematics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p>
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<p>their prerequisites.</p> <ul style="list-style-type: none"> <li>the applied mathematics Honours Major requirements below;</li> <li>the course requirements for the second major or the minor;</li> </ul> <p><b>Honours BSc Major</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>non-science requirement: 12 credits;</li> <li>mathematics: satisfied within the major requirements;</li> <li>computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">SC/MATH 2041 3.00</a>;</li> <li><a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3241 3.00</a>; one of <a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li><a href="#">SC/MATH 4090 3.00</a>;</li> <li>nine additional credits at the 4000 level, selected from mathematics courses without second digit 5, for an overall total of at least 51 credits from major mathematics courses;</li> <li>the course requirements for the second major or the minor if the program is an</li> </ul>	<p>their prerequisites.</p> <ul style="list-style-type: none"> <li><del>the applied mathematics Honours Major requirements below;</del></li> <li><del>the course requirements for the second major or the minor;</del></li> </ul> <p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>non-science requirement: 12 credits;</li> <li>mathematics: satisfied within the major requirements;</li> <li>computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li><del>the mathematics/statistics core (24 credits);</del></li> <li><del><a href="#">SC/MATH 2041 3.00</a>;</del></li> <li><del><a href="#">SC/MATH 2270 3.00</a>;</del></li> <li><del><a href="#">SC/MATH 3241 3.00</a>;</del></li> <li><del><a href="#">SC/MATH 3271 3.00</a>;</del></li> <li><del>one of <a href="#">SC/MATH 3242 3.00</a> or <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</del></li> <li><del><a href="#">SC/MATH 4090 3.00</a>;</del></li> <li><del>nine additional MATH credits at the 4000 level, for an overall total of at least 51 credits from major mathematics courses.</del></li> <li><del>the course requirements for the second major or the minor.</del></li> </ul>	<p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>non-science requirement: 12 credits;</li> <li>mathematics: satisfied within the major requirements;</li> <li>computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">SC/MATH 2041 3.00</a>;</li> <li><a href="#">SC/MATH 2270 3.00</a>;</li> <li><a href="#">SC/MATH 3241 3.00</a>;</li> <li><a href="#">SC/MATH 3271 3.00</a>;</li> <li>one of <a href="#">SC/MATH 3242 3.00</a> or <a href="#">SC/MATH 3260 3.00</a> or both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>;</li> <li><a href="#">SC/MATH 4090 3.00</a>;</li> <li>nine additional MATH credits at the 4000 level, for an overall total of at least 51 credits from major mathematics courses.</li> <li>the course requirements for the second major or the minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24</p>
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<p>Honours Double Major or Major/Minor.</p> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc</b></p> <p>The Honours Minor in applied mathematics consists of:</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• 6 credits chosen from <a href="#">SC/MATH 2041 3.00</a>, <a href="#">SC/MATH 2022 3.00</a> (or</li> </ul>	<p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <p>The Honours Minor in applied mathematics consists of:</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• 6 credits chosen from <a href="#">SC/MATH 2041 3.00</a>, <a href="#">SC/MATH 2022 3.00</a> <del>(or</del> <a href="#">SC/MATH 2222 3.00</a>); <a href="#">SC/MATH 2270 3.00</a>;</li> </ul>	<p>credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <p>The Honours Minor in applied mathematics consists of:</p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• 6 credits chosen from <a href="#">SC/MATH 2041 3.00</a>, <a href="#">SC/MATH 2022 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>;</li> <li>• at least 12 more credits, including at least 6 credits from: <a href="#">SC/MATH 3090 3.00</a>, both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>, <a href="#">SC/MATH 3241 3.00</a>,</li> </ul>
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<p><a href="#">SC/MATH 2222 3.00</a>), <a href="#">SC/MATH 2270 3.00</a>;</p> <ul style="list-style-type: none"> <li>at least 12 more credits, including at least 6 credits from: <a href="#">SC/MATH 3090 3.00</a>, both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>. <a href="#">SC/MATH 3241 3.00</a>, <a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 3271 3.00</a> or <a href="#">SC/MATH 3410 3.00</a>, and the remaining credits from mathematics courses without second digit 5 at the 3000 level or higher, for an overall total of at least 30 credits from major mathematics courses.</li> </ul>	<ul style="list-style-type: none"> <li>at least 12 more credits, including at least 6 credits from: <a href="#">SC/MATH 3090 3.00</a>, both <a href="#">SC/MATH 3171 3.00</a> and <a href="#">SC/MATH 3172 3.00</a>, <a href="#">SC/MATH 3241 3.00</a>, <a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 3271 3.00</a> or <a href="#">SC/MATH 3410 3.00</a>, and the remaining credits from MATH courses at the 3000 level or higher, for an overall total of at least 30 credits from major mathematics courses.</li> </ul>	<p><a href="#">SC/MATH 3242 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 3271 3.00</a> or <a href="#">SC/MATH 3410 3.00</a>, and the remaining credits from MATH courses at the 3000 level or higher, for an overall total of at least 30 credits from major mathematics courses.</p>
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## Proposed Changes to the Specialized Honours, Honours Majors and Bachelors (BA and BSc) Requirements of the Mathematics for Education Program in the Academic Calendar

### Rationale:

- Change the format of the BA requirements to explicitly list the degree requirements, and to match the format of the BSc requirements.
- Minor changes to the wording to make the requirements for BA and BSc programs consistent.

Change from	Changes	Change to
<p>The Department of Mathematics and Statistics offers Honours BA and Honours BSc degree programs in mathematics for education. This is a mathematics program focusing on the needs of students interested in concurrent education or consecutive education with mathematics as a teachable subject. Students in the BSc and Honours BSc programs must take courses in foundational science.</p> <p>All Honours degree candidates must complete the mathematics/statistics core:  <a href="#">SC/MATH 1021 3.00</a>;  <a href="#">SC/MATH 1131 3.00</a>;  <a href="#">SC/MATH 1200 3.00</a>;  <a href="#">SC/MATH 1300 3.00</a>;  <a href="#">SC/MATH 1310 3.00</a>;  <a href="#">SC/MATH 2022 3.00</a>;  <a href="#">SC/MATH 2030 3.00</a>;  <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</p> <p>All BA and Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science <i>Regulations Governing Undergraduate Degree Requirements</i> section of the <i>Faculty Rules</i>).</p>	<p>The Department of Mathematics and Statistics offers Honours BA and Honours BSc degree programs in mathematics for education. This is a mathematics program focusing on the needs of students interested in concurrent education or consecutive education with mathematics as a teachable subject. Students in the BSc and Honours BSc programs must take courses in foundational science.</p> <p><del>All Honours degree candidates must complete the mathematics/statistics core:  <a href="#">SC/MATH 1021 3.00</a>;  <a href="#">SC/MATH 1131 3.00</a>;  <a href="#">SC/MATH 1200 3.00</a>;  <a href="#">SC/MATH 1300 3.00</a>;  <a href="#">SC/MATH 1310 3.00</a>;  <a href="#">SC/MATH 2022 3.00</a>;  <a href="#">SC/MATH 2030 3.00</a>;  <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</del></p> <p><del>All BA and Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science <i>Regulations Governing Undergraduate Degree Requirements</i> section of the <i>Faculty Rules</i>).</del></p>	<p>The Department of Mathematics and Statistics offers Honours BA and Honours BSc degree programs in mathematics for education. This is a mathematics program focusing on the needs of students interested in concurrent education or consecutive education with mathematics as a teachable subject. Students in the BSc and Honours BSc programs must take courses in foundational science.</p>

<p>All BA and Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science <i>Regulations Governing Undergraduate Degree Requirements</i> section of the <i>Faculty Rules</i> and, in so doing, must also satisfy the course, credit and standing requirements specified below.</p> <p>To graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Mathematics for Education BA Programs</b></p>	<p><del>All BA and Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science <i>Regulations Governing Undergraduate Degree Requirements</i> section of the <i>Faculty Rules</i> and, in so doing, must also satisfy the course, credit and standing requirements specified below.</del></p> <p><del>To graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</del></p> <p><del><b>Mathematics for Education BA Programs Bachelor of Arts Honours Programs</b></del></p> <p>The mathematics/statistics honours core is defined as (24 credits): <u><del>SC/MATH 1021 3.00;</del></u>  <u><del>SC/MATH 1131 3.00;</del></u>  <u><del>SC/MATH 1200 3.00;</del></u>  <u><del>SC/MATH 1300 3.00;</del></u>  <u><del>SC/MATH 1310 3.00;</del></u>  <u><del>SC/MATH 2022 3.00;</del></u>  <u><del>SC/MATH 2030 3.00;</del></u>  <u><del>SC/MATH 2310 3.00.</del></u></p>	<p><b>Bachelor of Arts Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <u>SC/MATH 1021 3.00;</u>  <u>SC/MATH 1131 3.00;</u>  <u>SC/MATH 1200 3.00;</u>  <u>SC/MATH 1300 3.00;</u>  <u>SC/MATH 1310 3.00;</u>  <u>SC/MATH 2022 3.00;</u>  <u>SC/MATH 2030 3.00;</u>  <u>SC/MATH 2310 3.00.</u></p>
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<p><b>Specialized Honours BA Program</b></p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li>one of: <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 2131 3.00</a>, <a href="#">SC/MATH 2270 3.00</a> or <a href="#">SC/MATH 2280 3.00</a>;</li> <li><a href="#">SC/MATH 3090 3.00</a>; <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li><a href="#">SC/MATH 4100 3.00</a>; <a href="#">SC/MATH 4400 6.00</a>;</li> <li>nine additional mathematics credits without second digit 5, at the 3000 level or above, including at least three credits at the 4000 level, for a total of 54 credits in mathematics, of which at least 12 are at the 4000 level;</li> <li>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</li> </ul>	<p><b>Specialized Honours BA Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li>one of: <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 2131 3.00</a>, <a href="#">SC/MATH 2270 3.00</a> or <a href="#">SC/MATH 2280 3.00</a>;</li> <li><a href="#">SC/MATH 3090 3.00</a>; <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li><a href="#">SC/MATH 4100 3.00</a>; <a href="#">SC/MATH 4400 6.00</a>;</li> <li>nine additional MATH credits at the 3000 or higher level, of which at least three credits are at the 4000 level, for a total of 54 credits in mathematics.</li> </ul> <p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level</p>	<p><b>Specialized Honours BA Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><a href="#">LE/EECS 1560 3.00</a>;</li> <li>one of: <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 2131 3.00</a>, <a href="#">SC/MATH 2270 3.00</a> or <a href="#">SC/MATH 2280 3.00</a>;</li> <li><a href="#">SC/MATH 3090 3.00</a>; <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li><a href="#">SC/MATH 4100 3.00</a>; <a href="#">SC/MATH 4400 6.00</a>;</li> <li>nine additional MATH credits at the 3000 or higher level, of which at least three credits are at the 4000 level, for a total of 54 credits in mathematics.</li> </ul> <p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level</p>
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	<p>or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <del>LE/EECS 1560 3.00;</del></li> <li>• <del>one of: SC/MATH 2001 3.00, SC/MATH 2131 3.00, SC/MATH 2270 3.00 or SC/MATH 2280 3.00;</del></li> <li>• <del>SC/MATH 3090 3.00; SC/MATH 3050 6.00 or SC/MATH 3052 6.00;</del></li> <li>• <del>SC/MATH 4100 3.00; SC/MATH 4400 6.00;</del></li> <li>• <del>nine additional mathematics credits without second digit 5, at the 3000 level or above, including at least three credits at the 4000 level, for a total of 54 credits in mathematics, of which at least 12 are at the 4000 level;</del></li> <li>• <del>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</del></li> </ul>	<p>or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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<p><b>Honours Major, Honours Double Major or Honours Major in a Major/Minor BA Program</b></p> <p>The Honours Major in mathematics for education may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BA or with an Honours Minor in another subject area in an Honours Major/Minor BA program. The double major may be taken with approved major degree programs in the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, or the Faculty of Science. The major/minor may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the Lassonde School of Engineering, or the School of the Arts, Media, Performance &amp; Design. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p> <ul style="list-style-type: none"> <li>• The mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>;</li> <li>• at least 12 additional mathematics credits without second digit 5, at the 3000 or 4000 level. At least nine of these additional mathematics credits must be at the 4000</li> </ul>	<p><b>Honours Major, Honours Double Major or Honours Major in a Major/Minor BA Program</b></p> <p>The Honours Major in mathematics for education may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BA or with an Honours Minor in another subject area in an Honours Major/Minor BA program. The double major may be taken with approved major degree programs in the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, or the Faculty of Science. The major/minor may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the Lassonde School of Engineering, or the School of the Arts, Media, Performance &amp; Design. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p> <p><b>Honours Major BA Program</b></p> <p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities,</li> </ul>	<p><b>Honours Major, Honours Double Major or Honours Major in a Major/Minor BA Program</b></p> <p>The Honours Major in mathematics for education may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BA or with an Honours Minor in another subject area in an Honours Major/Minor BA program. The double major may be taken with approved major degree programs in the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, or the Faculty of Science. The major/minor may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the Lassonde School of Engineering, or the School of the Arts, Media, Performance &amp; Design. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p> <p><b>Honours Major BA Program</b></p> <p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities,</li> </ul>
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<p>level. <a href="#">SC/MATH 4400 6.00</a> and one of <a href="#">SC/MATH 3090 3.00</a> or <a href="#">SC/MATH 4090 3.00</a> are recommended.</p> <ul style="list-style-type: none"> <li>• a total of 45 credits in mathematics is required, of which at least 12 will be at the 4000 level;</li> <li>• additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or above, at least 18 of which must be at the 4000 level.</li> </ul>	<p>Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</p> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>;</li> <li>• 12 additional MATH credits at the 3000 level or higher. At least nine of these additional MATH credits must be at the 4000 level, with <a href="#">SC/MATH 4400 6.00</a>, and one of <a href="#">SC/MATH 3090 3.00</a> or <a href="#">SC/MATH 4090 3.00</a> recommended;</li> <li>• a total of 45 credits in mathematics is required, including at least 12 MATH credits at the 4000 level;</li> <li>• the courses for the second major or the minor.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits. Not applicable to double majors and major/minor programs.</p> <p><b>D. Upper level:</b> a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 120 credits.</p>	<p>Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</p> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>;</li> <li>• 12 additional MATH credits at the 3000 level or higher. At least nine of these additional MATH credits must be at the 4000 level, with <a href="#">SC/MATH 4400 6.00</a>, and one of <a href="#">SC/MATH 3090 3.00</a> or <a href="#">SC/MATH 4090 3.00</a> recommended;</li> <li>• a total of 45 credits in mathematics is required, including at least 12 MATH credits at the 4000 level;</li> <li>• the courses for the second major or the minor.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits. Not applicable to double majors and major/minor programs.</p> <p><b>D. Upper level:</b> a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 120 credits.</p>
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	<p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>The mathematics/statistics core (24 credits);</del></li> <li>• <del>LE/EECS 1560 3.00;</del></li> <li>• <del>SC/MATH 3050 6.00 or SC/MATH 3052 6.00;</del></li> <li>• <del>SC/MATH 4100 3.00;</del></li> <li>• <del>at least 12 additional mathematics credits without second digit 5, at the 3000 or 4000 level. At least nine of these additional mathematics credits must be at the 4000 level. SC/MATH 4400 6.00 and one of SC/MATH 3090 3.00 or SC/MATH 4090 3.00 are recommended.</del></li> <li>• <del>a total of 45 credits in mathematics is required, of which at least 12 will be at the 4000 level;</del></li> <li>• <del>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or above, at least 18 of which must be at the 4000 level.</del></li> </ul>	<p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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Honours Minor BA Program	Honours Minor BA Program	Honours Minor BA Program
<ul style="list-style-type: none"> <li>• Three credits of computer science, <a href="#">LE/EECS 1560 3.00</a> is recommended;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• at least nine credits of mathematics without second digit 5 at the 3000 or 4000 level, including at least six credits at the 4000 level, to include:</li> <li>• <a href="#">SC/MATH 4100 3.00</a> or <a href="#">SC/MATH 4400 6.00</a>;</li> <li>• at least three credits above should be chosen from proof-based courses approved by the director, such as <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 3021 3.00</a>, <a href="#">SC/MATH 3022 3.00</a>, <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>, <a href="#">SC/MATH 3141 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 4160 3.00</a>;</li> <li>• a total of 33 credits in mathematics without second digit 5 is required, of which at least six will be at the 4000 level.</li> </ul>	<ul style="list-style-type: none"> <li>• Three credits of computer science, <a href="#">LE/EECS 1560 3.00</a> is recommended;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• at least nine MATH credits at the 3000 or 4000 level, including at least six credits at the 4000 level, to include: <a href="#">SC/MATH 4100 3.00</a> or <a href="#">SC/MATH 4400 6.00</a>;</li> <li>• at least three credits above should be chosen from proof-based courses approved by the director, such as <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 3021 3.00</a>, <a href="#">SC/MATH 3022 3.00</a>, <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>, <a href="#">SC/MATH 3141 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 4160 3.00</a>;</li> <li>• a total of 33 credits in mathematics without second digit 5 is required, of which at least six will be at the 4000 level.</li> </ul>	<ul style="list-style-type: none"> <li>• Three credits of computer science, <a href="#">LE/EECS 1560 3.00</a> is recommended;</li> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• at least nine MATH credits at the 3000 or 4000 level, including at least six credits at the 4000 level, to include: <a href="#">SC/MATH 4100 3.00</a> or <a href="#">SC/MATH 4400 6.00</a>;</li> <li>• at least three credits above should be chosen from proof-based courses approved by the director, such as <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 3021 3.00</a>, <a href="#">SC/MATH 3022 3.00</a>, <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>, <a href="#">SC/MATH 3141 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 4160 3.00</a>;</li> <li>• a total of 33 credits in mathematics without second digit 5 is required, of which at least six will be at the 4000 level.</li> </ul>

<b>Mathematics for Education BSc Programs</b>	<b>Bachelor of Science Honours Programs</b>	<b>Bachelor of Science Honours Programs</b>
<p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>	<p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>	<p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>
<p><b>Specialized Honours BSc Program</b></p>	<p><b>Specialized Honours BSc Program</b></p>	<p><b>Specialized Honours BSc Program</b></p>
<p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul>
<p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• one of <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 2131 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>, or <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>; <a href="#">SC/MATH 3090 3.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>; <a href="#">SC/MATH 4400 6.00</a>;</li> </ul>	<p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• one of <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 2131 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>, or <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>; <a href="#">SC/MATH 3090 3.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>; <a href="#">SC/MATH 4400 6.00</a>;</li> </ul>	<p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• one of <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 2131 3.00</a>, <a href="#">SC/MATH 2270 3.00</a>, or <a href="#">SC/MATH 2280 3.00</a>;</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>; <a href="#">SC/MATH 3090 3.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>; <a href="#">SC/MATH 4400 6.00</a>;</li> </ul>

<ul style="list-style-type: none"> <li>• nine additional credits from mathematics courses (i.e. without second digit 5) at the 3000 or higher level, of which at least three credits are at the 4000 level, for a total of 54 credits in mathematics.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in mathematics for education may be taken stand-alone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject</p>	<ul style="list-style-type: none"> <li>• <b>nine additional MATH credits at the 3000 or higher level, of which at least three credits are at the 4000 level, for a total of 54 credits in mathematics.</b></li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in mathematics for education may be taken stand-alone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs</p>	<ul style="list-style-type: none"> <li>• nine additional MATH credits at the 3000 or higher level, of which at least three credits are at the 4000 level, for a total of 54 credits in mathematics.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in mathematics for education may be taken stand-alone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs</p>
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<p>combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours BSc Major</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>;</li> <li>• 12 additional credits selected from SC/MATH courses (without second digit 5) at the 3000 level or higher. At least nine of these additional mathematics credits must be at the 4000 level. <a href="#">SC/MATH 4400 6.00</a>, and one of <a href="#">SC/MATH 3090 3.00</a> or</li> </ul>	<p>in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>;</li> <li>• <b>12 additional MATH credits at the 3000 level or higher. At least nine of these additional MATH credits must be at the 4000 level, with <a href="#">SC/MATH 4400 6.00</a>, and one of <a href="#">SC/MATH 3090 3.00</a> or <a href="#">SC/MATH 4090 3.00</a> recommended;</b></li> <li>• <b>a total of 45 credits in mathematics is required, including at least 12</b></li> </ul>	<p>in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>;</li> <li>• <a href="#">SC/MATH 4100 3.00</a>;</li> <li>• 12 additional MATH credits at the 3000 level or higher. At least nine of these additional MATH credits must be at the 4000 level, with <a href="#">SC/MATH 4400 6.00</a>, and one of <a href="#">SC/MATH 3090 3.00</a> or <a href="#">SC/MATH 4090 3.00</a> recommended;</li> <li>• a total of 45 credits in mathematics is required, including at least 12</li> </ul>
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<p><a href="#">SC/MATH 4090 3.00</a> recommended;</p> <ul style="list-style-type: none"> <li>• a total of 45 credits in mathematics is required, including at least 12 credits at the 4000 level;</li> <li>• the courses for the second major or the minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p>	<p><b>MATH credits at the 4000 level;</b></p> <ul style="list-style-type: none"> <li>• the courses for the second major or the minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <ul style="list-style-type: none"> <li>• three credits of computer science (<a href="#">LE/EECS 1560 3.00</a> recommended);</li> <li>• <a href="#">SC/MATH 1021 3.00</a>, <a href="#">SC/MATH 1131 3.00</a>, <a href="#">SC/MATH 1200 3.00</a>,</li> </ul>	<p>MATH credits at the 4000 level;</p> <ul style="list-style-type: none"> <li>• the courses for the second major or the minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <ul style="list-style-type: none"> <li>• three credits of computer science (<a href="#">LE/EECS 1560 3.00</a> recommended);</li> <li>• <a href="#">SC/MATH 1021 3.00</a>, <a href="#">SC/MATH 1131 3.00</a>, <a href="#">SC/MATH 1200 3.00</a>,</li> </ul>
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<p><b>Honours Minor</b></p> <ul style="list-style-type: none"> <li>• three credits of computer science (<a href="#">LE/EECS 1560 3.00</a> recommended);</li> <li>• <a href="#">SC/MATH 1021 3.00</a>, <a href="#">SC/MATH 1131 3.00</a>, <a href="#">SC/MATH 1200 3.00</a>, <a href="#">SC/MATH 1300 3.00</a>, <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>, <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• at least nine credits from major (i.e. without second digit 5) mathematics courses at the 3000 or higher level including <a href="#">SC/MATH 4100 3.00</a> or <a href="#">SC/MATH 4400 6.00</a>;</li> <li>• three credits, which may be among the choices above, selected from proof-based courses approved by the director (such as <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 3021 3.00</a>, <a href="#">SC/MATH 3022 3.00</a>, <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>, <a href="#">SC/MATH 3141 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 4160 3.00</a>).</li> </ul>	<p><a href="#">SC/MATH 1300 3.00</a>, <a href="#">SC/MATH 1310 3.00</a>;</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 2022 3.00</a>, <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• at least nine MATH credits at the 3000 or 4000 level, including at least six credits at the 4000 level, to include: <a href="#">SC/MATH 4100 3.00</a> or <a href="#">SC/MATH 4400 6.00</a>;</li> <li>• at least three credits above should be chosen from proof-based courses approved by the director, such as <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 3021 3.00</a>, <a href="#">SC/MATH 3022 3.00</a>, <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>, <a href="#">SC/MATH 3141 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 4160 3.00</a>;</li> <li>• a total of 33 credits in mathematics without second digit 5 is required, of which at least six will be at the 4000 level.</li> </ul>	<p><a href="#">SC/MATH 1300 3.00</a>, <a href="#">SC/MATH 1310 3.00</a>;</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 2022 3.00</a>, <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• at least nine MATH credits at the 3000 or 4000 level, including at least six credits at the 4000 level, to include: <a href="#">SC/MATH 4100 3.00</a> or <a href="#">SC/MATH 4400 6.00</a>;</li> <li>• at least three credits above should be chosen from proof-based courses approved by the director, such as <a href="#">SC/MATH 2001 3.00</a>, <a href="#">SC/MATH 3021 3.00</a>, <a href="#">SC/MATH 3022 3.00</a>, <a href="#">SC/MATH 3050 6.00</a> or <a href="#">SC/MATH 3052 6.00</a>, <a href="#">SC/MATH 3141 3.00</a>, <a href="#">SC/MATH 3260 3.00</a>, <a href="#">SC/MATH 4160 3.00</a>;</li> <li>• a total of 33 credits in mathematics without second digit 5 is required, of which at least six will be at the 4000 level.</li> </ul>
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## Proposed Changes to the Specialized Honours, Honours Majors and Bachelors (BA and BSc) Requirements of the Pure Math Program in the Academic Calendar

### Rationale:

- Change the format of the BA requirements to explicitly list the degree requirements, and to match the format of the BSc requirements.
- Minor changes to the wording to make the requirements for BA and BSc programs consistent.
- Remove the notes about linear algebra course substitution. These notes are unnecessary as the department offers only one linear algebra course other than Math 1021 and Math 2022.

Change from	Changes	Change to
<p>The Department of Mathematics and Statistics offers Honours BA, Honours BSc degree programs in mathematics. Students in the Honours BSc programs must take courses in foundational science.</p> <p>All Honours degree candidates must complete the mathematics/statistics core:  <a href="#">SC/MATH 1021 3.00</a>;  <a href="#">SC/MATH 1131 3.00</a>;  <a href="#">SC/MATH 1200 3.00</a>;  <a href="#">SC/MATH 1300 3.00</a>;  <a href="#">SC/MATH 1310 3.00</a>;  <a href="#">SC/MATH 2022 3.00</a>;  <a href="#">SC/MATH 2030 3.00</a>;  <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</p>	<p>The Department of Mathematics and Statistics offers Honours BA, Honours BSc degree programs in mathematics. <del>Students in the Honours BSc programs must take courses in foundational science.</del></p> <p><del>All Honours degree candidates must complete the mathematics/statistics core:</del>  <del><a href="#">SC/MATH 1021 3.00</a>;</del>  <del><a href="#">SC/MATH 1131 3.00</a>;</del>  <del><a href="#">SC/MATH 1200 3.00</a>;</del>  <del><a href="#">SC/MATH 1300 3.00</a>;</del>  <del><a href="#">SC/MATH 1310 3.00</a>;</del>  <del><a href="#">SC/MATH 2022 3.00</a>;</del>  <del><a href="#">SC/MATH 2030 3.00</a>;</del>  <del><a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</del></p>	<p>The Department of Mathematics and Statistics offers Honours BA, Honours BSc degree programs in mathematics.</p>

<p><b>Bachelor of Arts Programs</b></p> <p>All Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science Regulations Governing Undergraduate Degree Requirements section).</p> <p>All Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science Regulations Governing Undergraduate Degree Requirements section and, in so doing, must also satisfy the course, credit and standing requirements specified below.</p>	<p><b>Bachelor of Arts Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><del>All Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science Regulations Governing Undergraduate Degree Requirements section).</del></p> <p><del>All Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science Regulations Governing Undergraduate Degree Requirements section and, in so doing, must also satisfy the course, credit and standing requirements specified below.</del></p>	<p><b>Bachelor of Arts Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p>
<p><b>Honours Programs</b></p> <p>To graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>	<p><b>Honours Programs</b></p> <p><del>To graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</del></p>	

Specialized Honours BA Program	Specialized Honours BA Program	Specialized Honours BA Program
<ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional credits in mathematics courses without second digit 5 at the 4000 level;</li> <li>• at least 15 additional credits in mathematics courses without second digit 5 for a total of at least 66 credits from major mathematics;</li> <li>• additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</li> </ul>	<p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional MATH credits at the 4000 level;</li> <li>• at least 15 additional MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses;</li> </ul> <p><b>C. Outside-major electives: at least 18 non-MATH credits.</b></p> <p><b>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18</b></p>	<p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional MATH credits at the 4000 level;</li> <li>• at least 15 additional MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses;</li> </ul> <p><b>C. Outside-major electives: at least 18 non-MATH credits.</b></p> <p><b>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18</b></p>

	<p>credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>LE/EECS 1560 3.00;</del></li> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <del>SC/MATH 2001 3.00;</del></li> <li>• <del>SC/MATH 3001 3.00;</del></li> <li>• <del>SC/MATH 3010 3.00;</del></li> <li>• <del>SC/MATH 3021 3.00;</del></li> <li>• <del>SC/MATH 3022 3.00;</del></li> <li>• <del>SC/MATH 4011 3.00;</del></li> <li>• <del>SC/MATH 4021 3.00;</del></li> <li>• <del>at least six additional credits in mathematics courses without second digit 5 at the 4000 level;</del></li> <li>• <del>at least 15 additional credits in mathematics courses without second digit 5 for a total of at least 66 credits from major mathematics;</del></li> <li>• <del>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</del></li> </ul>	<p>credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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<b>Honours Major, Honours Double Major and Honours Major/Minor BA Program</b>	<b>Honours Major, Honours Double Major and Honours Major/Minor BA Program</b>	<b>Honours Major, Honours Double Major and Honours Major/Minor BA Program</b>
<p>The Honours Major in mathematics may be taken standalone or combined with an Honours Major in another subject area in a Honours Double Major BA or with an Honours Minor in another subject area in a Honours Major/Minor BA program. The double major or major/minor may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p>	<p>The Honours Major in mathematics may be taken standalone or combined with an Honours Major in another subject area in a Honours Double Major BA or with an Honours Minor in another subject area in a Honours Major/Minor BA program. The double major or major/minor may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p>	<p>The Honours Major in mathematics may be taken standalone or combined with an Honours Major in another subject area in a Honours Double Major BA or with an Honours Minor in another subject area in a Honours Major/Minor BA program. The double major or major/minor may be taken with approved major degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section.</p>
<p>The Honours BA program in mathematics may be linked with any Honours Double Major Interdisciplinary BA program in the Faculty of Liberal Arts and Professional Studies. These are: African studies, European studies, Latin American and Caribbean studies, social and political thought, South Asian studies. Students must take at least 42 credits in mathematics and at least 36 credits in the interdisciplinary program. Courses taken to meet mathematics requirements cannot also be used to meet the requirements of the interdisciplinary program. Students in these interdisciplinary programs must take a total of at least 18 credits</p>	<p>The Honours BA program in mathematics may be linked with any Honours Double Major Interdisciplinary BA program in the Faculty of Liberal Arts and Professional Studies. These are: African studies, European studies, Latin American and Caribbean studies, social and political thought, South Asian studies. Students must take at least 42 credits in mathematics and at least 36 credits in the interdisciplinary program. Courses taken to meet mathematics requirements cannot also be used to meet the requirements of the interdisciplinary program. Students in these interdisciplinary programs must take a total of at least 18 credits</p>	<p>The Honours BA program in mathematics may be linked with any Honours Double Major Interdisciplinary BA program in the Faculty of Liberal Arts and Professional Studies. These are: African studies, European studies, Latin American and Caribbean studies, social and political thought, South Asian studies. Students must take at least 42 credits in mathematics and at least 36 credits in the interdisciplinary program. Courses taken to meet mathematics requirements cannot also be used to meet the requirements of the interdisciplinary program. Students in these interdisciplinary programs must take a total of at least 18 credits</p>

<p>at the 4000 level, including at least 12 credits in mathematics and six credits in the interdisciplinary program.</p> <p><b>Honours BA Program</b></p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional credits in mathematics courses without second digit 5 at the 4000 level for a total of 51 credits from major mathematics courses;</li> <li>• additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</li> </ul>	<p>at the 4000 level, including at least 12 credits in mathematics and six credits in the interdisciplinary program.</p> <p><b>Honours Major BA Program</b></p> <p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional MATH credits at the 4000 level, for a total of at least 51 credits from major mathematics courses.</li> <li>• the course requirements for the second major or the minor.</li> </ul> <p><b>C. Outside-major electives: at least 18 non-MATH credits. Not</b></p>	<p>at the 4000 level, including at least 12 credits in mathematics and six credits in the interdisciplinary program.</p> <p><b>Honours Major BA Program</b></p> <p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional major MATH credits at the 4000 level, for a total of at least 51 credits from major mathematics courses.</li> <li>• the course requirements for the second major or the minor.</li> </ul> <p><b>C. Outside-major electives: at least 18 non-MATH credits. Not</b></p>
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	<p>applicable to double majors and major/minor programs.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>• <del>LE/EECS 1560 3.00;</del></li> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <del>SC/MATH 2001 3.00;</del></li> <li>• <del>SC/MATH 3001 3.00;</del></li> <li>• <del>SC/MATH 3010 3.00;</del></li> <li>• <del>SC/MATH 3021 3.00;</del></li> <li>• <del>SC/MATH 3022 3.00;</del></li> <li>• <del>SC/MATH 4011 3.00;</del></li> <li>• <del>SC/MATH 4021 3.00;</del></li> <li>• <del>at least six additional credits in mathematics courses without second digit 5 at the 4000 level for a total of 51 credits from major mathematics courses;</del></li> <li>• <del>additional elective credits, as required for an overall total of at least 120 credits, of which at least 36 credits are at the 3000 level or higher, at least 18 of which must be at the 4000 level.</del></li> </ul>	<p>applicable to double majors and major/minor programs.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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<b>Honours Minor BA Program</b>	<b>Honours Minor BA Program</b>	<b>Honours Minor BA Program</b>
<p>The Honours Minor in mathematics requires:</p>	<p>The Honours Minor in mathematics requires:</p>	<p>The Honours Minor in mathematics requires:</p>
<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• three credits chosen from: <ul style="list-style-type: none"> <li>○ <a href="#">SC/MATH 1019 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1090 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1190 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1200 3.00</a>,</li> <li>○ <a href="#">SC/MATH 2030 3.00</a>,</li> <li>○ <a href="#">SC/MATH 2320 3.00</a>;</li> </ul> </li> <li>• <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• 12 additional credits in mathematics courses without second digit 5 at the 3000 level or higher for a total at least 30 credits in mathematics courses.</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• three credits chosen from: <ul style="list-style-type: none"> <li>○ <a href="#">SC/MATH 1019 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1090 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1190 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1200 3.00</a>,</li> <li>○ <a href="#">SC/MATH 2030 3.00</a>,</li> <li>○ <a href="#">SC/MATH 2320 3.00</a>;</li> </ul> </li> <li>• <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• 12 additional MATH credits at the 3000 level or higher for a total at least 30 credits in mathematics courses.</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• three credits chosen from: <ul style="list-style-type: none"> <li>○ <a href="#">SC/MATH 1019 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1090 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1190 3.00</a>,</li> <li>○ <a href="#">SC/MATH 1200 3.00</a>,</li> <li>○ <a href="#">SC/MATH 2030 3.00</a>,</li> <li>○ <a href="#">SC/MATH 2320 3.00</a>;</li> </ul> </li> <li>• <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>;</li> <li>• 12 additional MATH credits at the 3000 level or higher for a total at least 30 credits in mathematics courses.</li> </ul>
<p><b>Notes:</b></p>	<p><b>Notes:</b></p>	
<ul style="list-style-type: none"> <li>• In all Honours mathematics programs, <a href="#">SC/MATH 1021 3.00</a> and/or <a href="#">SC/MATH 2022 3.00</a> may be replaced by other linear algebra courses, but if the grade obtained in any such replacement course is below A then one of the following courses must be taken in addition to the Honours requirements noted in each program above: <a href="#">SC/MATH 1019 3.00</a>,</li> </ul>	<ul style="list-style-type: none"> <li>• <del>In all Honours mathematics programs, <a href="#">SC/MATH 1021 3.00</a> and/or <a href="#">SC/MATH 2022 3.00</a> may be replaced by other linear algebra courses, but if the grade obtained in any such replacement course is below A then one of the following courses must be taken in addition to the Honours requirements noted in each program above: <a href="#">SC/MATH 1019 3.00</a>, <a href="#">SC/MATH 1090 3.00</a>, <a href="#">SC/MATH 1190 3.00</a> or</del></li> </ul>	

<p><a href="#">SC/MATH 1090 3.00</a>, <a href="#">SC/MATH 1190 3.00</a> or <a href="#">SC/MATH 2320 3.00</a>.</p> <ul style="list-style-type: none"><li>• In order to obtain an Honours BA (120 credits), students must take a total of at least 18 credits at the 4000 level, including at least 12 credits at the 4000 level in each Honours Major or Specialized Honours major.</li></ul>	<p><del><a href="#">SC/MATH 2320 3.00</a>:</del></p> <ul style="list-style-type: none"><li>• <del>In order to obtain an Honours BA (120 credits), students must take a total of at least 18 credits at the 4000 level, including at least 12 credits at the 4000 level in each Honours Major or Specialized Honours major.</del></li></ul>	
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<p><b>Bachelor of Science Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><b>Honours Programs</b></p> <p><b>Specialized Honours BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional credits from major</li> </ul>	<p><b>Bachelor of Science Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><b>Honours Programs</b></p> <p><b>Specialized Honours BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• <b>at least six additional MATH credits at the</b></li> </ul>	<p><b>Bachelor of Science Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><b>Specialized Honours BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional MATH credits at the 4000 level;</li> </ul>
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<p>mathematics courses at the 4000 level;</p> <ul style="list-style-type: none"> <li>at least 15 additional credits from major (i.e. without second digit 5) mathematics courses, or approved or equivalent courses, for a total of at least 66 credits from major mathematics courses;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in mathematics may be taken stand-alone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree</p>	<p>4000 level;</p> <ul style="list-style-type: none"> <li>at least 15 additional MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in mathematics may be taken stand-alone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree</p>	<ul style="list-style-type: none"> <li>at least 15 additional MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses;</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Programs</b></p> <p>An Honours Major in mathematics may be taken stand-alone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program or with an Honours Minor in another subject area in an Honours Major/Minor BSc degree</p>
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<p>program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours BSc Major</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional major (i.e. without second digit 5) mathematics credits at the 4000 level, for a total of at least 51 credits from major mathematics</li> </ul>	<p>program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours Major BSc Major Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• <b>at least six additional MATH credits at the 4000 level, for a total of at least 51 credits from major mathematics courses.</b></li> <li>• the course requirements</li> </ul>	<p>program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science requirement: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3010 3.00</a>;</li> <li>• <a href="#">SC/MATH 3021 3.00</a>;</li> <li>• <a href="#">SC/MATH 3022 3.00</a>;</li> <li>• <a href="#">SC/MATH 4011 3.00</a>;</li> <li>• <a href="#">SC/MATH 4021 3.00</a>;</li> <li>• at least six additional MATH credits at the 4000 level, for a total of at least 51 credits from major mathematics courses.</li> <li>• the course requirements</li> </ul>
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<p>courses.</p> <ul style="list-style-type: none"> <li>the course requirements for the second major or the minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor</b></p> <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1021 3.00;</a> <a href="#">SC/MATH 1300 3.00;</a> <a href="#">SC/MATH 1310 3.00;</a></li> <li>one of: <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1019 3.00,</a></li> <li><a href="#">SC/MATH 1090</a></li> </ul> </li> </ul>	<p>for the second major or the minor.</p> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1021 3.00;</a> <a href="#">SC/MATH 1300 3.00;</a> <a href="#">SC/MATH 1310 3.00;</a></li> <li>one of: <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1019 3.00,</a></li> <li><a href="#">SC/MATH 1090 3.00,</a></li> <li><a href="#">SC/MATH 1190</a></li> </ul> </li> </ul>	<p>for the second major or the minor.</p> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1021 3.00;</a> <a href="#">SC/MATH 1300 3.00;</a> <a href="#">SC/MATH 1310 3.00;</a></li> <li>one of: <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1019 3.00,</a></li> <li><a href="#">SC/MATH 1090 3.00,</a></li> <li><a href="#">SC/MATH 1190</a></li> </ul> </li> </ul>
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<ul style="list-style-type: none"> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 1190</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 1200</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2030</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2320</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2320</a></li> </ul> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 2022 3.00;</a> <a href="#">SC/MATH 2310 3.00;</a></li> <li>• at least 12 credits from major (i.e. without second digit 5) mathematics courses, or approved or equivalent courses, at the 3000 or higher level, for an overall total of at least 30 mathematics credits.</li> </ul> <p><b>Note:</b> in all Mathematics Honours programs, <a href="#">SC/MATH 1021 3.00</a> and/or <a href="#">SC/MATH 2022 3.00</a> may be replaced by other linear algebra courses, but if the grade obtained in any such replacement course is below A then one of the following courses must be taken above and beyond the normal Honours requirements: <a href="#">SC/MATH 1019 3.00,</a> <a href="#">SC/MATH 1090 3.00,</a> <a href="#">SC/MATH 1190 3.00,</a> <a href="#">SC/MATH 2320 3.00.</a></p>	<ul style="list-style-type: none"> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 1200</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2030</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2320</a></li> </ul> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 2022 3.00;</a> <a href="#">SC/MATH 2310 3.00;</a></li> <li>• 12 additional MATH credits at the 3000 level or higher for a total at least 30 credits in mathematics courses.</li> </ul> <p><del><b>Note:</b> in all Mathematics Honours programs, <a href="#">SC/MATH 1021 3.00</a> and/or <a href="#">SC/MATH 2022 3.00</a> may be replaced by other linear algebra courses, but if the grade obtained in any such replacement course is below A then one of the following courses must be taken above and beyond the normal Honours requirements: <a href="#">SC/MATH 1019 3.00,</a> <a href="#">SC/MATH 1090 3.00,</a> <a href="#">SC/MATH 1190 3.00,</a> <a href="#">SC/MATH 2320 3.00.</a></del></p>	<ul style="list-style-type: none"> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 1200</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2030</a></li> <li>○ <a href="#">3.00,</a> <a href="#">SC/MATH 2320</a></li> </ul> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 2022 3.00;</a> <a href="#">SC/MATH 2310 3.00;</a></li> <li>• 12 additional MATH credits at the 3000 level or higher for a total at least 30 credits in mathematics courses.</li> </ul>
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## Proposed Changes to the Specialized Honours, Honours Majors and Bachelors (BA and BSc) Requirements of the Statistics Program in the Academic Calendar

### Rationale:

- Change the format of the BA requirements to explicitly list the degree requirements, and to match the format of the BSc requirements.
- Minor changes to the wording to make the requirements for BA and BSc programs consistent.
- Add the missing “9 additional MATH credits” to Specialized Honours Program (BA).
- Remove the “Notes on Math 1025, Math 1530 and Math 1550” since the note is not mentioned in the requirements of other math programs.

Change from	Changes	Change to
<p>The Department of Mathematics and Statistics offers Honours BA, Honours BSc degree programs in statistics. Students in the Honours BSc programs must take courses in foundational science.</p> <p>Mathematics/Statistics Core</p> <p>All Honours degree candidates must complete the mathematics/statistics core:  <a href="#">SC/MATH 1021 3.00</a>;  <a href="#">SC/MATH 1131 3.00</a>;  <a href="#">SC/MATH 1200 3.00</a>;  <a href="#">SC/MATH 1300 3.00</a>;  <a href="#">SC/MATH 1310 3.00</a>;  <a href="#">SC/MATH 2022 3.00</a>;  <a href="#">SC/MATH 2030 3.00</a>;  <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</p> <p><b>Bachelor of Arts Statistics Programs</b></p> <p>All Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science Regulations Governing</p>	<p>The Department of Mathematics and Statistics offers Honours BA, Honours BSc degree programs in statistics. Students in the Honours BSc programs must take courses in foundational science.</p> <p><del>Mathematics/Statistics Core</del></p> <p><del>All Honours degree candidates must complete the mathematics/statistics core:  <a href="#">SC/MATH 1021 3.00</a>;  <a href="#">SC/MATH 1131 3.00</a>;  <a href="#">SC/MATH 1200 3.00</a>;  <a href="#">SC/MATH 1300 3.00</a>;  <a href="#">SC/MATH 1310 3.00</a>;  <a href="#">SC/MATH 2022 3.00</a>;  <a href="#">SC/MATH 2030 3.00</a>;  <a href="#">SC/MATH 2310 3.00</a> (refer to program specifications below).</del></p> <p><del><b>Bachelor of Arts Statistics Programs</b></del></p> <p><del>All Honours BA degree candidates must comply with the general education requirements: 24 credits from humanities, modes of reasoning, natural science and social science (refer to the Faculty of Science Regulations Governing</del></p>	<p>The Department of Mathematics and Statistics offers Honours BA, Honours BSc degree programs in statistics. Students in the Honours BSc programs must take courses in foundational science.</p> <p><b>Bachelor of Arts Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>;  <a href="#">SC/MATH 1131 3.00</a>;  <a href="#">SC/MATH 1200 3.00</a>;  <a href="#">SC/MATH 1300 3.00</a>;  <a href="#">SC/MATH 1310 3.00</a>;  <a href="#">SC/MATH 2022 3.00</a>;  <a href="#">SC/MATH 2030 3.00</a>;  <a href="#">SC/MATH 2310 3.00</a>.</p>

<p>Undergraduate Degree Requirements section).</p> <p>All Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science Regulations Governing Undergraduate Degree Requirements section and, in so doing, must also satisfy the course, credit and standing requirements specified below.</p> <p><b>Bachelor of Arts Honours Programs (Honours BA)</b></p> <p>To graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>	<p><del>Undergraduate Degree Requirements section).</del></p> <p><del>All Honours BA degree candidates, in accordance with their declared programs, must comply with general regulations specified in the Faculty of Science Regulations Governing Undergraduate Degree Requirements section and, in so doing, must also satisfy the course, credit and standing requirements specified below.</del></p> <p><b>Bachelor of Arts Honours Programs (<del>Honours BA</del>)</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <u>SC/MATH 1021 3.00</u>; <u>SC/MATH 1131 3.00</u>; <u>SC/MATH 1200 3.00</u>; <u>SC/MATH 1300 3.00</u>; <u>SC/MATH 1310 3.00</u>; <u>SC/MATH 2022 3.00</u>; <u>SC/MATH 2030 3.00</u>; <u>SC/MATH 2310 3.00</u>.</p> <p><del>To graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</del></p>	
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Specialized Honours BA Program	Specialized Honours BA Program	Specialized Honours BA Program
<ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional credits in mathematics courses at the 4000 level with third digit 3;</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional MATH credits at 4000-level mathematics courses with third digit 3;</li> <li>• nine additional major MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses.</li> </ul>	<p>A. General education:</p> <ul style="list-style-type: none"> <li>• 24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional MATH credits at 4000-level mathematics courses with third digit 3;</li> <li>• nine additional major MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses.</li> </ul>

	<p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <ul style="list-style-type: none"> <li>● <del>LE/EECS 1560 3.00;</del></li> <li>● <del>the mathematics/statistics core (24 credits);</del></li> <li>● <del>SC/MATH 2001 3.00;</del></li> <li>● <del>SC/MATH 2131 3.00;</del></li> <li>● <del>SC/MATH 3001 3.00;</del></li> <li>● <del>SC/MATH 3131 3.00;</del></li> <li>● <del>SC/MATH 3132 3.00;</del></li> <li>● <del>SC/MATH 3330 3.00;</del></li> <li>● <del>SC/MATH 3430 3.00;</del></li> <li>● <del>SC/MATH 4330 3.00;</del></li> <li>● <del>SC/MATH 4730 3.00;</del></li> <li>● <del>SC/MATH 4939 3.00;</del></li> <li>● <del>three additional credits in mathematics courses at the 4000 level with third digit 3;</del></li> </ul>	<p>C. Outside-major electives: at least 18 non-MATH credits.</p> <p>D. Upper level: a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirement: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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<p><b>Honours BA Program</b></p> <ul style="list-style-type: none"> <li>• <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional credits in mathematics courses at the 4000 level with third digit 3.</li> </ul> <p><b>Honours Double Major BA Program</b></p> <p>The Honours BA program described above may be pursued jointly with any other Honours bachelor's degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. For further details on requirements, refer to the listings for specific Honours programs that may be pursued jointly with other Faculties.</p> <p>The Honours BA program in Statistics may be linked with any Honours Double Major interdisciplinary BA program in the Faculty of Liberal Arts and Professional Studies. Students must take at least 42 credits in mathematics and at least 36 credits in the interdisciplinary program. Courses taken to meet mathematics requirements cannot also be used to meet the</p>	<p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Program</b></p> <p><del><b>Honours BA Program</b></del></p> <ul style="list-style-type: none"> <li>• <del><a href="#">LE/EECS 1560 3.00</a>;</del></li> <li>• <del>the mathematics/statistics core (24 credits);</del></li> <li>• <del><a href="#">SC/MATH 2131 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 3131 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 3132 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 3330 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 3430 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 4330 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 4730 3.00</a>;</del></li> <li>• <del><a href="#">SC/MATH 4939 3.00</a>;</del></li> <li>• <del>three additional credits in mathematics courses at the 4000 level with third digit 3.</del></li> </ul> <p><del><b>Honours Double Major BA Program</b></del></p> <p>The Honours BA program described above may be pursued jointly with any other Honours bachelor's degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. For further details on requirements, refer to the listings for specific Honours programs that may be pursued jointly with other Faculties.</p> <p>The Honours BA program in Statistics may be linked with any Honours Double Major interdisciplinary BA program in the Faculty of Liberal Arts and Professional Studies. Students must take at least 42 credits in mathematics and at least 36</p>	<p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Program</b></p> <p>The Honours BA program described above may be pursued jointly with any other Honours bachelor's degree programs in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, the School of the Arts, Media, Performance &amp; Design, or the Lassonde School of Engineering. For further details on requirements, refer to the listings for specific Honours programs that may be pursued jointly with other Faculties.</p> <p>The Honours BA program in Statistics may be linked with any Honours Double Major interdisciplinary BA program in the Faculty of Liberal Arts and Professional Studies. Students must take at least 42 credits in mathematics and at least 36 credits in the interdisciplinary program. Courses taken to meet mathematics requirements cannot also be used to meet the requirements of the interdisciplinary program. Students in these interdisciplinary programs must take a total of at least 18 credits at the 4000 level, including at least 12 credits in mathematics and six credits in the interdisciplinary program.</p> <p>The Honours BA program described above may be pursued jointly with any Honours Minor bachelor's degree program in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty</p>
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<p>requirements of the interdisciplinary program. Students in these interdisciplinary programs must take a total of at least 18 credits at the 4000 level, including at least 12 credits in mathematics and six credits in the interdisciplinary program.</p> <p><b>Honours Major/Minor BA Program</b></p> <p>The Honours BA program described above may be pursued jointly with any Honours Minor bachelor's degree program in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, or the School of the Arts, Media, Performance &amp; Design. For further details on requirements, refer to the listings for specific Honours programs that may be pursued jointly with other Faculties.</p>	<p>credits in the interdisciplinary program. Courses taken to meet mathematics requirements cannot also be used to meet the requirements of the interdisciplinary program. Students in these interdisciplinary programs must take a total of at least 18 credits at the 4000 level, including at least 12 credits in mathematics and six credits in the interdisciplinary program.</p> <p><b>Honours Major/Minor BA Program</b></p> <p>The Honours BA program described above may be pursued jointly with any Honours Minor bachelor's degree program in the Faculty of Environmental Studies, the Faculty of Health, the Faculty of Liberal Arts and Professional Studies, the Faculty of Science, or the School of the Arts, Media, Performance &amp; Design. For further details on requirements, refer to the listings for specific Honours programs that may be pursued jointly with other Faculties.</p> <p><b>Honours Major BA Program</b></p> <p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><u>LE/EECS 1560 3.00;</u></li> <li><u>SC/MATH 2131 3.00;</u></li> <li><u>SC/MATH 3131 3.00;</u></li> <li><u>SC/MATH 3132 3.00;</u></li> <li><u>SC/MATH 3330 3.00;</u></li> <li><u>SC/MATH 3430 3.00;</u></li> <li><u>SC/MATH 4330 3.00;</u></li> <li><u>SC/MATH 4730 3.00;</u></li> <li><u>SC/MATH 4939 3.00;</u></li> <li>three additional MATH credits at 4000-level with third digit 3 for an overall total of at least 51 credits from major mathematics courses;</li> </ul>	<p>of Science, or the School of the Arts, Media, Performance &amp; Design. For further details on requirements, refer to the listings for specific Honours programs that may be pursued jointly with other Faculties.</p> <p><b>Honours Major BA Program</b></p> <p><b>A. General education:</b></p> <ul style="list-style-type: none"> <li>24 credits from the following areas: Humanities, Modes of Reasoning, Natural Science, Social Science. Of these 24 credits, students must complete the following minimum requirements: at least six credits from Humanities, Natural Science and Social Science (with no more than 9 credits in each counting towards the general education requirement).</li> </ul> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>the mathematics/statistics core (24 credits);</li> <li><u>LE/EECS 1560 3.00;</u></li> <li><u>SC/MATH 2131 3.00;</u></li> <li><u>SC/MATH 3131 3.00;</u></li> <li><u>SC/MATH 3132 3.00;</u></li> <li><u>SC/MATH 3330 3.00;</u></li> <li><u>SC/MATH 3430 3.00;</u></li> <li><u>SC/MATH 4330 3.00;</u></li> <li><u>SC/MATH 4730 3.00;</u></li> <li><u>SC/MATH 4939 3.00;</u></li> <li>three additional MATH credits at 4000-level with third digit 3 for an overall total of at least 51 credits from major mathematics courses;</li> </ul>
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	<p>than 9 credits in each counting towards the general education requirement).</p> <p><b>B. Major requirements:</b></p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <u>LE/EECS 1560 3.00;</u></li> <li>• <u>SC/MATH 2131 3.00;</u></li> <li>• <u>SC/MATH 3131 3.00;</u></li> <li>• <u>SC/MATH 3132 3.00;</u></li> <li>• <u>SC/MATH 3330 3.00;</u></li> <li>• <u>SC/MATH 3430 3.00;</u></li> <li>• <u>SC/MATH 4330 3.00;</u></li> <li>• <u>SC/MATH 4730 3.00;</u></li> <li>• <u>SC/MATH 4939 3.00;</u></li> <li>• three additional MATH credits at 4000-level with third digit 3 for an overall total of at least 51 credits from major mathematics courses;</li> <li>• the course requirements for the second major or the minor if the program is an Honours Double Major or Major/Minor.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits.</p> <p><b>D. Upper level:</b> a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 120 credits.</p> <p><b>F. Standing requirement:</b> to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point</p>	<ul style="list-style-type: none"> <li>• the course requirements for the second major or the minor if the program is an Honours Double Major or Major/Minor.</li> </ul> <p><b>C. Outside-major electives:</b> at least 18 non-MATH credits.</p> <p><b>D. Upper level:</b> a minimum of 36 credits must be at the 3000 level or above, including at least 18 credits at the 4000-level.</p> <p><b>E. Additional elective credits,</b> as required, for an overall total of 120 credits.</p> <p><b>F. Standing requirement:</b> to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p>
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	average of 5.00 (C+) over all courses completed.	
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<b>Honours Minor BA Program</b>	<b>Honours Minor BA Program</b>	<b>Honours Minor BA Program</b>
<p>The Honours Minor in statistics requires:</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>; <a href="#">SC/MATH 3330 3.00</a>; <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>; <a href="#">SC/MATH 4730 3.00</a>.</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1025 3.00</a> will be accepted in this program, but is not recommended.</li> <li>• Students who have taken <a href="#">SC/MATH 1530 3.00</a> or <a href="#">SC/MATH 1550 6.00</a> may not take <a href="#">SC/MATH 1300 3.00</a>, but will be considered to have credit for <a href="#">SC/MATH 1300 3.00</a> and may take <a href="#">SC/MATH 1310 3.00</a>.</li> <li>• In order to obtain an Honours BA (120 credits), students must take a total of at least 18 credits at the 4000 level, including at least 12 credits at the 4000 level in each Honours Major or Specialized Honours major.</li> </ul>	<p>The Honours Minor in statistics requires:</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>; <a href="#">SC/MATH 3330 3.00</a>; <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>; <a href="#">SC/MATH 4730 3.00</a>.</li> </ul> <p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• <del><a href="#">SC/MATH 1025 3.00</a> will be accepted in this program, but is not recommended.</del></li> <li>• <del>Students who have taken <a href="#">SC/MATH 1530 3.00</a> or <a href="#">SC/MATH 1550 6.00</a> may not take <a href="#">SC/MATH 1300 3.00</a>, but will be considered to have credit for <a href="#">SC/MATH 1300 3.00</a> and may take <a href="#">SC/MATH 1310 3.00</a>.</del></li> <li>• <del>In order to obtain an Honours BA (120 credits), students must take a total of at least 18 credits at the 4000 level, including at least 12 credits at the 4000 level in each Honours Major or Specialized Honours major.</del></li> </ul>	<p>The Honours Minor in statistics requires:</p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>; <a href="#">SC/MATH 3330 3.00</a>; <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>; <a href="#">SC/MATH 4730 3.00</a>.</li> </ul>

<p><b>Bachelor of Science Statistics Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><b>Bachelor of Science Honours Programs (Honours BSc)</b></p> <p><b>Specialized Honours BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> </ul>	<p><b>Bachelor of Science Statistics Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><del><b>Bachelor of Science Honours Programs (Honours BSc)</b></del></p> <p><b>Specialized Honours BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> </ul>	<p><b>Bachelor of Science Honours Programs</b></p> <p>The mathematics/statistics honours core is defined as (24 credits): <a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>; <a href="#">SC/MATH 1200 3.00</a>; <a href="#">SC/MATH 1300 3.00</a>; <a href="#">SC/MATH 1310 3.00</a>; <a href="#">SC/MATH 2022 3.00</a>; <a href="#">SC/MATH 2030 3.00</a>; <a href="#">SC/MATH 2310 3.00</a>.</p> <p><b>Specialized Honours BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2001 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3001 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> </ul>
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<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 4330 3.00</a>; <a href="#">SC/MATH 4730 3.00</a>; <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional credits from 4000-level mathematics courses with third digit 3;</li> <li>• nine additional credits from major (second digit not 5) mathematics courses, for a total of at least 66 credits from major mathematics courses.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Program</b></p> <p>An Honours Major in statistics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program, or with an</p>	<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 4330 3.00</a>; <a href="#">SC/MATH 4730 3.00</a>; <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional MATH credits at 4000-level mathematics courses with third digit 3;</li> <li>• nine additional major MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Program</b></p> <p>An Honours Major in statistics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program, or with an Honours Minor in another</p>	<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 4330 3.00</a>; <a href="#">SC/MATH 4730 3.00</a>; <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional MATH credits at 4000-level mathematics courses with third digit 3;</li> <li>• nine additional major MATH credits (second digit not 5), for a total of at least 66 credits from major mathematics courses.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits.</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed.</p> <p><b>Honours Major, Honours Double Major and Honours Major/Minor BSc Program</b></p> <p>An Honours Major in statistics may be taken standalone or combined with an Honours Major in another subject area in an Honours Double Major BSc degree program, or with an Honours Minor in another</p>
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<p>Honours Minor in another subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours BSc Major</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional credits from 4000-level mathematics courses</li> </ul>	<p>subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• <b>three additional MATH credits at 4000-level with third digit 3 for an overall total of at least</b></li> </ul>	<p>subject area in an Honours Major/Minor BSc degree program. Possible subject combinations are listed under Undergraduate Degree Programs in the Faculty of Science Undergraduate Degree and Certificate Programs section. Students should consult with a departmental advisor to plan their studies in order to meet the requirements for both majors and their prerequisites.</p> <p><b>Honours Major BSc Program</b></p> <p>A. General education:</p> <ul style="list-style-type: none"> <li>• non-science: 12 credits;</li> <li>• mathematics: satisfied within the major requirements;</li> <li>• computer science: <a href="#">LE/EECS 1560 3.00</a>;</li> <li>• foundational science: six credits from <a href="#">SC/BIOL 1000 3.00</a>, <a href="#">SC/BIOL 1001 3.00</a>, <a href="#">SC/CHEM 1000 3.00</a>, <a href="#">SC/CHEM 1001 3.00</a>, <a href="#">SC/PHYS 1410 6.00</a> or <a href="#">SC/PHYS 1010 6.00</a>.</li> </ul> <p>B. Major requirements:</p> <ul style="list-style-type: none"> <li>• the mathematics/statistics core (24 credits);</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3132 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>;</li> <li>• <a href="#">SC/MATH 4939 3.00</a>;</li> <li>• three additional MATH credits at 4000-level with third digit 3 for an overall total of at least</li> </ul>
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<p>with third digit 3 for an overall total of at least 51 credits from major mathematics courses;</p> <ul style="list-style-type: none"> <li>the course requirements for the second major or the minor if the program is an Honours Double Major or Major/Minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits .</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p>	<p><b>51 credits from major mathematics courses;</b></p> <ul style="list-style-type: none"> <li>the course requirements for the second major or the minor if the program is an Honours Double Major or Major/Minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits .</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1021 3.00*</a>; <a href="#">SC/MATH 1131 3.00</a>;</li> </ul>	<p>51 credits from major mathematics courses;</p> <ul style="list-style-type: none"> <li>the course requirements for the second major or the minor if the program is an Honours Double Major or Major/Minor.</li> </ul> <p>C. Science breadth: a total of 24 credits in science disciplines outside the major, of which at least three credits must be at the 2000 level or above. Nine of these 24 credits are satisfied by the above requirements. Satisfied if the second major or the minor is another science discipline.</p> <p>D. Upper level: a minimum of 42 credits must be at the 3000 level or above.</p> <p>E. Additional elective credits, as required, for an overall total of 120 credits .</p> <p>F. Standing requirements: to graduate in an Honours program requires successful completion of all Faculty requirements and departmental required courses and a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all courses completed, subject to the following exception. In addition, a minimum cumulative credit-weighted grade point average of 5.00 (C+) over all biology courses completed is required to graduate in an Honours Double Major program where biology is the other major.</p> <p><b>Honours Minor BSc Program</b></p> <ul style="list-style-type: none"> <li><a href="#">SC/MATH 1021 3.00</a>; <a href="#">SC/MATH 1131 3.00</a>;</li> </ul>
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<p><b>Honours Minor</b></p> <ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1021 3.00*</a>;</li> <li>• <a href="#">SC/MATH 1131 3.00</a>;</li> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>;</li> <li>• <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>.</li> </ul> <p><b>*Note:</b> <a href="#">SC/MATH 1025 3.00</a> will be accepted in this program, but is not recommended.</p>	<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>;</li> <li>• <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>.</li> </ul> <p><b>*Note:</b> <a href="#">SC/MATH 1025 3.00</a> will be accepted in this program, but is not recommended.</p>	<ul style="list-style-type: none"> <li>• <a href="#">SC/MATH 1300 3.00</a>;</li> <li>• <a href="#">SC/MATH 1310 3.00</a>;</li> <li>• <a href="#">SC/MATH 2022 3.00</a>;</li> <li>• <a href="#">SC/MATH 2030 3.00</a>;</li> <li>• <a href="#">SC/MATH 2131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3131 3.00</a>;</li> <li>• <a href="#">SC/MATH 3330 3.00</a>;</li> <li>• <a href="#">SC/MATH 3430 3.00</a>;</li> <li>• <a href="#">SC/MATH 4330 3.00</a>;</li> <li>• <a href="#">SC/MATH 4730 3.00</a>.</li> </ul>
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## Non-Major Modification Program Changes

1. Program: Specialized Honours BSc Neuroscience

2. Degree Designation:

Neuroscience - Psychology

Neuroscience - Kinesiology & Health Science

Neuroscience – Biology

3. Type of Modification: (Example: changes to degree / admission requirements)

Edit to calendar copy of first year continuation requirement information.

4. Effective Date: ASAP

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5. State what the changes are (Example: increase / decrease to the number of major credits)

To edit the calendar copy following phrase:

Continuation requirement: Once admitted, students must complete their first-year curriculum in their chosen pathway (Biology, Kinesiology & Health Science, or Psychology) with an overall grade point average (GPA) of at least 7.5 on at least 27 earned credits in order to continue into the second year of the program. From their second year onwards, students must attain a cumulative GPA of 6.0 (B) on 30 credits to continue in the program.

6. Provide the rationale for the proposed changes that is rooted in the program learning outcomes.

The rationale for this edit to the calendar copy is that although it was part of the program proposal (page 6, item E) approved by Senate June 2019 and Quality Assurance Council of Ontario August 2019, it was missed in appendix F that contained the details that would be placed in the undergraduate calendar. This program is direct entry with a delayed start whereby the students complete the first year in their home program. It is good to be transparent to students about this requirement.

7. Provide an updated mapping of the program requirements to the program learning outcomes to illustrate how the proposed requirements will support the achievement of program learning objectives.

No change to the program requirements. Although written in the program proposal it was not written into the calendar copy language in Appendix F.

8. If relevant, summarize the consultation undertaken with relevant academic units, including commentary on the impact of the proposed changes on other programs. Provide individual statements from the relevant program(s) confirming consultation and their support.

This change is being sent to both Faculty of Science and Faculty of Health curriculum committees for information and to Senate ASCP for approval (text provided and approved by ASCP at their September 11<sup>th</sup> meeting). No impact of the proposed changes on other programs.

9. <sup>80</sup> Describe any resource implications and how they are being addressed (e.g., through a reallocation of existing resources). If new/additional resources are required, provide a statement from the relevant Dean(s)/Principal confirming resources will be in place to implement the changes.

No new resources required.

10. Provide a summary of how students currently enrolled in the program will be accommodated.

If passed in a timely fashion this term, this information will make it into the calendar copy for the first cohort of students in Fall 2020.

11. Provide as an appendix a side-by-side comparison of the existing and proposed program requirements as they will appear in the Undergraduate or Graduate Calendar.

See next page.

Existing Calendar Copy (Change From):	Proposed Calendar Copy (Change To):
<p>Faculty of Health and Faculty of Science are described separately next</p> <p><b>Faculty of Health:</b></p> <p>Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.</p> <p>Continuation requirement: students must attain a cumulative grade point average of 6.00 (B) on 30 credits to continue in the program.</p> <p>Graduation requirement: all graduates must complete a total of at least 120 credits with a minimum overall cumulative grade point average of 6.00 (B).</p> <p>General education requirement: a minimum of 12 credits as follows:</p> <ul style="list-style-type: none"> <li>• six credits at the 1000 level in approved Faculty of Health general education or humanities categories approved by the Faculty of Liberal Arts &amp; Professional Studies</li> <li>• six credits at the 1000 level in approved Faculty of Health general education or social science categories approved by the Faculty of Liberal Arts &amp; Professional Studies</li> </ul> <p>Note 1: it is required that students complete the general education requirements above within their first 60 credits.</p> <p>Note 2: students may complete a maximum of 30 credits in general education, any additional credits not being used to fulfill general education may count toward electives.</p> <p>Note 3: general education requirements are satisfied by taking approved humanities or social science categories courses and Faculty of Health general education courses. For further information please visit <a href="http://health.info.yorku.ca/current-student-information/general-education-requirements/">http://health.info.yorku.ca/current-student-information/general-education-requirements/</a>.</p> <p>Basic science requirement: a minimum of 15 credits as follows:</p> <ul style="list-style-type: none"> <li>• six credits in mathematics selected from: <ul style="list-style-type: none"> <li>◦ SC/MATH 1505 6.00 or</li> <li>◦ SC/MATH 1013 3.00 and</li> <li>◦ SC/MATH 1014 3.00</li> </ul> </li> <li>• three credits selected from: <ul style="list-style-type: none"> <li>◦ LE/EECS 1520 3.00</li> </ul> </li> </ul>	<p>Faculty of Health and Faculty of Science are described separately next</p> <p><b>Faculty of Health:</b></p> <p>Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.</p> <p>Continuation requirement: <u>Once admitted, students must complete their first-year curriculum in their chosen pathway (Biology, Kinesiology &amp; Health Science, or Psychology) with an overall grade point average (GPA) of at least 7.5 on at least 27 earned credits in order to continue into the second year of the program. From their second year onwards, students must attain a cumulative GPA of 6.0 (B) on 30 credits to continue in the program.</u></p> <p>Graduation requirement: all graduates must complete a total of at least 120 credits with a minimum overall cumulative grade point average of 6.00 (B).</p> <p>General education requirement: a minimum of 12 credits as follows:</p> <ul style="list-style-type: none"> <li>• six credits at the 1000 level in approved Faculty of Health general education or humanities categories approved by the Faculty of Liberal Arts &amp; Professional Studies</li> <li>• six credits at the 1000 level in approved Faculty of Health general education or social science categories approved by the Faculty of Liberal Arts &amp; Professional Studies</li> </ul> <p>Note 1: it is required that students complete the general education requirements above within their first 60 credits.</p> <p>Note 2: students may complete a maximum of 30 credits in general education, any additional credits not being used to fulfill general education may count toward electives.</p> <p>Note 3: general education requirements are satisfied by taking approved humanities or social science categories courses and Faculty of Health general education courses. For further information please visit <a href="http://health.info.yorku.ca/current-student-information/general-education-requirements/">http://health.info.yorku.ca/current-student-information/general-education-requirements/</a>.</p>

- o LE/EECS 1540 3.00
- o LE/EECS 1570 3.00

- 6 credits

- o SC/CHEM 1000 3.00
- o SC/CHEM 1001 3.00

Major credits: students must complete a minimum of 64 credits in neuroscience major.

- SC/BIOL 1000 3.00
- SC/BIOL 1001 3.00
- HH/PSYC 1010 6.00
- NRSC 1001 1.00
- NRSC 2000 3.00
- NRSC 2100 3.00
- NRSC 2200 3.00
- HH/PSYC 2021 3.00 or HH/KINE 2050 3.00
- NRSC 3000 3.00
- HH/PSYC 3250 3.00
- HH/KINE 3650 3.00
- NRSC 4000 6.00 or NRSC 4002 6.00
- 12 credits selected from the list of courses in the chosen specialized stream
- 12 credits selected from the list of courses below to satisfy breadth requirement in the alternative specialized stream.

- o Molecular and Cellular Neuroscience Stream

- HH/KINE 3670 3.00
- SC/BIOL 4310 3.00
- SC/BIOL 4370 3.00
- HH/KINE 4230 3.00
- HH/KINE 4505 3.00

- o Behavioural and Cognitive Neuroscience Stream

- HH/PSYC 2220 3.00
- HH/PSYC 2260 3.00
- HH/PSYC 3140 3.00
- HH/PSYC 3265 3.00
- HH/PSYC 3270 3.00
- HH/PSYC 3495 3.00
- HH/PSYC 4080 6.00
- HH/KINE 4210 3.00
- HH/PSYC 4260 3.00
- HH/PSYC 4270 3.00
- HH/PSYC 4360 3.00

- o Systems Neuroscience Stream

- HH/KINE 3020 3.00
- SC/BIOL 4380 3.00
- HH/PSYC 4215 3.00
- HH/KINE 4225 3.00
- HH/KINE 4240 3.00
- HH/KINE 4500 3.00
- HH/PSYC 4380 3.00

Basic science requirement: a minimum of 15 credits as follows:

- six credits in mathematics selected from:
  - o SC/MATH 1505 6.00 or
  - o SC/MATH 1013 3.00 and
  - o SC/MATH 1014 3.00
- three credits selected from:
  - o LE/EECS 1520 3.00
  - o LE/EECS 1540 3.00
  - o LE/EECS 1570 3.00
- 6 credits
  - o SC/CHEM 1000 3.00
  - o SC/CHEM 1001 3.00

Major credits: students must complete a minimum of 64 credits in neuroscience major.

- SC/BIOL 1000 3.00
- SC/BIOL 1001 3.00
- HH/PSYC 1010 6.00
- NRSC 1001 1.00
- NRSC 2000 3.00
- NRSC 2100 3.00
- NRSC 2200 3.00
- HH/PSYC 2021 3.00 or HH/KINE 2050 3.00
- NRSC 3000 3.00
- HH/PSYC 3250 3.00
- HH/KINE 3650 3.00
- NRSC 4000 6.00 or NRSC 4002 6.00
- 12 credits selected from the list of courses in the chosen specialized stream
- 12 credits selected from the list of courses below to satisfy breadth requirement in the alternative specialized stream.

- o Molecular and Cellular Neuroscience Stream

- HH/KINE 3670 3.00
- SC/BIOL 4310 3.00
- SC/BIOL 4370 3.00
- HH/KINE 4230 3.00
- HH/KINE 4505 3.00

- o Behavioural and Cognitive Neuroscience Stream

- HH/PSYC 2220 3.00
- HH/PSYC 2260 3.00
- HH/PSYC 3140 3.00
- HH/PSYC 3265 3.00
- HH/PSYC 3270 3.00
- HH/PSYC 3495 3.00
- HH/PSYC 4080 6.00
- HH/KINE 4210 3.00
- HH/PSYC 4260 3.00
- HH/PSYC 4270 3.00

Upper-level credits: a minimum of 42 credits at the 3000 level or 4000 level, including 18 credits at the 3000 or 4000 level in the major with 12 credits at the 4000 level.

Required science credits outside the major: A minimum of nine credits in science disciplines outside the major, of which three credits must be at the 2000-level or above. Students in the major will be deemed to have fulfilled required science credits outside the major by completing at least 12 credits in the alternative streams.

Electives: additional elective credits as required for an overall total of at least 120 credits. Elective credits may be used to fulfill science and upper-level credits.

### Faculty of Science:

Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.

Continuation requirement: students must attain a cumulative grade point average of 6.00 (B) on 30 credits to continue in the program.

Graduation requirement: all graduates must complete the home Faculty requirements, a total of at least 120 credits with a minimum overall cumulative grade point average of 6.00 (B).

General education requirement: a minimum of 12 credits from two different areas of study, including at least three credits from each area, subject to restrictions from the Faculty of Science. For the purpose of this regulation “different area” means offered by a different academic unit such as divisions, departments or Faculties.

For further information please visit:  
<http://science.yorku.ca/current-students/my-degree/programrequirements/general-education/>

Basic science requirement: a minimum of 15 credits as follows:

- six credits in mathematics selected from:
  - SC/MATH 1505 6.00 or

- ◻ HH/PSYC 4360 3.00
- Systems Neuroscience Stream
  - ◻ HH/KINE 3020 3.00
  - ◻ SC/BIOL 4380 3.00
  - ◻ HH/PSYC 4215 3.00
  - ◻ HH/KINE 4225 3.00
  - ◻ HH/KINE 4240 3.00
  - ◻ HH/KINE 4500 3.00
  - ◻ HH/PSYC 4380 3.00

Upper-level credits: a minimum of 42 credits at the 3000 level or 4000 level, including 18 credits at the 3000 or 4000 level in the major with 12 credits at the 4000 level.

Required science credits outside the major: A minimum of nine credits in science disciplines outside the major, of which three credits must be at the 2000-level or above. Students in the major will be deemed to have fulfilled required science credits outside the major by completing at least 12 credits in the alternative streams.

Electives: additional elective credits as required for an overall total of at least 120 credits. Elective credits may be used to fulfill science and upper-level credits.

### Faculty of Science:

Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.

Qualifying Period: once admitted students will enter a qualifying period. Depending on their pathway (Biology, Kinesiology & Health Science, or Psychology) students must complete their first-year curriculum with an overall grade point average (GPA) of at least 7.5 on at least 27 earned credits at the end of first year. Successful completion of the qualifying period requirements will allow students to continue in the BSc Specialized Honour neuroscience program. Students proceeding in the program after the qualifying period are required to maintain the

- o SC/MATH 1013 3.00 and
  - o SC/MATH 1014 3.00
  - three credits selected from:
    - o LE/EECS 1520 3.00
    - o LE/EECS 1540 3.00
    - o LE/EECS 1570 3.00
  - 6 credits
    - o SC/CHEM 1000 3.00
    - o SC/CHEM 1001 3.00
- Major credits: students must complete a minimum of 64 credits in neuroscience major.
- SC/BIOL 1000 3.00
  - SC/BIOL 1001 3.00
  - HH/PSYC 1010 6.00
  - NRSC 1001 1.00
  - NRSC 2000 3.00
  - NRSC 2100 3.00
  - NRSC 2200 3.00
  - HH/BIOL 2060 3.00
  - NRSC 3000 3.00
  - HH/PSYC 3250 3.00
  - HH/KINE 3650 3.00
  - NRSC 4000/4002 6.00
  - 12 credits selected from the list of courses in the chosen specialized stream
  - 12 credits selected from the list of courses below to satisfy breadth requirement in the alternative specialized stream.
    - o Molecular and Cellular Neuroscience Stream
      - HH/KINE 3670 3.00
      - SC/BIOL 4310 3.00
      - SC/BIOL 4370 3.00
      - HH/KINE 4230 3.00
      - HH/KINE 4505 3.00
    - o Behavioural and Cognitive Neuroscience Stream
      - HH/PSYC 2220 3.00
      - HH/PSYC 2260 3.00
      - HH/PSYC 3140 3.00
      - HH/PSYC 3265 3.00
      - HH/PSYC 3270 3.00
      - HH/PSYC 3495 3.00
      - HH/PSYC 4080 6.00
      - HH/KINE 4210 3.00
      - HH/PSYC 4260 3.00
      - HH/PSYC 4270 3.00
      - HH/PSYC 4360 3.00
    - o Systems Neuroscience Stream
      - HH/KINE 3020 3.00
      - SC/BIOL 4380 3.00
      - HH/PSYC 4215 3.00
      - HH/KINE 4225 3.00
      - HH/KINE 4240 3.00

continuation GPA requirement.

Continuation requirement: students must attain a cumulative grade point average of 6.00 (B) on 30 credits to continue in the program.

Graduation requirement: all graduates must complete the home Faculty requirements, a total of at least 120 credits with a minimum overall cumulative grade point average of 6.00 (B).

General education requirement: a minimum of 12 credits from two different areas of study, including at least three credits from each area, subject to restrictions from the Faculty of Science. For the purpose of this regulation “different area” means offered by a different academic unit such as divisions, departments or Faculties.

For further information please visit:

<http://science.yorku.ca/current-students/my-degree/programrequirements/general-education/>

Basic science requirement: a minimum of 15 credits as follows:

- six credits in mathematics selected from:
  - o SC/MATH 1505 6.00 or
  - o SC/MATH 1013 3.00 and
  - o SC/MATH 1014 3.00
- three credits selected from:
  - o LE/EECS 1520 3.00
  - o LE/EECS 1540 3.00
  - o LE/EECS 1570 3.00
- 6 credits
  - o SC/CHEM 1000 3.00
  - o SC/CHEM 1001 3.00

Major credits: students must complete a minimum of 64 credits in neuroscience major.

- SC/BIOL 1000 3.00
- SC/BIOL 1001 3.00
- HH/PSYC 1010 6.00
- NRSC 1001 1.00
- NRSC 2000 3.00
- NRSC 2100 3.00
- NRSC 2200 3.00
- HH/BIOL 2060 3.00
- NRSC 3000 3.00
- HH/PSYC 3250 3.00

- HH/KINE 4500 3.00
- HH/PSYC 4380 3.00

Science Breadth: a total of 24 credits in science disciplines outside the major, of which the three credits must be at the 2000 level or above. 15 of the 24 credits are satisfied by the General Education requirement.

Students in the major will be deemed to have fulfilled required science credits outside the major by completing at least 12 credits in the alternate streams.

Upper-level credits: a minimum of 42 credits at the 3000 level or 4000 level, including 18 credits at the 3000 or 4000 level in the major with 12 credits at the 4000 level.

Additional Elective Credits: additional elective credits as required for an overall total of at least 120 credits. Elective credits may be used to fulfill science and upper-level credits.

- HH/KINE 3650 3.00
- NRSC 4000/4002 6.00
- 12 credits selected from the list of courses in the chosen specialized stream
- 12 credits selected from the list of courses below to satisfy breadth requirement in the alternative specialized stream.

o Molecular and Cellular Neuroscience Stream

- HH/KINE 3670 3.00
- SC/BIOL 4310 3.00
- SC/BIOL 4370 3.00
- HH/KINE 4230 3.00
- HH/KINE 4505 3.00

o Behavioural and Cognitive Neuroscience Stream

- HH/PSYC 2220 3.00
- HH/PSYC 2260 3.00
- HH/PSYC 3140 3.00
- HH/PSYC 3265 3.00
- HH/PSYC 3270 3.00
- HH/PSYC 3495 3.00
- HH/PSYC 4080 6.00
- HH/KINE 4210 3.00
- HH/PSYC 4260 3.00
- HH/PSYC 4270 3.00
- HH/PSYC 4360 3.00

o Systems Neuroscience Stream

- HH/KINE 3020 3.00
- SC/BIOL 4380 3.00
- HH/PSYC 4215 3.00
- HH/KINE 4225 3.00
- HH/KINE 4240 3.00
- HH/KINE 4500 3.00
- HH/PSYC 4380 3.00

Science Breadth: a total of 24 credits in science disciplines outside the major, of which the three credits must be at the 2000 level or above. 15 of the 24 credits are satisfied by the General Education requirement.

Students in the major will be deemed to have fulfilled required science credits outside the major by completing at least 12 credits in the alternate streams.

Upper-level credits: a minimum of 42 credits at the 3000 level or 4000 level, including 18 credits at the 3000 or 4000 level in the major with 12 credits at the 4000 level.

	<p>Additional Elective Credits: additional elective credits as required for an overall total of at least 120 credits. Elective credits may be used to fulfill science and upper-level credits.</p>
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# Changes to Existing Course

Faculty:

Department:

STS/NATS

Date of Submission:

September 2019

Course Number:

NATS 1795

Effective Session:

2020/2021

Course Title:

The Physics of Time and Timekeeping

Type of Change:

- |                                     |   |                          |   |
|-------------------------------------|---|--------------------------|---|
| <input type="checkbox"/>            | in pre-requisite(s)/co-requisite(s)                       | <input type="checkbox"/> | in cross-listing                        |
| <input type="checkbox"/>            | in course number/level                                    | <input type="checkbox"/> | in degree credit exclusion(s)           |
| <input type="checkbox"/>            | in credit value   | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input checked="" type="checkbox"/> | in title (max. 40 characters for short title)             | <input type="checkbox"/> | in course format/mode of delivery *     |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course                    |
| <input type="checkbox"/>            | other (please specify):                                   | <input type="checkbox"/> |   |

Change From:

To:

The Physics of Time and Time Keeping

The concept of time has intrigued thinkers from all ages. The impact of measuring and marking time intervals on the development of human culture, and our understanding of the world around us, cannot be understated. The drive to measure and understand time led ancient peoples to a very sophisticated knowledge of the sky; from that knowledge emerged accurate calendars, as well as mathematics itself. We will look at how changing concepts of time and the technological accuracy of measuring time drove fundamental changes in physics, and deepened our understanding of the world around us. **This course examines the history of physics through the lens of time.** The first half of the course covers timekeeping methods, including the sky as a clock, mechanical clocks, and quartz and atomic clocks. The second half of the course focuses on modern issues of time including time perception, Einstein's revolutionary discoveries on the relative nature of time, and cosmic time. NCR Note: This course is not open to any student who has passed or is taking SC/PHYS 1010 6.00, SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00.

The Nature of Time

The concept of time has intrigued thinkers from all ages. The impact of measuring and marking time intervals on the development of human culture, and our understanding of the world around us, cannot be understated. The drive to measure and understand time led ancient peoples to a very sophisticated knowledge of the sky; from that knowledge emerged accurate calendars, as well as mathematics itself. We will look at how changing concepts of time and the technological accuracy of measuring time drove fundamental changes in physics, and deepened our understanding of the world around us. The first half of the course covers timekeeping methods, including the sky as a clock, mechanical clocks, and quartz and atomic clocks. The second half of the course focuses on modern issues of time including time perception, Einstein's revolutionary discoveries on the relative nature of time, and cosmic time. NCR Note: This course is not open to any student who has passed or is taking SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, **SC/PHYS 1011 3.00, SC/PHYS1012 3.00, SC/PHYS1411 3.00, SC/PHYS1412 3.00, SC/PHYS 1421 3.00, SC/PHYS1422 3.00**

**Rationale:**

Course evaluations for this course have been positive, yet enrolment remains low. In an effort to improve enrolment, and retain the course, we would like to change the course name to one that may be more inviting to students and remove one unclear sentence from the course description.

We only have a few physics focused Natural Science course offerings and it is essential that we retain those we have to maintain a course breadth that encompasses as many aspects of science as possible.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

\* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

# Changes to Existing Course

**Faculty:**

**Department:**

STS/NATS

**Date of Submission:**

September 2019

**Course Number:**

NATS 1830

**Effective Session:**

2020/2021

**Course Title:**

Mysteries of Everyday Materials

**Type of Change:**

- |                                     |   |                          |   |
|-------------------------------------|---|--------------------------|---|
| <input type="checkbox"/>            | in pre-requisite(s)/co-requisite(s)                       | <input type="checkbox"/> | in cross-listing                        |
| <input type="checkbox"/>            | in course number/level                                    | <input type="checkbox"/> | in degree credit exclusion(s)           |
| <input type="checkbox"/>            | in credit value   | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/>            | in title (max. 40 characters for short title)             | <input type="checkbox"/> | in course format/mode of delivery *     |
| <input type="checkbox"/>            | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course                    |
| <input checked="" type="checkbox"/> | other (please specify): NCR update                        | <input type="checkbox"/> |   |

**Change From:**

Course Credit Exclusions:

SC/NATS 1820 6.00. No credit will be retained if this course is taken after successful completion of SC/CHEM 1000 3.00 or SC/CHEM 1001 3.00. Not open to any students enrolled in the Chemistry program.

**To:**

Course Credit Exclusions:

SC/NATS 1820 6.00. No credit will be retained for any student who has passed or is taking SC/CHEM 1000 3.00 or SC/CHEM 1001 3.00. Not open to any students enrolled in a Chemistry program.

**Rationale:**

<sup>90</sup>

Updating NCR notes to address evolving student enrolment.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

\* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

## Grad across the Faculties

Local decision-making facility alongside FGS and Senate pan-university oversight

Much planning has been underway this year to coordinate graduate studies across the Faculties at York, adapting the recommendations of the IIRP Working Group on Graduate Studies. For its part, FGS has been reorganising internally, identifying the more cumbersome of existing procedures; redesigning work-flow; upgrading databases and e-services for managing the student record (including new solutions for funding packages, awards, petitions and appeals, forms, etc.); and focusing on increasing the value and utility of what we provide to and with other units at York in support of graduate students and faculty.

Pan-university oversight of graduate standards as well as insight for policy development are two of FGS's primary roles. In the coming months, FGS seeks to create better academic and creative resources for program development, accurate maintenance of the student record (academic and funding), and coherent and ethical policy development aligned with Senate policy.

This preamble means to signal that in the SHARP era and in concert with the growth of grad studies at York, FGS is evolving. We remain a Faculty with a Council for pan-university coordination, discussion, and policy development; and with the help of some crucial digital processes to supplement our in-person role, we aim to be every Faculty's ally in the development of graduate studies at York.

### Changes for 2019-20

#### **1: New routes of curriculum approval and work-flow by Winter 2020.**

Current Process: graduate program curriculum changes of existing courses, new course proposals, and program requirements are created on the appropriate FGS forms (paper or PDF) and sent via [fgsgovern@yorku.ca](mailto:fgsgovern@yorku.ca) to the Academic Planning and Policy Committee (APPC) for collegial review and eventual approval. From APPC, motions are sent to FGS Council, which are then sent to Senate ASCP for further review, and then to Senate.<sup>1</sup>

Program > Faculty AD Grad > FGS APPC > FGS Council > ASCP > Senate

Back to Program for revision  possible revision 

**Change #1:** Kuali is the product name of York's new digital software and searchable database for curriculum, in which new course proposals can be created and existing courses altered. Pan-university grad standards are embedded already in the online curriculum forms and development process. With Kuali, *graduate programs will be able to benefit from FGS APPC consultation throughout the developmental process*, thus removing the APPC-Program loop-back, APPC-FGS Council, and FGS Council-ASCP routing, which takes several months.

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<sup>1</sup> For the creation of entirely new graduate programs, consult the YUQAP process:  
[http://yuqap.info.yorku.ca/files/2014/11/YUQAP\\_August\\_2013.pdf](http://yuqap.info.yorku.ca/files/2014/11/YUQAP_August_2013.pdf)

Implementing Kuali to all Faculties will take much of F/W 2019-20. As a pan-university unit, FGS will be one of the first units to begin a gradual phase-in, starting in Fall 2019. **As of October 2019**, all curriculum materials sent to FGS on existing forms will be input to Kuali by FGS, updating the Kuali YorkU Course Database and advancing the digital change-over. However, any units already using Kuali (some Faculties at York have been part of the Kuali process since day one) will be able to access a fully digital process: create the change in Kuali and APPC consultation can occur online over a matter of days.

Not simply as insurance for curriculum developers, Programs, and Faculties new to Kuali, but also as an ongoing service, FGS face-to-face consultation for program development will remain available always. The Academic Affairs team (AD Academic, Academic Affairs Officer) and APPC can be particularly helpful when programs are brainstorming new degree and course options. Concerning new program approvals, FGS is already integrated into YUQAP, including representation on Senate's Joint Sub-committee on Quality Assurance.

[http://yuqap.info.yorku.ca/files/2014/11/YUQAP\\_August\\_2013.pdf](http://yuqap.info.yorku.ca/files/2014/11/YUQAP_August_2013.pdf)

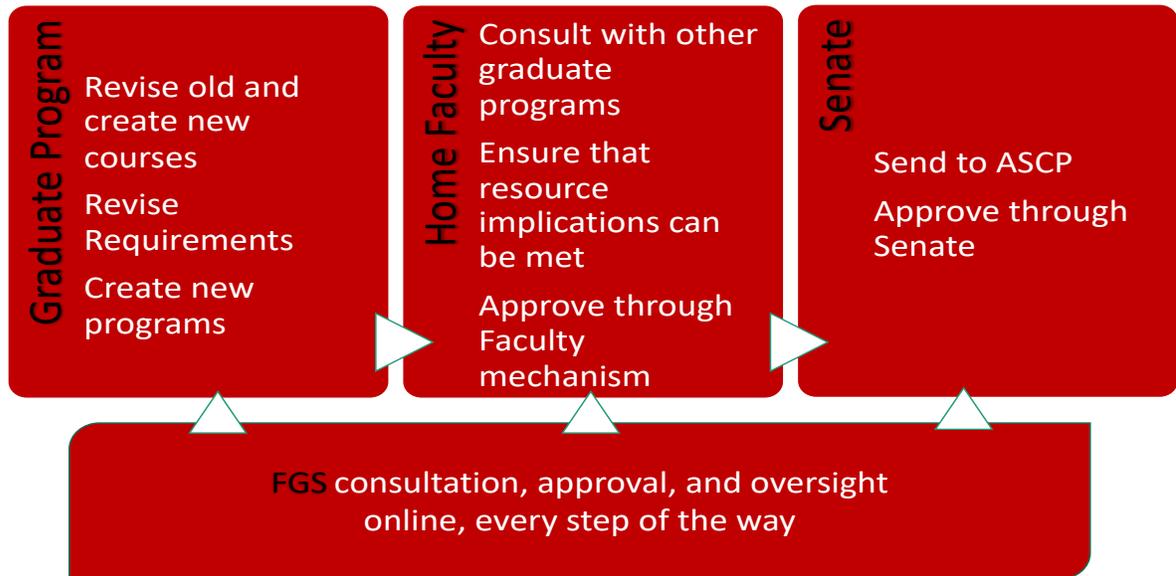
#### Change #2:

With pan-university grad standards embedded in Kuali and speedy online APPC consultation, FGS and anchor Faculties will have an effective and efficient process in place to enable local-level collaboration, decision-making, and approval. Since the disciplinary expertise and academic resourcing of graduate studies exists in the anchor Faculties, having local-level approval mechanisms is fundamental. Most Faculties already have both an Associate Dean responsible for graduate programs and a mechanism for graduate program coordination; for instance, a Faculty Council committee, a GPD Caucus with the Associate Dean Grad, or proportionate grad program representation on Faculty planning committees.

**During F/W 2019-20, those anchor Faculties which have not yet decided upon an appropriate mechanism for local-level approval will need to do so.** Deans, ADs Grad, GPDs and others will spearhead this work with GPDs and Grad Studies members in the anchor Faculty. Any changes to a Faculty Council (e.g., creation of a formal Grad Committee) must be approved by the anchor Faculty, communicated to FGS, and sent to Senate for approval. Senate approvals can proceed over F/W 2019-2020. Senate Exec and the Secretariat's Office can help with any questions pertaining to Faculty Council changes, if required.

**Programs will continue to use the existing curriculum change and development process until their local level mechanism is functional.** Those Faculties which already have a grad discussion and approval mechanism will be able to benefit from online FGS APPC consultation, the ease of online work-flow, local-level anchor Faculty approval, and direct submission to Senate ASCP immediately, once Kuali is functional in their Faculty.

New Work-Flow by end of Winter 2020 (and progressively as Quali unfolds):



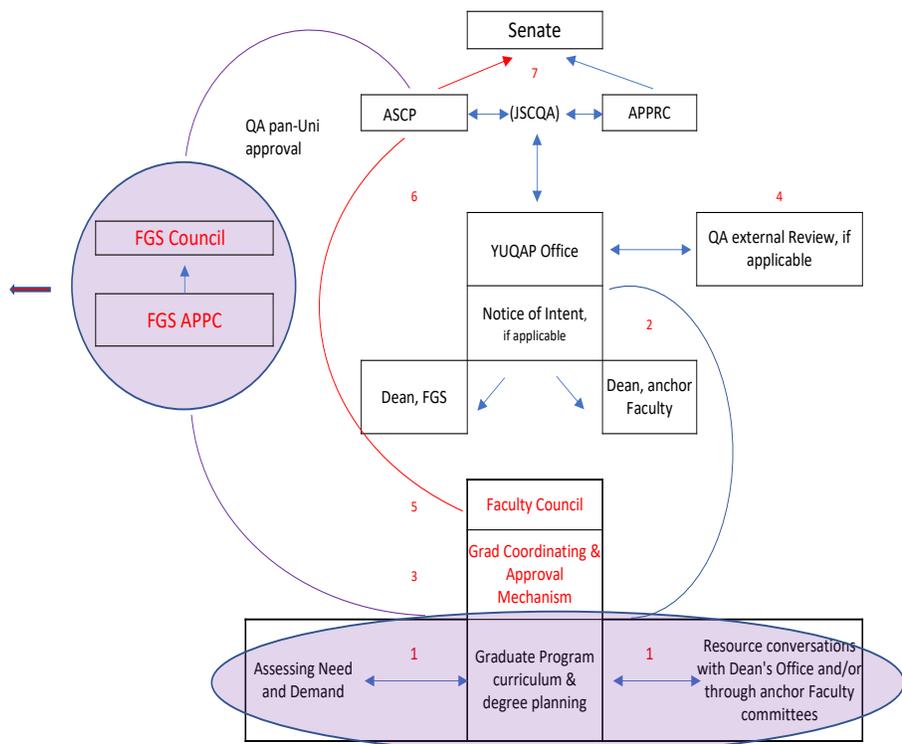
**FGS Academic Affairs**

**APPC**

- ❖ pan-university Academic Policy development insight & oversight
- ❖ Program curriculum consultation & development support
- ❖ Coordination with ASCP & YUQAP

**Council**

- ❖ Membership representing Faculties, programs, students & members at large
- ❖ Pan-university grad studies discussion forum, including cross-Faculty, interdisciplinary grad program matters
- ❖ Policy amendment and approval en route to Senate



- 1 Anchor Faculty Program planning coordination
- 2 YUQAP: NOI to alert Deans officially of a new Program, major mod, etc.
- 3 Faculty Council Grad Cttee: initial QA approval
- 4 External Review for New Programs
- 5 Faculty Council Approval
- 6 ASCP approval. Shared with APPRC (JSCQA) for programs
- 7 Senate approval

## Timeline of Events

2019

### Summer

- Dean's Offices consult with graduate programs about the type of anchor Faculty consultation and approval mechanism desired
- Assessment of staffing needs
- FGS/UIT redevelopment of the Grad Adjudication System (wordpress) for graduate funding packages and tracking
- OIPA/FGS/UIT redevelopment of ARMS and other programs for better integration with the Grad Adjudication System (wordpress), SIS, and payroll

### Fall

- Formal process of establishing in-Faculty grad curriculum approval mechanism to coordinate with anchor Faculty Council
- Continued implementation of Kualu across the university
- Current FGS process in place, while Kualu rolls out and anchor Faculty coordination develops

2020

### Winter

- Senate approval of any Faculty changes of structure & member representation, if necessary
- By the end of Winter 2020, Kualu projected to be implemented fully
- FGS and local-level, anchor Faculty approval coordinated

## 'York University: Globally Minded and Globally Engaged'

### Towards an integrated strategy and framework for internationalization and global engagement

#### Issue Paper for Community Consultation

#### Executive Summary

Internationalization is proclaimed as “one of the most significant drivers facing the modern university” (Taylor, 2004, p. 168) and as “one of the major forces impacting and shaping higher education in the 21<sup>st</sup> century” worldwide (Knight, 2008, p. ix). Higher education institutions around the world and in Canada are rapidly adopting strategic approaches towards internationalization to advance their core mission; reflect their institutional values; and enhance their research and scholarship, teaching and learning, and service and capacity building.

York University has achieved major strides in internationalizing its campus, teaching and learning experience, research and scholarship and community service. York's global reach and engagement through its faculty, staff, students, alumni and partners is wide-ranging. Building on this rich tradition of global and local connectivity, we are now in a position of strength and opportunity to consider the next phase of internationalization. Hence, the President's Council on Internationalization and Global Engagement has been tasked with leading this initiative. Guided by York's principles of social justice, diversity, inclusion and sustainability, the Council identified the following four emerging themes and value propositions of internationalization based on their understanding of York's achievements and strengths, challenges and risks, and untapped opportunities: 1) global outlook and fluency; 2) international student experience; 3) global nature of research, grand challenges and talent development; and 4) global reach and profile.

This “Issue Paper” is intended to initiate a campus-wide consultation process with the goal of developing an integrated institutional strategic plan that lays out York University's vision for building on our current global engagement and initiatives, sets goals for further internationalization, and ensures York's place as a locally and globally engaged university. The next phase will invite the University community to participate in a process of defining and determining our core priorities. This process will provide a framework for continued engagement and success in the local and global arenas.

## **'York University: Globally Minded and Globally Engaged'**

### **Towards an integrated strategy and framework for internationalization and global engagement** **Issue Paper for Community Consultation**

#### **Introduction**

The President's Council on Internationalization and Global Engagement (the Council) is embarking on the next phase in the development of an integrated institutional international strategic plan (the Plan). Over the next five months, the Council will engage in a series of community consultations to develop the Plan.

President Lenton identified ethical, inclusive internationalization and global engagement among her top priorities and convened the Council in May 2019. The Council is comprised of members from all eleven Faculties and the related central administrative units (Research, Students, Advancement, YUELI, York International). The Plan is intended to lay out York University's vision for building on our current global engagement and initiatives, set goals for further internationalization, and ensure York's place as a locally and globally engaged university. It is meant to be comprehensive, inclusive of academic initiatives together with international and intercultural learning experiences (at home and abroad), sustainable research, education, capacity building collaborations and partnerships leading to bi-directional learning, knowledge transfer and reverse innovation, enhancing the experience of international students, global reach and profile, and related activities and innovation magnifying our impact many times over. The Plan will also identify areas of priority to support the advancement of the strategy.

This issue paper is the result of the committee's deliberations and is developed to seek input from the York Community. By engaging in this process, and reflecting on our values and existing activities, the York University Community has an opportunity to build on its strengths, create a distinct vision, and expand opportunities for students, faculty, and staff to contribute towards York's local and global impact.

#### **York University Context**

York University's vision as a community-engaged university committed to the social, economic, environmental, cultural and well-being of society reflects our understanding of the interconnection of global and local issues. York's global reach and engagement of faculty, staff, students, alumni and partners is wide ranging. Our faculty and scholars are connected through their formal and informal academic activities including organized research units, departments and interdisciplinary research centres specializing in regions, diaspora communities, languages as well as partnerships with over 300 institutions in more than 60 countries around the world. Our students can take part in local and global experiential programs and study abroad at over 150 institutions. York University is home to approximately 8,500 international students from over 178 countries. These students bring remarkable traditions, histories and perspectives to our community, and to the Greater Toronto Area. The University is situated in one of the world's most diverse and innovative ecosystems in the Greater Toronto Region, with a global presence through the Schulich School of Business and the Faculty of Environmental Studies respectively in Hyderabad, India and Las Nubes, Costa Rica.

As one of Canada's leading universities, York University promotes access, excellence, and incorporates principles of social justice, diversity, inclusion, and sustainability in all its endeavours. York University draws on a rich tradition of global and local connectivity to foster creativity, innovation and global outlook, and an open-minded and community-engaged approach to teaching, scholarship and research. This has largely been organic, led by departments, Faculties, individual faculty members, and students, and has resulted in benefits to the various communities. We

also recognize the Faculties at the University are at varying stages in their internationalization and global engagement efforts.

Today, we are in a position of strength and opportunity to consider the next phase of internationalization. There is a desire to provide greater support for student mobility and experiential learning as well as globally-oriented learning at home to support the development of a global outlook and fluency of our students. Our rising international student population makes it imperative to enhance their experience on campus. Expanding research engagement is key to contributing to global challenges and to having an increased impact on the global stage. There exist opportunities to leverage faculty members' research connections to enhance student learning and research opportunities abroad, to strengthen the quality of the academic partnerships, to create research networks and clusters of excellence, to diversify the recruitment base, and to engage in meaningful local and global opportunities by leveraging our location, diversity of students, faculty, staff, alumni, and the local and diaspora communities.

## Global Context

In an increasingly interconnected and complex world, infusing global perspectives into decision-making and collaboration across borders are vital to humanity. As this need grows, global challenges such as climate change, access to healthcare for all, the impact of technology, trade and economic integration, and the alarming rise in trends such as exclusionary nationalism, xenophobia, polarization and inequality underscore the need for universities to contribute to finding novel solutions now more than ever. Many of the challenges are now part of the United Nations Sustainable Development Goals and need urgent attention. It is therefore critical that universities continue to commit to the ways in which internationalization and global engagement can serve to advance their core mission of teaching, research, and service for the public good. Universities have the responsibility to lead and contribute to addressing complex socio-economic, environmental, humanitarian and political problems that are global in nature, even when their effects manifest locally.

## Canada and Ontario Context

In 2013, the Government of Canada formalized international education as a priority through the development of a pan-Canadian strategy to grow the number of international students studying in Canada. Much of the emphasis has been in the development of Brand Canada through the 'EduCanada' campaign for recruitment of international students and acquisition of skilled labour. This combined with institutional efforts and recent geopolitical events has resulted in double digit growth (16.25%) of international students studying in Canada in 2018, and an overall increase of 73% since 2014 (ICEF, 2019). However, such developments overlap in Ontario with provincial rules and internal university funding priorities in such a way that Ontario and/or York funding for graduate students to come to York is severely limited and, in some disciplines, virtually non-existent. One can reasonably assume that many top students from outside Canada will choose Canadian universities that are able to provide meaningful financial assistance. Given the centrality of masters and doctoral work to any expansive intellectual mission of leading universities, this represents a major barrier to York's present capacity to globalize.

Increasingly, the federal government is linking immigration and international trade, and international students serve as the pipeline for the next generation of immigrants to fulfill labour market needs. This recent policy change expands the role of universities beyond providing international education and experiences.

In recent months, the federal government is prioritizing the development of global outlook and fluency for Canadian students and has set aside resources to launch an outbound mobility program. Such focus on outward mobility does not have a concomitant focus on inward mobility of graduate students, other than an encouragement to attract self-supporting students from outside Canada. Further, tri-councils and other strategic research funding initiatives have been developed that require international collaborators as many of the issues facing the world today require collaboration and cooperation beyond national borders.

In Ontario, shrinking government resources over the last twenty years are leading the higher education sector to develop alternatives to maintain the high quality of education, research and service endeavours of the institutions. It is uncertain where the current provincial government stands with respect to Ontario's international education strategy.

## Higher Education Context

Most higher education systems, particularly those in the industrialized world, are rapidly internationalizing and Canada is no exception. Once mostly organic, it is now institutionally supported and championed as institutions recognize it as a key way to advance their core mission. Increasingly, internationalization is an institutional imperative and is moving beyond student mobility and academic exchanges. Today, internationalization of higher education touches on all aspects of the university's mission from scholarship and research to teaching and learning, to service and capacity building, crossing a range of inter-related and inter-connected activities, dimensions and portfolios. Universities are in various stages of exploring how best to integrate and coordinate their internationalization and global engagement efforts to align and integrate policies, programs and initiatives to position themselves as 'globally minded and globally engaged' while recognizing the approach must be driven at the local/university level in the sense both of 'bottom up' and 'top steered and supported'.

## Definitions

The most commonly used definition of Internationalization was developed by Jane Knight, an Adjunct Professor at the Comparative International Development Education Centre (CIDECE) of the Ontario Institute for Studies in Education (OISE) at the University of Toronto. According to Knight, internationalization "at the national, sector, and institutional levels is defined as the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education" (Knight, 2015).

She further elaborates on the dimensions: "International, intercultural, and global dimension are three terms that are intentionally used as a triad. International is used to describe the relationship between and among nations, cultures or countries. Today, internationalization is also about relating to the diversity of cultures that exist within countries, communities, and institutions, and so intercultural is used to address this dimension. Finally, global, a controversial and value-laden term these days, is included to provide the sense of worldwide scope. These three terms complement each other and together depict the richness in the breadth and depth of internationalization" (Knight, 2015).

"The concept of integration is specifically used to denote the process of infusing or embedding the international and intercultural dimension into policies and programs to ensure that the international dimension remains central, not marginal, and is sustainable. The concepts of purpose, function, and delivery have been carefully chosen and are meant to be used together. Purpose refers to the overall role and objectives that higher education has for a country or the mission of an institution. Function refers to the primary elements or tasks that characterize a national postsecondary system or individual institution. Usually these include teaching, research, and service to society" (Knight, 2015).

In 2015, the European Parliamentary Study on Internationalization of Higher Education revised Jane Knight's commonly accepted 2004 definition of internationalization and defined it 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*" (de Wit, Hunter & Egron-Polak, 2015, p. 29).

More recently, transnational has arisen as an adjunct to international and global: it helps focus on relations "beyond" the state – relations that may interact with the international as interstate but that often bypass or transcend the interstate -- while also not being limited to relations that are "between or among" state-associated nation, country, culture – in that civil society, corporate, relations are also central.

The Center for Internationalization and Global Engagement (CIGE) of the American Council on Education (ACE) defines comprehensive internationalization as “a strategic, coordinated process that seeks to align and integrate policies, programs, and initiatives to position colleges and universities as more globally oriented and internationally connected institutions” (American Council on Education, 2019).

## Challenges, Risks and Opportunities

Forces of internationalization, transnationalization, and globalization encourage competition and open channels for cooperation and collaboration while also presenting challenges, risks and opportunities. Among them are competition for talent and diversity of that talent, the impact of rankings and reputation, geopolitical instability, rapid advances in transformative technology, the need to prepare graduates for a rapidly shifting global knowledge economy and new world of work while maintaining the core university mission, meeting the needs and leveraging the diverse talents of international students, and the increasingly global nature of research projects and networks.

Internationalization can also be viewed in commercial terms as a revenue generation activity focused solely on international recruitment of self-funding students, and the creation of academic programs designed to attract such international students. Further, internationalization efforts can call into question academic quality, academic freedom, sustainability of partnerships (e.g. when understood as a net contributor to carbon footprint), academic tourism, while derailing focus from the core mission and domestic priorities and demands of a university.

Current geopolitical trends are, on the one hand resulting in increased opportunities for internationalization and global engagement for Canada, including York, while, on the other hand, they pose risks and challenges. Considering pressing global challenges such as regional instability, climate change, and growing inequality, the university and Canada need a time-sensitive approach to foster sustainable and long-term engagement around the world. Canada and York must act both quickly and thoughtfully by asking new questions about how we engage with the world, provide all our students with an understanding of Canada in the world through York’s values and tackle pressing global challenges. York University’s distinctive strengths compel us to take a leadership role in convening dialogue, producing knowledge and preparing our students to thrive and contribute their talents to address planetary challenges from climate change to refugees and to the impact of disruptive technology. This must be done through the lens of our founding values, principles and commitment to social justice and the public good.

## Emerging Themes & the Value Proposition of Internationalization

**Global Outlook and Fluency:** Our students will be working in diverse environments where success is contingent on navigating the social nuances and forces that shape politics, culture, and business. Experiential learning through international or intercultural exposure inside and outside the classroom equips students with skills to navigate their way in complex, cross-cultural environments, develop a greater understanding of the people, history and cultures, and contribute to their future success.

To prepare them for this future, international experiences can, in both local and global settings, be embedded throughout a student’s studies from first year to capstone through curricular and co-curricular opportunities. These opportunities can include infusing global and Canadian perspectives and dimensions into teaching, research, intercultural and cross-cultural offerings on campus, expanding outbound mobility (exchanges, short-term faculty led, internships, joint capstone initiatives) as well as utilizing technology-enabled virtual classrooms, such as the Globally Networked Learning (GNL) platform developed by colleagues at the University. In this context, we should also explore internationalization and indigenization in an integrated way and incorporate the local and the global constructs and engage a new generation of students in the truth and reconciliation dialogue.

The academic setting is integral for the intentional intermingling of diverse perspectives and experiences. Here students are exposed to, engage with, and can be active participants in global communities. Curricular offerings to support the increased mobility of students could include language courses, studying at our bilingual Glendon campus, and harnessing inter- and multi-disciplinary perspectives to create and discover simple to complex solutions

to address local and global issues. For example, access to clean drinking water is both a local and global concern that is best addressed by bringing together multiple disciplines (Environmental Studies, Public Policy, Business and Engineering, Development Studies among others). Colleges can be a conduit for our diverse student population to engage critically in discourse and debate, and delve deeper into understanding the world. These approaches contribute towards student learning while challenging belief systems. Opportunities to leverage the diversity of both our domestic and international students as well as the diversity of the Toronto region can be defining characteristics of the York student academic experience.

Fewer than 10% of students at York engage in an institutionally recognized international mobility experience,<sup>1</sup> a number that is lower than the national average and that of our global peers. Some institutions in the UK, Australia, and Singapore have attained 30-50% and their countries have set ambitious targets for the future. Similarly, Canadian institutions (UBC/UofT/Waterloo – currently at 23-25%) and the federal government are setting an ambitious agenda for outbound mobility that include an array of models (short term, faculty led, internships, academic exchanges, entrepreneurship and placements). This will require addressing barriers to their participation, such as financial pressures for many students, limitations posed by academic programs such as credit transfers, underappreciation of the value of global experience on the part of the student, their families and employers and a host of other obstacles as well as including new ways of measuring intercultural experiences. In this context, how do we enable an expanded set of global learning opportunities while reducing carbon footprint and enhancing the experience?

Many of our students come to York with an international outlook including knowledge of another language, or some global experience, and the University should take better advantage of this strength to enhance our community. For example, it may well be that the paradox of York having comparatively low international mobility percentages despite the extensive diversity of the York student body will turn out to be explained in part by the fact that many students may be highly mobile as a consequence of family and cultural background – and thus not see the need for, or have the extra time for, international travel as part of York's academic programming. Are there ways for York to create synergies that would link academic experience with international travel that such students already engage in? York could explore how to formally recognize these strengths and assist students to articulate the skills they have gained through these global experiences to support their professional aspirations, whether it be further studies or employability.

***International Student Experience:*** International students account for over fifteen percent of overall enrolment at the University. Through the Strategic Mandate Agreement (SMA 2), York established an institutional international undergraduate enrolment target of twenty percent of total undergraduate enrolment, but the University (like many others in in Canada, the US, Australia and the UK) has become reliant on a few countries for international students and most of these students are attracted to a small number of programs. Over the last two years, priority has been given towards expanding recruitment with regional recruiters hired to achieve York's growth and diversification strategy. In addition to regional recruiters, regions and countries need to be supported by a coordinated strategy, including robust scholarships, a focused effort to improve the experience of international students and enhance diversity in the classroom and create spaces for intercultural learning.

In 2018-19, international students made up 16% (8,300) of the total undergraduate population which represents a growth of 63% or approximately 2800 more students from 2014-15. At other Canadian institutions, the University of Toronto leads Canada with 29% (16,000), the University of Waterloo at 21%, and Simon Fraser University at 20% (6000). Programs and services and staffing have not kept pace with this growth. As planned growth continues, additional resources and planning are required to support international students and to integrate them into the fabric of university life, increase intentional dialogue between our domestic and international students and support their successful integration into the labour market, further study or return home. At the same time, national governments in other countries, including the UK, Australia, Germany, New Zealand, China, UAE, Singapore and Malaysia are

<sup>1</sup> York International mobility data from 2017-2018 academic year.

investing at the national government level to become international student hubs through the incentives of significant scholarships. Within Canada, leading institutions are competing for international students and are making significant investments to strengthen their institutional infrastructure, scholarships, and regional presence. At the undergraduate level, what additional academic supports should be in place for international students, and faculty to support the international student transition and success at the University (Scholarships & Bursaries, Orientation, English language and writing skills, inclusive classroom, learning styles, academic integrity, employment & career preparation)?

***Global Nature of Research, Grand Challenges & Talent Development:*** International collaborations are on the rise. They are driven by the geographic spread of excellence and resources, global economic competition, and research complexity, which facilitates the sharing of data, resources, and access to graduate students, while providing access to diverse populations and given entrée to complementary expertise, skills, facilities, capacity building, knowledge sharing and 'brain chain', funding from governments, industry and non-traditional sources. There is also a growing shift from the "Atlantic axis" to Asia and other parts of the world due to the rise of emerging scientific powerhouses in these regions (Suresh, 2012). All of which, have the potential to accelerate and advance discoveries and solutions to complex and borderless challenges. While individual faculty members have a multitude of collaborations around the world for research, scholarship and education, institutions are developing a more targeted approach to partnership formation.

Attracting top graduate students is crucial to the university's success and attracting talented graduate students has a bearing on research productivity and talent development and the needs vary by Faculty. Over the last decade, there is a significant increase in cost to conduct research and field work, and to recruit international graduate students. In 2018-19, international graduate students made up 18% or approximately 1079 of total graduate students studying at York, and across Canada, Waterloo is at 40% (2,400), Simon Fraser University at 30% (1338) and the University of Toronto at 20% (3118)). Currently, there is a significant underfunding of international graduate students by the provincial government which has led to parochialization of graduate programs. We need to urgently address York's capacity to attract international graduate students, invest resources and expand the support systems given graduate programs are the most dependent on providing generous bursaries and scholarships in order to attract the best graduate students and, from amongst them, develop the next generation of academic leaders.

Faculty recruitment also faces an intensified global competition with academics having more options for global mobility and circulation among many institutions. Countries in the Middle East, China, India, Singapore and other leading destinations are investing in substantive recruitment packages to lure global talent in their quest for building world class institutions. Canada made a similar effort through the Canada 150 Research Chairs to attract leading scientists and researchers from abroad with some success. Attracting and retaining top talent will continue to be a challenge and York will have to continue to advocate for incentives from the federal and provincial government and work closely with other institutions and trade associations to ensure York as a leading destination for faculty and graduate students.

The need for global cooperation to solve borderless challenges, participate in the increasingly global nature of research, contribute to knowledge circulation and capacity building, mitigate against shrinking government resources for research and education are all factors leading universities to invest in global partnerships and networks. The University needs to broaden and deepen its network to establish ties with emerging and established academic institutions, funding agencies, industry, other non-governmental organizations (NGOs), and global alumni networks and to deepen relationships with current strategic partners to remain at the forefront of knowledge creation and translation. York cannot be everywhere in the world and will have to determine where the university should focus its efforts (thematic areas, geographic region, capacity building), establish strategic partnerships and how it should prioritize and select its institutional partners.

**Global Reach and Profile:** International rankings play a critical signalling function to inform global profile. Consistent performance on high visibility rankings is perceived to be an indicator of quality and excellence, informing choices about partnerships and study destinations. Institutions across the world are striving to improve their global profile through and beyond rankings. Based on demonstrated contributions to the United Nations' Sustainable Development Goals (SDGs), York University has recently ranked 26<sup>th</sup> in the world in the inaugural Impact and Innovation ranking by Times Higher Education (THE). Some of our disciplines continue to be recognized in the Top 100. However, our overall ranking in the mainstream university league tables (THE, QS) is sliding and now remains outside the Top 300 and Top 500 respectively.

Given the global competition, and the University's focus on quality and excellence, it is prudent for us to focus on improving York's global profile to broaden the understanding of our value and excellence among our global peers, prospective students and parents, collaborators and alumni. York University should assess its rankings, its challenges as well as its performance in the various rankings to understand the factors impacting our reputation. By doing so, it can set out to develop a plan to enhance the understanding of our strengths, reputation and global reach. In addition, through regular engagement and communication, we can build our global network of alumni and diaspora communities to support and advance our brand and profile internationally, and instill a sense of community and school pride in our alumni abroad.

### **Beyond Borders: Aspirations Towards 2030**

In this complex global context with increased competition among institutions for resources, talent and students, York must move forward with an integrated, collaborative and coordinated plan, building on the current successes to advance the University's aspirations through international cooperation. Risks are inherent and the University must be vigilant and continue to adhere to and promote the values of academic freedom, genuine reciprocity & mutuality, quality and access. It must address challenges concerning academic integrity and freedom, quality assurance, institutional autonomy, ethics, brain drain and exchange, developing sustainable partnerships, and improving international students' experience. It must seek ways to address global forces and changes that are creating polarization and growing inequality, and to engage productively in regions and countries with diverging value systems.

Internationalization can be a strategy through which to address some of the world's most pressing challenges and its most promising opportunities. York University's distinctive contributions could include, for example, major initiatives around the UN SDGs such as climate change, the UN SDGs, refugee education, societal impact of disruptive and transformative technology, sustainable business practices, and indigenization and decolonization among others.

The integration of institutional-level and individual-level goals is vital to pursue effective global engagement. This issue paper and set of questions have been developed based on input from the Council, an environmental scan and review of current thinking and practices on internationalization at other leading institutions, a non-exhaustive inventory of York's current international engagement and activities, and an understanding of strengths, weaknesses and future opportunities. The input of faculty, students, staff, alumni, governors and friends will be critical to shaping the next phase of York's development as a globally minded and globally engaged community of learning and knowledge creation.

As a next step, the University community is invited to participate in a process of defining and determining our core priorities around the questions asked below. This process will provide a framework for continued engagement and success in the local and global arenas. From our geographic, demographic and academic context, our institutional goals around internationalization should guide our priorities in elevating York's student academic experience in global and international engagement, our global research impact and contributions to societal well-being.

## Resources

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## Questions to Guide Internationalization and Global Engagement

### Goals, Values and Principles of Internationalization

1. What ought to be the goals, values, and motivations/drivers for York University's international and global engagement? (e.g., preparing global citizens, contributing to global challenges, capacity building)
2. What are some of the appropriate metrics that could signal that we are making systematic progress along these dimensions? (participation, research collaboration, impact measures on SDGs)

### Leveraging York's Ecosystem: Locations, Academic Strengths & Emerging Themes

3. What are York's strengths and unique characteristics and how can they contribute to York's international engagement? Do these distinctive characteristics facilitate certain kinds of international interactions with regions or institutions, or in thematic areas?
  - **Distinct Ecosystems:** Keele, Glendon, Markham, Toronto, York Region, India, Costa Rica
  - **Academic Strengths:** vision research, psychology, kinesiology, business, law, humanities and social sciences, professional studies, language studies and bilingual campus (many others to list here)
  - **Themes:** contribution to SDGs & impact (sustainability, access, climate change, diversity, community engagement), internationalization and indigenization
4. What are the strengths and weaknesses of the institution's current efforts to internationalize? What opportunities exist for advancing/deepening internationalization? What are the threats to progress?
5. What are some specific ideas, programs and initiatives that York can develop and/or participate in to advance the goals of internationalization?

### Global Nature of Research and Faculty Engagement

6. What is York's distinctive research contribution to the world and on what global issues/outcomes, can York's research have a meaningful impact?
7. What mechanisms, incentives, and resources need to be in place to enable international research collaborations?
8. How can York support/increase faculty members' engagement in the international component of their research? of their teaching / learning? of their service? What are the barriers to faculty engagement in internationalization?

### Global Fluency and Outlook

9. What are some strategies to help domestic and international students learn from one another inside and outside the classroom?
10. How do we ensure access and create a broad set of international experience opportunities and engagement for our students that enhances the overall learning experience (e.g., short and long-term semesters abroad, research internships, service-learning, work, and joint academic programs, that use of both communications technology and the Toronto region's own cosmopolitan character to enhance York academic programs and experience without necessarily requiring costly and carbon-intensive travel)? What kinds of incentives and resources should be in place?
11. How do we incorporate internationalization and indigenization to be a mutually complementary local and global construct?

### **International Student Experience (Faculty, Students, Academic and Student Service Providers)**

12. What are some challenges facing international students and what programs and services could be in place to maximize their student experience?
13. What are some of the challenges to accessing services on campus by international students?
14. What additional academic supports should be in place for international students and faculty (English language skills, inclusive classroom, learning styles, academic integrity)?

### **Partnerships**

15. York University cannot be everywhere in the world. At the institutional level, where should the University focus its efforts and establish strategic partnerships? Why?
16. Where and how should York prioritize/select its institutional international partnerships (e.g., thematic areas, by geographic region, capacity building)? How should the focus be decided?

### **Infrastructure & Resources to support Internationalization**

17. What mechanisms, infrastructure incentives and resources need to be in place to enable internationalization and global engagement:
  - 1) to support curriculum development,
  - 2) enable global research collaborations,
  - 3) learning abroad (study, work, internship),
  - 4) improve the international student experience,
  - 5) support international recruitment,
  - 6) other?
18. What should be the role of York International in supporting internationalization and global engagement at York University?

### **Additional Feedback:**

Please provide any additional comments, suggestions, gaps, limitations related to York University's international