FACULTY OF SCIENCE

COUNCIL OF THE FACULTY OF SCIENCE

Notice of ZOOM Meeting
Tuesday, May 12, 2020
at 2:45pm – 4:30pm

Agenda

1. Call to Order and Approval of Agenda
2. Chair's Remarks
3. Approval of Minutes of April 14, 2020
4. Business Arising
5. Inquiries and Communications
   - Senate Synopsis: April 23, 2020
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 of nomination & 2020-2021 Vacancies report on Senate and the Standing Committees of FSc Council (item for action)

   9.1.2 Curriculum Committee (Consent agenda items)

10. Other Business

    10.1 Graduate Education Committee

    10.2 Draft University Academic Plan (UAP)https://secretariat.info.yorku.ca/senate/academic-policy-planning-and-research-committee/university-academic-plan-renewal/

10.3 Presentation: Libraries Supports for Online Content Needs by Andrea Kosavic, Associate Dean, Digital Engagement and Strategy and Dany Savard, Director, Open Scholarship

10.4 Online course surveys in summer science courses for ongoing online course survey project being conducted by M.H. Armour, C. Wolfe and J. Lederman.

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FACULTY OF SCIENCE

COUNCIL OF THE FACULTY OF SCIENCE

Tuesday, April 14, 2020
at 2:30pm – 4:30pm

Minutes of ZOOM Meeting

Attendance: M. H. Amour (Chair), S. Chen, D. Jackson, D. Wilson, A. Qayyum, S. Domenikos, C. Caputo, M. Scheid, P. Lakin-Thomas, O. Mermut, G. Monette, A. Chan, M. Xu, C. Caputo, A. Mun, C. Wolfe, T. Baumgartner, E. Hyde, R. Tsushima, W. Taylor, P. Potvin, R. Wang, A. Hilliker, E. Hamm, G. Lavoie, R. Metcalfe, T. VandenBoer, M. McCall, N. Madras, J. Clark, G. Audette, P. Hall, D. Golemi-Kotra, D. Hossain, A. Chow, R. McLaren, J. Steeves, R. Fournier, P. Wilson, P. Delaney, M, Hough, J. Amanatides & Sibonile Siyakatshana (Assistant Secretary of Council)

Guests: V. Gotcheva, H. McLellan, M. Stolyarevskyy, S. Dibo-Amany, J. Lemus Marquez, B. Sheeller, T. Reddi, J. De Faveri, J. Sequeira, D. Markatas & H. Abraham

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

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

2. **Chair's Remarks**

   The Chair welcomed and thanked everyone for joining our first Zoom meeting.

3. **Approval of Minutes of March 10, 2020**

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

4. **Business Arising**

   There was no Business Arising.

5. **Inquiries and Communications**

   Council noted the Senate Synopsis of March 26, 2020 meeting.

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

   Dean Wang updated Council on the Faculty situation as it relates to COVID19. He observed that everyone was going through a life time experience which was unprecedented. The Dean expressed his heartfelt thanks and appreciation to our students for their patience and understanding as they faced numerous challenges associated with switching to online classes and online examinations. Furthermore, he empathized with students going through some personal challenges caused by the COVID19.

   The Dean extended his thanks and gratitude to all faculty and staff for their relentless hard work and dedication in meeting students' needs. He noted that faculty members were ready and willing to cooperate and assist each other in transferring courses and examinations online in a timely manner.

   He stated that our Faculty was finding creative ways to provide student academic advising. In addition, student conversions were ongoing as planned.

   The Dean informed Council that the Faculty was already planning on the risk assessment of the fall and winter terms. He reiterated on the need to sustain unwavering commitment to meet the needs and expectations of our students. Furthermore, he noted that it was imperative for the Faculty to be flexible, adaptable and continue to design and deliver high quality online summer courses in order to build students' confidence.

   Dean Wang updated the meeting that the different strategic scenarios they were creating pertaining to enrolments estimated a 10-25% enrolment decrease for both domestic and international student enrolments. Other scenarios were; It could be possible that the fall term could start off with online and remote classes and in person on campus experience may resume in the later part of term. The entire fall and winter terms could be conducted online and remotely.

He added that if any of these scenarios happened, the negative impact on student enrolments as well as the financial impact would be huge not to mention the fact that we were still recovering from the 10% tuition fee deduction announced by the Ontario government.

The Dean appealed to Council to do their best to maintain our academic excellence as we prepare for some challenging times ahead. He asked everyone to collectively work together in order to confront the challenging times ahead. Dean Wang reported that the Dean's Space Strategy Taskforce was forging ahead focusing on space planning, research priority determination, recruitment strategy and pedagogy in the curriculum innovation; Markham planning process to also resume; our internationalization plan would be starting soon. Two sessions of 'Lunch with the Dean' had occurred but had been temporarily suspended; Equity Diversity Inclusiveness would also be reviewed; academic searches ongoing; Fundraising and faculty brand and celebration to resume the following week.

In conclusion, he encouraged Council to keep in mind that the long term commitment to academic excellence and sustainability of our Faculty should be the center of our action plan as we deal with the challenges of COVID19.

7. Associate Deans' and Head of Bethune College Remarks

Associate Dean G. Audette made the following announcements;

- For 2021-22 Sabbaticals: Deadline to notify intent extended to June 1, 2020
- For 2020-21 Sabbaticals: Deadline to request delay based on COVID-19 was May 1st. A rationale is required for the assessment of the delay request.

G. Audette reported that the Faculty had eleven academic searches this year. Six were complete and three were at the offer stage and two were still conducting interviews.

Associate Dean M. Scheid reported to Council that his office had been dealing with issues relating to the delivery of online courses and examinations for the winter term including examination deferrals. He stated that his office had created a FAQs for deferred examinations (winter) document that he circulated to UPDs for their input and it had now been finalized and would posted on the teams website. He encouraged all faculty members to review this document for guidance purpose.

M. Scheid reported that the Registrar's Office had already confirmed that the Faculty of Science would not use proctoring for the winter examinations.

The Registrar's Office had utilized the few licenses that they were able to get for bigger Faculties such as LA&PS. However, efforts were underway to acquire a proctoring vendor for the summer examinations. He added that in the event that Science does not have online proctoring for the summer examinations, the VP Academic had recommended that we design our pedagogy as a tool that provides at home proctoring.

Associate Dean Scheid updated Council on the student recruitment efforts. He noted a reduction of about 5% in the application numbers compared to last year same time. He stated that offers out were still low for 101 internationals and 105 domestics. He added that this was somewhat worse compared to last year. He informed Council that a more accurate report will be available only after the accepted students have enrolled into classes.

A. Mun, noted that given the COVID19 situation, it was very difficult to predict how many of the acceptances will actually enroll into classes. She stated that the Faculty was maintaining about the same cut off as last year and there was 3% decline in offers out. She noted that in the past the Faculty had heavily relied on the international students for revenue. However, this year because of COVID19 we could not be sure this would be the case.

A brief discussion ensued. Council members reiterated on the need for the Faculty to increase online course offering in order to adapt and ensure the Faculty's survival. What would be the optimum way of delivering courses while ensuring academic integrity? She informed Council that the Dean had asked that the Faculty explore ways of designing and delivering high quality courses that offer a competitive edge for our faculty.

Associate Dean J. Steeves informed Council that the NSERC and DURAS had been processed and assigned to faculty members. She was impressed with the creativity of our researchers in coming up with alternative online research project assignments for students during the summer term.

She informed Council that the University and the federal/provincial governments had come up with new research initiatives, grant competitions for the COVID19. She thanked her research team for providing support to the application process while carrying their normal work load. She announced that the YU COVID research fund application deadline was April 22nd. CIHR Spring projects grant competition had been cancelled. NSERC competition was still ongoing. On April 14th they received the RTI competition results that meant the Discovery Grant competition would be coming soon.

She stated that NSERC had announced a year extension for current active grants.

8. Reports from Science Representatives on Senate Committees

There were no reports.

9. Reports from Standing Committees of Council

9.1 Executive Committee

- Ratification of nominations & 2020-2021 Vacancies report on Senate and the Standing Committees of FSc Council

Ratification of nominations was approved through a doodle poll.

10. Other Business

Council discussed the negative impact of COVID19 on our graduate students. The Dean reminded Council that all students worldwide were negatively impacted by the COVID19. He added that our approach to mitigate the situation should be in line with approaches taken by other universities though keeping in mind that our challenges are discipline specific to science. The Dean stated that the situation called for the Faculty to create different scenarios and come up with corresponding strategies in order to deal with the unforeseen situations.

Of all the scenarios, the worst case scenario being, graduate students would be given a one year extension. The Faculty had to be flexible, adaptable and be able to redesign the graduate research programs. Council noted that the FGS was currently gathering information on how to mitigate these issues.

Regarding the student Open House, Council cautioned that the Faculty will need to be creative and come up with cutting edge virtual presentations that would set us apart from other universities.

Meeting adjourned.

M. H. Armour, Chair of Council

S. Siyakatshana, Assistant Secretary of Council

The Senate of York University
Synopsis

The 665th Meeting of Senate held on Thursday, April 23, 2020 via Zoom

Remarks

The Chair, Professor Alison Macpherson of the Faculty of Health, expressed sorrow at the tragic events that took place in Nova Scotia earlier in the week, and also acknowledged members of the University community facing challenges as a result of the COVID-19 pandemic. The Chair thanked Senate Executive members for their time and attentiveness to the time-sensitive matters that have arisen since the *Disruptions Policy* was invoked on March 13, 2020.

Considering the impact of the ongoing health emergency on academic activity and noting concerns raised by Senators, the Chair indicated that the meeting would be managed with flexibility, dedicating as much time as required to York's response to COVID-19. Speaking to a slide presentation available on the Senate website, President Rhonda Lenton briefed Senators on the University's response and planning. Highlights included:

- thanks and appreciation to community members for their support of the transition to the required services model across all campuses
- the context for York's institutional response, which is guided by the strategic plan, enterprise risk management, and the emergency planning documents and structure which features an Emergency Operations Committee
- the three scenarios modelling the impacts of COVID-19 moving forward and the anticipated impact of each scenario on enrollment in the 2020-2021 year
- the next steps, including conducting further analysis to confirm the most likely scenario and estimation of budget implications
- recent successes for the University, including the federal government's announcement of the Canada Emergency Student Benefit and the University's recognition by the Times Higher Education International Impact Rankings, which ranked York 33 of 767 universities

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

Committee Information Reports

Executive (Professor Mario Roy, Vice-Chair)

The Executive Committee's information items included the following:

- the collection of actions taken by the Executive Committee since the *Disruptions Policy* was invoked, as noted in Appendix A

The Senate of York University
Synopsis

- the decision to hold Senate meetings by electronic means using Zoom audio / videoconferencing beginning with the April 23, 2020 meeting and continuing throughout the duration of the required services model
- the deferral of the Chancellor search for the time being, with Chancellor Sorbara continuing in the role until a successor is selected

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

To accommodate the update and discussion on the University's COVID-19 response and planning, APPRC deferred the notice of motion and facilitated discussion of the University Academic Plan 2020-2025.

Academic Standards, Curriculum and Pedagogy (Professor Chloë Brushwood Rose, Chair)

The following proposals were approved by ASCP.

Faculty of Health / Faculty of Science
Editorial change to calendar copy for the Specialized Honours BSc program in Neuroscience, Department of Psychology / School of Kinesiology and Health Science / Department of Biology

Faculty of Graduate Studies
Minor changes to requirements for the Diploma in Curatorial Studies and Visual Arts, Graduate Program in Art History

Lassonde School of Engineering
Minor changes to degree requirements for the BSc programs in Science, Dean's Office

Academic Policy, Planning and Research / Academic Standards, Curriculum and Pedagogy (Professors Carl S. Ehrlich and Chloë Brushwood Rose, Chairs)

APPRC and ASCP conveyed a joint report in which a report from the Joint Sub-Committee on Quality Assurance was transmitted to Senate.

Awards (Professor Jonathan Obar, Chair)

The Awards Committee advised Senators of and conveyed congratulations to the recipients of the President's Research Awards, who had been selected as a result of the Committee's adjudication in Winter 2020.

2020 President's Research Excellence Award
Eric A. Hessels, Physics and Astronomy, Science

The Senate of York University
Synopsis

2020 President's Research Impact Award
Debra J. Pepler, Psychology, Health

2020 President's Emerging Research Leadership Award
Engineering, Science, Technology, Health and Biomedicine Cluster: Christopher G. R. Perry, Kinesiology and Health Science, Health

Social Sciences, Art & Design, Humanities, Business, Law and Education Cluster: Theodore J. Noseworthy, Schulich

Additional Information about this Meeting

Please refer to the full Senate agenda and supplementary material posted online with the Thursday, April 23, 2020 meeting for details about these items.

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

May Meeting of Senate

Senate's next meeting will be held at 3:00 p.m. on Thursday, May 28, 2020.

Updated as of May 6, 2020

2020-2021 FSc Report on vacancies for Senate and FSc Standing Committees

Ratifications for Council – May 12th

Senate
N. Madras, Department of Mathematics & Statistics (1 year replacement)
S. Watson, Chair, Department of Mathematics & Statistics

2020-2021 FSc Report on vacancies for Senate and FSc Standing Committees

Committee	Rules of Faculty Council - membership	Meeting time / Membership	Term From	Term 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	R. Wang	Designated		
	Member at large	G. Audette	Designated	2022	
	Member at large	E. Hessels, Physics & Astronomy	2019	2022	
	Member at large	VACANT - 1 yr replacement	2019	2022	J. Lazenby on Sabbatical July 2020-June 2021
	Member at large	T. Baumgartner, Chemistry	2018	2021	
	Member at large	B. Pietro, Chemistry	2019	2022	
	Member at large	M. H. Armour (Jul 1 - December 31, 2020)	2019	2022	P. Lakin-Thomas, Biology on sabbatical
	Member at large	N. Madras - 1 yr replacement	2020	2023	D. Wilson on Sab. Starting May 2020 - April 30-2021
	Department Chair	R. Tsushima, Biology	2018	2021	
	Department Chair	R. Fournier, Chemistry	2019	2022	
	Department Chair	S. Watson, 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	VACANT	2018	2021	Paul Szeptycki on Sabbatical leave
Academic Policy, Planning and Research Committee (APPRC)	1 member from FSc	D. Golemi-Kotra	2020	2023	
Sub-Committee on Honorary Deg	1 member from FSc	VACANT	2020	2023	
Executive Committee	The Executive Committee 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 (*ex officio*), 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 3:00pm - 4:30pm in LUM 305B			
	Chair of Council	C. Storry	2020	2021	
	Vice-Chair of Council	VACANT	2020	2022	
	Dean, Ex officio	R. Wang	Designated		
	Asst. Dean - SEM & SEP	A. Mun	Designated		
	Office of the Dean, staff representative	VACANT	2020	2021	
	Undergraduate Student Rep	VACANT	2020	2021	
	Biology	A. Hilliker	2018	2021	
	Chemistry	VACANT - 1 year replacement	2019	2022	Krylov on Sab. starting Jul 1, 2020-June 2021
	Math & Stats	N. Madras	2019	2022	
	Physics & Astronomy	VACANT	2020		
	STS	R. Metcalfe	2019	2022	
APPC	The Academic Policy and Planning Committee shall include the Dean or designate (*ex officio*), 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	VACANT	2020	2021	
	Elected staff representative	VACANT	2020	2021	
	Biology, also representing STS	J. Clark	2019	2022	
	Chemistry	R. McLaren	2019	2022	
	Math & Stats	VACANT - 1 year replacement	2019	2022	J. Heffernan on Sabbatical Jul 1, 2020 - Jun 2021
	Physics & Astronomy	J. Zylberberg	2019	2020	
	STS	Represented by J. Clark	2019	2022	
Curriculum Committee	The Curriculum Committee shall include the Dean and an Associate Dean (ex officio), 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	VACANT	2020	2022	
	Dean, Ex officio	R. Wang	Designated		
	Associate Dean - Students, Ex officio	M. Scheid	Designated		
	Undergraduate Student Rep (two vacancies)	2 VACANCIES	2020	2021	
	Biology	S. Connor	2019	2022	
	Chemistry	P. Potvin	2019	2022	
	Math & Stats	J. Grigull (Fall) VACANT (Winter)	2019	2022	M. Chen-Sabbatical Jan 2021-Jun 2021
	Physics & Astronomy	VACANT	2019	2020	
	STS	E. Hamm	2019	2022	
	Member at Large	VACANT	2019	2022	
CEAS	The Committee on Examinations and Academic Standards shall consist of an Associate Dean (*ex officio*), 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.			

2020-2021 FSc Report on vacancies for Senate and FSc Standing Committees

Committee	Rules of Faculty Council - membership	Meeting time / Membership	Term 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	M. Scheid	Designated		
	Undergraduate Student Rep	VACANT	2020	2021	
	Undergraduate Student Rep	VACANT	2020	2021	
	Biology	C. Jang/ALT B. Schwartz	2019	2022	
	Chemistry	VACANT / R. McLaren	2020/2018	2023/2021	
	Math & Stats	VACANT- Winter replacement /ALT. Y. Fu	2019	2022	M. Chen-Sabbatical Jan 2021-Jun 2021
	Physics & Astronomy	VACANT	2019		
	STS	VACANT-1 Year replacement /VACANT	2019/2020	2022/2023	J. Lazenby on Sabbatical July 2020-June 2021
Petitions	The Petitions Committee 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	M. Scheid	Designated		
	Undergraduate Student Rep	VACANT	2020	2021	
	Undergraduate Student Rep	VACANT	2020	2021	
	Member at Large	I. Raguimov	2019	2022	
	Biology	A. Mills	2020	2023	
	Chemistry	W. J. Pietro	2019	2022	
	Physics & Astronomy	2 VACANCIES Member/Alternate	2020		
	Math & Stats	Y. Gao	2019	2022	
	STS	S. P. Domenikos	2019	2022	
	Member at Large	VACANT	2020	2023	
SRC T & P Committee	The Committee on Tenure and Promotions 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	G. Audette	Designated		
	Undergraduate Student Rep	VACANT	2020	2021	
	Biology	K. Hudak / Jean-Paul Paluzzi	2020/2020	2023/2023	
	Chemistry	VACANT/ALT - V. Tsoukanova	2019/2022	2019/2022	Derek serves until start of sab. May 2020
	Physics & Astronomy	2 VACANCIES, Member & Alternate member	2020		
	Math & Stats	A. Wong (Fall) S. Wang (Winter) ALT VACANT	2019	2022	Liang on Sab. Jan. 1, 2021-June 2021
	STS	D. Lungu/ALT Vacancy	2018	2021	
CoTL	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	M. Scheid	Designated		
	Graduate Student Representative	VACANT	2020	2022	
	Graduate Student Representative	VACANT	2020	2022	
	Undergraduate Student Rep	VACANT	2020	2021	
	Steacie Librarian	Ilo-Katryn Maimets	Designated		
	IT Representative	V. Gotcheva	Designated		
	Teaching Commons Rep	Y. Su	Designated		
	Staff representative, Elected	VACANT	2020	2021	
	Biology	D. Golemi-Kotra	2020	2023	
	Biology	C. Jang	2020	2023	
	Chemistry	VACANT	2020	2023	
	Chemistry	C. Caputo	2018	2021	
	Physics & Astronomy	VACANT	2020		
	Physics & Astronomy	VACANT	2020		
	Math & Stats	VACANT	2020	2023	
	Math & Stats	VACANT - 6 months replacement	2018	2021	W. Liu on Sabbatical - July 2020- Dec 2020
	STS	R. Marushia	2019	2022	

2020-2021 FSc Report on vacancies for Senate and FSc Standing Committees

Committee	Rules of Faculty Council - membership	Meeting time / Membership	Term From	Term To	
Committee on Research & Award	The Committee on Research and Awards 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 (*ex officio*) 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	J. Steeves	Designated		
	Undergraduate Student Rep	VACANT	2020	2021	
	Biology	R. Kwong	2020	2023	
	Chemistry	VACANT - 1 year replacement needed	2019	2022	S. Morin on Sab. Starting July 1, 2020-2021
	Physics & Astronomy	VACANT	2020	2023	
	Math & Stats	Huaiping Zhu	2019	2022	
	STS	VACANT	2020	2023	
Appeals	The Appeals Committee for the purpose of hearing student appeals shall consist of four elected faculty members from Science units, an Associate Dean (*ex officio*) 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	J. Steeves	Designated		
	Undergraduate Student Rep	VACANT	2020	2021	
	Undergraduate Student Rep	VACANT	2020	2021	
	Member at Large	R. Fournier	2019	2022	
	Biology	A. Mills	2020	2023	
	Chemistry	VACANT	2020	2023	
	Physics & Astronomy	VACANT	2020		
	Math & Stats	VACANT	2018	2021	
	STS	M.H. Armour	2018	2021	
Graduate Program Committee	The Graduate Education Committee shall consist of the Associate Dean – Research & Graduate Education (ex officio), Graduate Program Director (or designate who must be a member of the graduate program) of each Graduate Program in the Faculty of Science and two graduate student members from any Graduate Program within the Faculty of Science. The Chair of the Committee is selected by the voting members of the Committee for a one-year term.	Membership of this Committee is yet to be confirmed			
	Associate Dean – Research & Graduate Education (ex officio	J. Steeves	Designated		
	Biology	B. Stutchbury	2020		
	Chemistry	R. McLaren	2020		
	Physics & Astronomy	T. Kirchner	2020		on Sabbatical Jan. 2021-Dec. 31 2021
	Math & Stats	A. Kuznetsov	2020		on Sabbatical 20-21
	STS	K. Birch	2020		
	Graduate students	2 VACANCIES	2020		

York University

COUNCIL OF THE FACULTY OF SCIENCE

Report of the Science Curriculum Committee

April 2020

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 April 28, 2020, 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 tinar@yorku.ca

Agenda

1.2 BIOLOGY

1.2.1 Change in calendar description: BSc. Biomedical Sciences Stream (Specialized honours, Honours Major, Honours Major/Minor and Honours iBSc) – removing BIOL 4360 4.00 version.

1.3 MATH

1.3.1 Change in cross-listing: SC/MATH 2590 3.0 “Thinking Mathematically 1”

1.4 PHYS

1.4.1 New course: SC/PHYS 1901 0.00 “Physics Laboratory 1”

1.4.2 New course: SC/PHYS 1902 0.00 “Physics Laboratory 2”

1.4.3 Change in pre-requisite: SC/PHYS 3080 3.00 “Atmospheric Radiation and Thermodynamics” (cross-listed to LE/ESSE 3030 3.00)

1.4.4 Change in calendar description: Space Science Stream – updating Physics requirement to include newer and equivalent course versions and cleaning up outdated requirements

1.4.5 Change in program requirements: Space Science Stream (Specialized Honours BSc) – updating Physics requirement to include newer and equivalent course versions and housekeeping to the Space Science Stream, approved by ESSE and PHYS)

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.

Change from:	**Change to:**
Specialized Honours Program Biomedical Science Stream Major requirements: • SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00; • one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00; • 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 3.00and 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; • 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; • 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	**Specialized Honours Program Biomedical Science Stream** Major requirements: • SC/CHEM 1000 3.00 and SC/CHEM 1001 3.00; • one of SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00 or HH/PSYC 1010 6.00; • 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 3.00and 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; • 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; • 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

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; • 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.	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; • 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.
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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 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; • 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.	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, 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; • 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.
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Changes to Existing Course

Faculty: Faculty of Science

Department:	Mathematics and Statistics	**Date of Submission:**	February 13, 2020
Course Number:	SC/MATH 2590 3.0	**Effective Session:**	
Course Title:	Thinking Mathematically I		

Type of Change:

[ ]	in pre-requisite(s)/co-requisite(s)	[X]	in cross-listing
[ ]	in course number/level	[ ]	in degree credit exclusion(s)
[ ]	in credit value	[ ]	regularize course (from Special Topics)
[ ]	in title (max. 40 characters for short title)	[ ]	in course format/mode of delivery *
[ ]	in Calendar description (max. 40 words or 200 characters)	[ ]	retire/expire course
[ ]	other (please specify):	[ ]	

Change From:	**To:**
SC/MATH 2590 3.00 (cross-listed to: ~~ED/EDUC 2590 3.00)~~	SC/MATH 2590 3.00

Rationale:

The Faculty of Education passed a motion to remove the cross-listing to the course SC/MATH 2590 (ED/MATH 2590) *Thinking Mathematically I.* The Mathematics and Statistics department will continue teaching SC/MATH 2590, without the cross-listing, as they see this as a course that can be advertised for teaching candidates and for people who want to be teachers. With the current low math scores in Ontario students, the department believes that this course could be used to help educate potential teachers.

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.

YORK
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MOTION

YORKUNIVERSITY FACULTY OF EDUCATION

Submitted by:
Committee for Curriculum, Teaching and Learning (CCTL)

Motions for the meeting of 31 January 2020

1. **Topic:** Removal of the Faculty of Education's connection to the cross-listed course SC/MATH 2560 (ED/MATH 2590) *Thinking Mathematically I.*

    - **Motion:** To remove the Faculty of Education's cross-listing to the course SC/MATH 2560 (ED/MATH 2590) *Thinking Mathematically I*.

        - **Rationale**: Since the new two-year Bachelor of Education degree was launched, the Faculty of Education created a new elective ED/EDUC 2591 *Thinking Mathematically*, which was mounted as an Education elective course for Bachelor of Education students. As a result of this revised stand-alone elective being mounted, the Faculty of Education has no longer been using the older cross-listed course, and ED/MATH 2590 has already expired; it is also no longer included in our accreditation with the Ontario College of Teachers (OCT).

          Since the Mathematics Department may want to renew and continue using the course, this motion is not to close the course altogether; by removing Education from the cross-listing, the Mathematics Department will be able to fill the entire course with their own students if they decide to re-activate it.

          In addition to these reasons for the motion, ED/MATH 2590 was taught by faculty members who were cross-appointed between Mathematics and Education; these cross-appointments have ended.

COMMITTEE ON ACADEMIC STANDARDS, CURRICULUM AND PEDAGOGY TEMPLATE

NEW COURSE PROPOSAL FORM

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science		
Department: Indicate department and course prefix (e.g. Languages, GER)	Physics and Astronomy, PHYS	**Date of Submission:**	April 2020
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	1901 0.00	**Var:**	**Academic Credit Weight:** Indicate both the fee, and MTCU weight if different from academic weight (e.g. AC=6, FEE=8, MET=6
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Physics Laboratory 1		
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - **maximum 40 characters**	Physics Laboratory 1		

With every new course proposal it is the Department's responsibility to ensure that new courses do not overlap with existing courses in other units. If similarities exist, consultation with the respective departments is necessary to determine degree credit exclusions and/or cross-listed courses.

Brief Course Description:

Maximum 2000 characters
(approximately 300 words including spaces and punctuation).

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and co-requisites, if applicable. This description appears in the calendar.

For editorial consistency, and in consideration of the various uses of the Calendars, verbs should be in the present tense (i.e., "This course analyzes the nature and extent of...," rather than "This course will analyze...")

This course is equivalent to the laboratory component for first-year physics courses PHYS 1011, PHYS 1411, and PHYS 1421. Students who were unable to successfully complete those laboratory activities in parallel with the lecture course may complete them at a later date by enrolling in this course.

Generic Course Description:

This is the description of the "Parent / Generic course" for Special Topics courses under which variances of the "Generic" course can be offered in different years (Max. 40 words). Generic course descriptions are published in the calendar.

List all degree credit exclusions, prerequisites, integrated courses, and notes below the course description.

Expanded Course Description:

Please provide a detailed course description, including topics / theories and learning objectives, as it will appear in supplemental calendars.

PHYS 1901 consists of the laboratory component for first-year physics courses PHYS 1011, PHYS 1411, and PHYS 1421. It enables students who were unable to successfully complete those laboratory activities in parallel with the lecture course (e.g. in summer 2020 due to the COVID-19 pandemic) to complete them at a later date without enrolling in the lecture course all over again.

Potential laboratory topics include:
1. motion in one, two and three dimensions,
2. forces and Newton's laws,
3. energy, work and power,
4. conservation of energy,
5. gravity,
6. systems of particles,
7. rotational motion and angular momentum,
8. oscillatory motion,
9. wave motion.

Learning Outcomes:
1. Development of laboratory skills, including the ability to make measurements, analyze data, and draw valid conclusions.
2. Ability to estimate uncertainties in measurements and to take them into account in undertaking analyses and making conclusions.
3. Some ability to think critically and work independently.
4. Some ability with scientific communication, both written and oral.
5. Some ability to collaborate with peers.

Course Design:

Indicate how the course design supports students in achieving the learning objectives. For example, in the absence of scheduled contact hours what role does student-to-student and/or student-to-instructor communication play, and how is it encouraged?

Detail any aspects of the content, delivery, or learning goals that involve "face-to-face" communication, non-campus attendance or experiential education components.

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial on-campus attendance.

Laboratory activities are a key component of first-year Physics courses at York. Students work both individually and in pairs or small teams to obtain measurements, analyze those data, and form conclusions and answer questions based on their observations. TAs are present to troubleshoot equipment and provide guidance at all lab activities.

Instruction:

1. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.).
2. Number of department members currently competent to teach the course.
3. Instructor(s) likely to teach the course in the coming year.
4. An indication of the number of contact hours (defined in terms of hours, weeks, etc.) involved, in order to indicate whether an effective length of term is being maintained **OR** in the absence of scheduled contact hours a detailed breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.

1. Anticipated to be offered in Fall 2020-2021, and possibly in S1 and Fall terms thereafter as needed.

2. All physics faculty members are competent to teach this course.

3. Scott Menary.

4. Five three-hour labs.

Evaluation:

A detailed percentage breakdown of the basis of evaluation in the proposed course must be provided.

If the course is to be integrated, the additional requirements for graduate students are to be listed.

If the course is amenable to technologically mediated forms of delivery please identify how the integrity of learning evaluation will be maintained. (e.g. will "on-site" examinations be required, etc.)

Labs = 100%

Any student who wishes to take second-year PHYS courses must pass both the lecture and laboratory components of each semester of first-year physics with a grade of C or better, either in the same semester or separate semesters.

Bibliography:

A READING LIST MUST BE INCLUDED FOR ALL NEW COURSES

The Library has requested that the reading list contain complete bibliographical information, such as full name of author, title, year of publication, etc., and that you distinguish between required and suggested readings. A statement is required from the bibliographer responsible for the discipline to indicate whether resources are adequate to support the course.

Also please list any online resources.

If the course is to be integrated (graduate/ undergraduate), a list of the additional readings to be required of graduate students must be included. If no additional readings are to be required, a rationale should be supplied.

LIBRARY SUPPORT STATEMENT MUST BE INCLUDED.

Department of Physics & Astronomy First-year Physics Lab Manual.

Sample textbook for related lecture courses:
Essential University Physics (volume 1), Richard Wolfson, third edition, 2016.

Other Resources:

A statement regarding the adequacy of physical resources (equipment, space, etc.) must be appended. If other resources will be required to mount this course, please explain

COURSES WILL NOT BE APPROVED UNLESS IT IS CLEAR THAT ADEQUATE RESOURCES ARE AVAILABLE TO SUPPORT IT.

This course will use the same lab equipment and space presently used for PHYS 1011, 1411, and 1421. This course will effectively serve as an additional section of the labs for those courses.

Course Rationale:

The following points should be addressed in the rationale:

How the course contributes to the learning objectives of the program / degree.

The relationship of the proposed course to other existing offerings, particularly in terms of overlap in objectives and/or content. If inter-Faculty overlap exists, some indication of consultation with the Faculty affected should be given.

The expected enrolment in the course.

The laboratory experience of this course is an essential foundation for all courses that follow, for any student majoring in physics, astronomy or biophysics.

The enrolment in this course is expected to be less than one section (24 students) in Fall 2020-2021. In the case of very small enrolments, the section can be held at the same time as a lab section of PHYS 1011, 1411, or 1421, with the combined enrolment of both sections limited to 24 students.

Faculty and Department Approval for Cross-listings:

If the course is to be cross-listed with another department, this section needs to be signed by all parties. In some cases there may be more than two signatures required (i.e. Mathematics, Women's Studies). In the majority of the cases either the Undergraduate Director or Chair of a unit approves the agreement to cross-list. All relevant signatures must be obtained prior to submission to the Faculty curriculum committee.

Dept:	Signature (Authorizing cross-listing)	Department	Date
Dept:	Signature (Authorizing cross-listing)	Department	Date
Dept:	Signature (Authorizing cross-listing)	Department	Date

Accessible format can be provided upon request.

COMMITTEE ON ACADEMIC STANDARDS, CURRICULUM AND PEDAGOGY TEMPLATE

NEW COURSE PROPOSAL FORM

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science		
Department: Indicate department and course prefix (e.g. Languages, GER)	Physics and Astronomy, PHYS	**Date of Submission:**	April 2020
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	1902 0.00	**Var:**	**Academic Credit Weight:** Indicate both the fee, and MTCU weight if different from academic weight (e.g. AC=6, FEE=8, MET=6
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Physics Laboratory 2		
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - **maximum 40 characters**	Physics Laboratory 2		

With every new course proposal it is the Department's responsibility to ensure that new courses do not overlap with existing courses in other units. If similarities exist, consultation with the respective departments is necessary to determine degree credit exclusions and/or cross-listed courses.

Brief Course Description:

Maximum 2000 characters
(approximately 300 words including spaces and punctuation).

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and co-requisites, if applicable. This description appears in the calendar.

For editorial consistency, and in consideration of the various uses of the Calendars, verbs should be in the present tense (i.e., "This course analyzes the nature and extent of...," rather than "This course will analyze...")

This course is equivalent to the laboratory component for first-year physics courses PHYS 1012, PHYS 1412, and PHYS 1422. Students who were unable to successfully complete those laboratory activities in parallel with the lecture course may complete them at a later date by enrolling in this course.

Generic Course Description:

This is the description of the “Parent / Generic course” for Special Topics courses under which variances of the “Generic” course can be offered in different years (Max. 40 words). Generic course descriptions are published in the calendar.

List all degree credit exclusions, prerequisites, integrated courses, and notes below the course description.

Expanded Course Description:

Please provide a detailed course description, including topics / theories and learning objectives, as it will appear in supplemental calendars.

PHYS 1902 consists of the laboratory component for first-year physics courses PHYS 1012, PHYS 1412, and PHYS 1422. It enables students who were unable to successfully complete those laboratory activities in parallel with the lecture course (e.g. in summer 2020 due to the COVID-19 pandemic) to complete them at a later date without enrolling in the lecture course all over again.

Potential laboratory topics include:
1. electric charge, electric force, and electric field,
2. Gauss's law,
3. electric potential,
4. electrostatic energy and capacitors,
5. electric current and electric circuits,
6. magnetic force and magnetic field,
7. electromagnetic induction,
8. electromagnetic waves,
9. interference and diffraction in optics and quantum physics.

Learning Outcomes:
1. Development of laboratory skills, including the ability to make measurements, analyze data, and draw valid conclusions.
2. Ability to estimate uncertainties in measurements and to take them into account in undertaking analyses and making conclusions.
3. Some ability to think critically and work independently.
4. Some ability with scientific communication, both written and oral.
5. Some ability to collaborate with peers.

Course Design:

Indicate how the course design supports students in achieving the learning objectives. For example, in the absence of scheduled contact hours what role does student-to-student and/or student-to-instructor communication play, and how is it encouraged?

Detail any aspects of the content, delivery, or learning goals that involve "face-to-face" communication, non-campus attendance or experiential education components.

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial on-campus attendance.

Laboratory activities are a key component of first-year Physics courses at York. Students work both individually and in pairs or small teams to obtain measurements, analyze those data, and form conclusions and answer questions based on their observations. TAs are present to troubleshoot equipment and provide guidance at all lab activities.

Instruction:

1. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.).
2. Number of department members currently competent to teach the course.
3. Instructor(s) likely to teach the course in the coming year.
4. An indication of the number of contact hours (defined in terms of hours, weeks, etc.) involved, in order to indicate whether an effective length of term is being maintained **OR** in the absence of scheduled contact hours a detailed breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.

1. Anticipated to be offered in Winter 2020-2021, and possibly in S2 and Winter terms thereafter as needed.

2. All physics faculty members are competent to teach this course.

3. Scott Menary.

4. Five three-hour labs.

Evaluation:

A detailed percentage breakdown of the basis of evaluation in the proposed course must be provided.

If the course is to be integrated, the additional requirements for graduate students are to be listed.

If the course is amenable to technologically mediated forms of delivery please identify how the integrity of learning evaluation will be maintained. (e.g. will "on-site" examinations be required, etc.)

Labs = 100%

Any student who wishes to take second-year PHYS courses must pass both the lecture and laboratory components of each semester of first-year physics with a grade of C or better, either in the same semester or separate semesters.

Bibliography:

A READING LIST MUST BE INCLUDED FOR ALL NEW COURSES

The Library has requested that the reading list contain complete bibliographical information, such as full name of author, title, year of publication, etc., and that you distinguish between required and suggested readings. A statement is required from the bibliographer responsible for the discipline to indicate whether resources are adequate to support the course.

Also please list any online resources.

If the course is to be integrated (graduate/ undergraduate), a list of the additional readings to be required of graduate students must be included. If no additional readings are to be required, a rationale should be supplied.

LIBRARY SUPPORT STATEMENT MUST BE INCLUDED.

Department of Physics & Astronomy First-year Physics Lab Manual.

Sample textbook for related lecture courses:
Essential University Physics (volume 1), Richard Wolfson, third edition, 2016.

Other Resources:

A statement regarding the adequacy of physical resources (equipment, space, etc.) must be appended. If other resources will be required to mount this course, please explain

COURSES WILL NOT BE APPROVED UNLESS IT IS CLEAR THAT ADEQUATE RESOURCES ARE AVAILABLE TO SUPPORT IT.

This course will use the same lab equipment and space presently used for PHYS 1012, 1412, and 1422. This course will effectively serve as an additional section of the labs for those courses.

Course Rationale:

The following points should be addressed in the rationale:

How the course contributes to the learning objectives of the program / degree.

The relationship of the proposed course to other existing offerings, particularly in terms of overlap in objectives and/or content. If inter-Faculty overlap exists, some indication of consultation with the Faculty affected should be given.

The expected enrolment in the course.

The laboratory experience of this course is an essential foundation for all courses that follow, for any student majoring in physics, astronomy or biophysics.

The enrolment in this course is expected to be less than one section (24 students) in Winter 2020-2021. In the case of very small enrolments, the section can be held at the same time as a lab section of PHYS 1012, 1412, or 1422, with the combined enrolment of both sections limited to 24 students.

Faculty and Department Approval for Cross-listings:

If the course is to be cross-listed with another department, this section needs to be signed by all parties. In some cases there may be more than two signatures required (i.e. Mathematics, Women's Studies). In the majority of the cases either the Undergraduate Director or Chair of a unit approves the agreement to cross-list. All relevant signatures must be obtained prior to submission to the Faculty curriculum committee.

Dept:	Signature (Authorizing cross-listing)	Department	Date
Dept:	Signature (Authorizing cross-listing)	Department	Date
Dept:	Signature (Authorizing cross-listing)	Department	Date

Accessible format can be provided upon request.

LASSONDE SCHOOL OF ENGINEERING | YORK UNIVERSITÉ UNIVERSITY

Note: Any section shaded blue **must** be completed for Engineering related courses **in addition** to the other sections

CURRICULUM COMMITTEE TEMPLATE
CHANGES TO EXISTING COURSE PROPOSAL FORM (EECS and ESSE Courses ONLY)

Faculty: Indicate all relevant Faculty(ies) i.e. LAPS/SC/LE	LE
Department: Indicate department and course prefix (e.g. Languages, GER)	ESSE
Date of Submission:	Jan 18 2020
Effective Session for Change: **Term:** (e.g., Fall; Winter; Summer)	Fall
Year:	2020
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	3030
Var:	
Academic Credit Weight: Indicate both the fee, and MET weight if different from academic weight (e.g. AC=6, FEE=8, MET=6)	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Atmospheric Radiation and Thermodynamics
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - **maximum 40 characters**	Atmospheric Radiation and Thermodynamics

Is this course cross-listed? (Yes/No) Yes

If *yes*, cross-listed to: *(please complete details below)*

Faculty:	SC	**Rubric:**	PHYS	**Course #:**	3080	**Weight:**	3.00
Faculty:		**Rubric:**		**Course #:**		**Weight:**	
Faculty:		**Rubric:**		**Course #:**		**Weight:**	

Type of Change (check all that apply): (*click check box to enable check-mark option*)

- ☐ in course number / year-level
- ☐ in credit value
- ☐ in course title (editorial)
- ☐ other (please specify):
- ☐ in calendar description (editorial)
- ☒ in pre-requisite(s)/co-requisite(s)
- ☐ in cross-listing
- ☐ in course credit exclusion(s)
- ☐ in course format/delivery mode
- ☐ retire/expire course

(Change From):	(Change To):
Example: ~~Delete~~ this text. **Course Description:** Applications of basic thermodynamic principles to dry and moist atmospheric situations. Solar (short wave) and terrestrial (long wave) radiation with respect to absorption and scattering processes involving atmospheric atoms, molecules, aerosol particles and clouds. Prerequisites: SC/MATH 2015 3.0; SC/MATH 2271 3.00; SC/PHYS 1010 6.00, or a minimum grade of C in SC/PHYS 1410 6.00 or SC/PHYS 1420 6.00.	Example: **Add** this text. **Course Description:** Applications of basic thermodynamic principles to dry and moist atmospheric situations. Solar (short wave) and terrestrial (long wave) radiation with respect to absorption and scattering processes involving atmospheric atoms, molecules, aerosol particles and clouds. Prerequisites: SC/MATH 2015 3.0; SC/MATH 2271 3.00; SC/PHYS 1011 3.00 and SC/PHYS 1012 3.00; or SC/PHYS 1010 6.00; or any of the following acceptable substitutes: SC/PHYS 1800 3.00 and SC/PHYS 1801 3.00; or SC/ISCI 1310 6.00; or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; or any of the following with a minimum grade of C in each course: SC/PHYS 1410 6.00; SC/PHYS 1420 6.00; SC/PHYS 1411 3.00 and SC/PHYS 1412 3.00; SC/PHYS 1421 3.00 and SC/PHYS 1422 3.00.

Academic Rationale for Changes

The following points should be included in the rationale:

- How the course contributes to the educational objectives of the **program/degree/Faculty**.

-The relationship of the proposed change to other existing offerings, particularly in terms of overlap in objectives and/or content. If inter-Faculty overlap exists, some indication of consultation with the Faculty affected should be given.

- The expected enrolment in the course.

1) Change in first year Physics prerequisites: In the 2020-2021 academic year, Physics and Astronomy (PHAS) will begin offering their first-year physics courses as pairs of 3-credit courses instead of single 6-credit courses: for example, SC/PHYS 1011 3.00 in the fall and SC/PHYS 1012 3.00 in the winter, instead of SC/PHYS 1010 6.00 Y. For students not in EATS or PHAS programs, or transferring into EATS or PHAS programs, PHYS 18xx or ISCI 13xx courses satisfy requirements for their PHYS 10xx counterparts. PHYS 14xx courses (not intended for Physics or engineering majors) require a minimum grade of C to satisfy the requirement for their PHYS 10xx counterparts.

Notes:

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

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 in this form. 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.

Accreditation Unit Breakdown:

Indicate the **revised** accreditation unit breakdown as a percentage and unit(s) in the appropriate subject matter areas. Definitions are provided in Appendix A

	Math	Natural Science	Compl Studies	Eng. Science	Eng. Design
Percentage					
Units					
If the sum of engineering science and engineering design exceeds 50% of the total, indicate which P.Eng. faculty could be possible instructors for this course:					

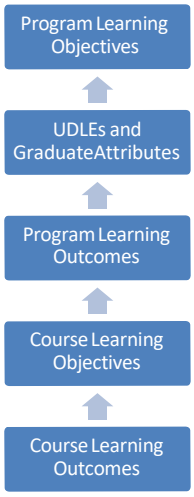
Expanded Course Description:

Please provide a detailed course description, including topics/theories and learning objectives, as it will appear in supplemental calendars for any revisions made.

Expanded Description including topics and theories:

Unchanged.

Course Learning Objectives: Course learning objectives are statements of the overall learning and teaching intentions for the course and represent what the instructor would expect students to learn and retain in the course. They articulate what the teacher plans to achieve in the course.



Unchanged.

Course Design:

Indicate how the course design supports students in achieving the learning objectives. For example, in the absence of scheduled contact hours what role does student-to-student and/or student-to-instructor communication play, and how is it encouraged?

Please detail any aspects of the content, delivery, or learning goals that involve "face-to-face" communication, non-campus attendance or experiential education components.

Alternatively, please explain how the course design encourages student engagement and supports student learning in the absence of substantial on-campus attendance

Unchanged,

<table>
<tr>
<td>Course Learning Outcomes:

Unchanged.</td>
<td>
Please select those Degree Level Expectations that will be addressed in the course

Undergraduate Degree Level Expectations
☐ Depth and breadth of knowledge
☐ Knowledge of methodologies
☐ Application of knowledge
☐ Communication skills
☐ Awareness of limits of knowledge
☐ Autonomy and professional capacity

Learning outcomes articulate what the student will achieve by the end of the course. They provide a framework for assessment by stating what you expect the learners to be able to demonstrate after completing the course.

A succinct learning outcome specifies the tasks students are expected to be able to perform and the level of competence expected for the tasks.
</td>
<td>
Please select those CEAB Graduate Attributes that will be addressed in the course (see appendix B for definitions)

Graduate Attribute
☐ Knowledge base for Engineering
☐ Problem Analysis
☐ Investigation
☐ Design
☐ Use of Engineering Tools
☐ Individual and Team Work
☐ Communication Skills
☐ Professionalism
Impact of Engineering on Society and the Environment
☐ Ethics and Equity
Economics and Project Management
☐ Life-Long Learning
</td>
</tr>
</table>

Instruction:

1. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.).

2. Number of department/division members currently competent to teach the course.

3. Instructor(s) likely to teach the course in the coming year.

4. An indication of the number of contact hours (defined in terms of hours, weeks, etc.) involved, in order to indicate whether an effective length of term is being maintained OR in the absence of scheduled contact hours a detailed breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.

Unchanged.

Faculty and Department/ Division Approval for changes to Cross-listings:

If the course is to be cross-listed with another department/division this section needs to be signed by all parties. In some cases there may be more than two signatures required (i.e. Mathematics, Women's Studies). In the majority of cases either the Undergraduate Director or Chair of a unit approves the agreement to cross-list. All relevant signatures must be obtained prior to submission to the Faculty curriculum committee.

Dept.: _____ _____ _____
Signature (Authorizing cross-list) Department Date

Dept.: _____ _____ _____
Signature (Authorizing cross-list) Department Date

Dept.: _____ _____ _____
Signature (Authorizing cross-list) Department Date

APPENDIX A: Accreditation Units

Accreditation Units (AUs) are defined on an hourly basis for an activity which is granted academic credit and for which the associated number of hours corresponds to the actual contact time between the student and the faculty members, or designated alternates, responsible for delivering the program:

1 AU = One hour of lecture (corresponding to 50 minutes of activity)
0.5 AU = One hour of laboratory or scheduled tutorial

Engineering design integrates mathematics, basic sciences, engineering sciences and complementary studies in developing elements, systems and processes to meet specific needs. It is a creative, iterative and often open-ended process subject to constraints which may be governed by standards or legislation to varying degrees depending upon the discipline. These constraints may relate to economic, health, safety, environmental, social or other pertinent interdisciplinary factors.
[The primary feature distinguishing engineering science from engineering design is the open ended nature of the problems. A design question runs along the lines of "design a system that meets the following specifications" whereas an engineering science question is "for the following example, calculate X, Y, and Z"]

Engineering science subjects normally have their roots in mathematics and basic sciences, but carry knowledge further toward creative applications. They may involve the development of mathematical or numerical techniques, modelling, simulation and experimental procedures. Application to the identification and solution of practical engineering problems is stressed. Such subjects include the applied aspects of strength of materials, fluid mechanics, thermodynamics, electrical and electronic circuits, soil mechanics, automatic control, aerodynamics, transport phenomena and elements of materials science, geoscience, computer science, environmental studies and other subjects pertinent to the discipline. In addition, the curriculum should include engineering science content which imparts an appreciation of important elements of other engineering disciplines.

[i.e. the subject may be science, but the aim is towards practical applications, with practical examples.]

The basic (natural) sciences component of the curriculum must include elements of physics and chemistry; elements of life sciences and earth sciences may also be included in this category. These subjects are intended to impart an understanding of natural phenomena and relationships through the use of analytical and/or experimental techniques.

Mathematics includes appropriate elements of linear algebra, differential and integral calculus, differential equations, probability, statistics, numerical analysis and discrete mathematics.

Complementary studies in humanities, social sciences, arts, management, engineering economics and communication that complement the technical content of the curriculum.

[If a course is to include a complementary studies component, a portion of the grading must be allocated accordingly, e.g. part of the grade is for the grammar of a report.]

APPENDIX B: CEAB GRADUATE ATTRIBUTES

Section	Graduate Attribute	Description
3.1.1	Knowledge base for Engineering	Demonstrated competence in university level mathematics, natural sciences, engineering fundamentals, and specialized engineering knowledge appropriate to the program.
3.1.2	Problem Analysis	An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions.
3.1.3	Investigation	An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis and interpretation of data, and synthesis of information in order to reach valid conclusions.
3.1.4	Design	An ability to design solutions for complex, open-ended engineering problems and to design systems, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural and societal considerations.
3.1.5	Use of Engineering Tools	An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern engineering tools to a range of engineering activities, from simple to complex, with an understanding of the associated limitations.
3.1.6	Individual and Team Work	An ability to work effectively as a member and leader in teams, preferably in a multi-disciplinary setting.
3.1.7	Communication Skills	An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.
3.1.8	Professionalism	An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.
3.1.9	Impact of Engineering on Society and the Environment	An ability to analyze social and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.
3.1.10	Ethics and Equity	An ability to apply professional ethics, accountability, and equity.
3.1.11	Economics and Project Management	An ability to appropriately incorporate economics and business practices including project, risk, and change management into engineering practice and to understand their limitations.
3.1.12	Life-Long Learning	An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge.

Program Proposal for the Space Science Program, Faulty of Science

1. Streams:

   Physics and Astronomy (Faculty of Science)

   Earth and Atmospheric Science (Lassonde School of Engineering)

2. Degree Designation:

   Specialized Honours BSc, Earth and Atmospheric Science, Space Science Stream

   Specialized Honours BSc, Physics and Astronomy, Space Science Stream

3. Type of Modification:

   Changes to program requirements.

4. Effective Date:

   Fall 2021

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5. Provide a general description of the proposed changes to the program.

   Update to Physics requirement to specifically include newer and equivalent course versions. First-year Physics will now be offered as two 3-credit courses rather than one 6-credit course. Four sequences are offered: PHYS 1011+1012 (physics majors), PHYS 1800+1801 (engineering majors), PHYS 1421+1422 (biological sciences majors), and PHYS 1411+1412 (all other majors). Any first-semester course can in principle serve as a prerequisite for any second-semester course.

   Additional housekeeping changes to the Space Science Stream, approved by ESSE and PHAS:

   1) Approximately 4 to 6 years ago, PHAS agreed to transfer their courses PHYS 4360.03 (Payload Design) and PHYS 3310.03 (Space Mission Design) to ESSE (now ESSE 4360.03 and ESSE 4361.03). The changes in course department name were made to the Space Engineering curriculum and the two PHYS versions were retired. These changes are now applied to both the EATS and PHAS Space Science stream.
   2) Approximately 4 to 6 years ago, all EATS streams changed their first year Computer Science course to the Matlab-based EECS 1541.03 (Introduction to Computing for the Physical Sciences). This change is now applied to the EATS Space Science stream, i.e. EECS 1541.03 in place of the HTML/Java-based EECS 1012 (Introduction to Computer Science: A Netcentric Approach).
   3) The elective ESSE 4610.03 (Global Positioning Systems) has been retired and replaced by ESSE 3670 (Global Navigation and Satellite Systems), and this update has been made to both Space Science streams.

4) LE/ESSE 3300 has been replaced by ESSE 3600 (Geographical Information Systems and Spatial Analysis). Only the course number was changed.

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

   No change to learning outcomes.

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. If changes to the admission requirements are being proposed, comment on the appropriateness of the revised requirements to the achievement of the program learning outcomes.

   No change in mapping of program requirements to program learning outcomes.

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.

   These changes are the result of consultation between the Physics and Astronomy Department and the Earth and Space Science and Engineering Department.

9. 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 resource implications.

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

    The course requirements specifically still allow the previous 6-credit first-year PHYS courses to be used to satisfy requirements.

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 attached.

Proposed Changes to the Program-Specific Degree Requirements of the Space Science Program, Faculty of Science, in the Academic Calendar

Rationale:

- Update to Physics requirement to specifically include newer and equivalent course versions.
- Cleanup of outdated requirements (e.g., retired courses, and courses transferred from PHYS to ESSE), a result of joint consultation between PHAS and ESSE.

Change from	Changes	Change to
The Department of Earth and Space Science and Engineering, Lassonde School of Engineering with the Department of Physics and Astronomy, Faculty of Science, jointly offers a Specialized Honours degree stream in space science. After completing a two-year foundational curriculum, space science students may choose one of two options: the first, which focuses upon the observation of the earth and atmosphere from space, is provided by the Department of Earth and Space Science and Engineering, Lassonde School of Engineering; the second, which focuses upon space astronomy and space exploration, is provided by the Department of Physics and Astronomy, Faculty of Science. Students in good standing may transfer Faculties if necessary to follow the option of their choice. Courses for the third and fourth years for the EATS space stream are noted below. Space Science Program Core The space science core is defined as the following 43 credits: LE/ESSE 1010 3.00; LE/ESSE 1011 3.00; SC/MATH 1025 3.00; SC/PHYS 1070 3.00; LE/EECS 2501 1.00; LE/ESSE 2030 3.00; LE/ESSE 2470 3.00; SC/MATH 2015 3.00; SC/MATH 2271 3.00; SC/PHYS 2010	The Department of Earth and Space Science and Engineering, Lassonde School of Engineering with the Department of Physics and Astronomy, Faculty of Science, jointly offers a Specialized Honours degree stream in space science. After completing a two-year foundational curriculum, space science students may choose one of two options: the first, which focuses upon the observation of the earth and atmosphere from space, is provided by the Department of Earth and Space Science and Engineering, Lassonde School of Engineering; the second, which focuses upon space astronomy and space exploration, is provided by the Department of Physics and Astronomy, Faculty of Science. Students in good standing may transfer Faculties if necessary to follow the option of their choice. Courses for the third and fourth years for the EATS space stream are noted below. Space Science Program Core The space science core is defined as the following 43 credits: LE/ESSE 1010 3.00; LE/ESSE 1011 3.00; SC/MATH 1025 3.00; SC/PHYS 1070 3.00; LE/EECS 2501 1.00; LE/ESSE 2030 3.00; LE/ESSE 2470 3.00; SC/MATH 2015 3.00; SC/MATH 2271 3.00; SC/PHYS 2010	The Department of Earth and Space Science and Engineering, Lassonde School of Engineering with the Department of Physics and Astronomy, Faculty of Science, jointly offers a Specialized Honours degree stream in space science. After completing a two-year foundational curriculum, space science students may choose one of two options: the first, which focuses upon the observation of the earth and atmosphere from space, is provided by the Department of Earth and Space Science and Engineering, Lassonde School of Engineering; the second, which focuses upon space astronomy and space exploration, is provided by the Department of Physics and Astronomy, Faculty of Science. Students in good standing may transfer Faculties if necessary to follow the option of their choice. Courses for the third and fourth years for the EATS space stream are noted below. Space Science Program Core The space science core is defined as the following 43 credits: LE/ESSE 1010 3.00; LE/ESSE 1011 3.00; SC/MATH 1025 3.00; SC/PHYS 1070 3.00; LE/EECS 2501 1.00; LE/ESSE 2030 3.00; LE/ESSE 2470 3.00; SC/MATH 2015 3.00; SC/MATH 2271 3.00; SC/PHYS 2010

3.00; SC/PHYS 2020 3.00; SC/PHYS 2030 3.00; SC/PHYS 2040 3.00; SC/PHYS 2060 3.00; SC/PHYS 2213 3.00. **Note:** alternatively the first year engineering core would be an acceptable substitute for the first year courses. All Honours BSc degree candidates are encouraged to complete a non-credit industrial internship (normally salaried). This provides experience in a four-month to 12-month placement, normally after the third year of study. Specialized Honours BSc A. General education: non-science requirement: 12 credits; mathematics: SC/MATH 1013 3.00; SC/MATH 1014 3.00; computer science: LE/EECS 1012 3.00; foundational science: SC/PHYS 1010 6.00; and one of SC/CHEM 1000 3.00 OR SC/CHEM 1001 3.00. B. Major requirements: *EARTH AND ATMOSPHERIC SCIENCE STREAM* the space science program core as specified above; LE/ESSE 3030 3.00; LE/ESSE 3040 3.00; LE/ESSE 3280 3.00; LE/ESSE 3300 3.00; LE/ESSE 3610 3.00; SC/MATH 3241 3.00; SC/MATH 3271 3.00; SC/PHYS 4361 3.00; LE/ESSE 4020 3.00 or SC/PHYS 4250 3.00; LE/ESSE 4220 3.00; LE/ESSE 4230 3.00; at least 15 credits from: LE/ESSE	3.00; SC/PHYS 2020 3.00; SC/PHYS 2030 3.00; SC/PHYS 2040 3.00; SC/PHYS 2060 3.00; SC/PHYS 2213 3.00. **Note:** alternatively the first year engineering core would be an acceptable substitute for the first year courses. All Honours BSc degree candidates are encouraged to complete a non-credit industrial internship (normally salaried). This provides experience in a four-month to 12-month placement, normally after the third year of study. Specialized Honours BSc A. General education: non-science requirement: 12 credits; mathematics: SC/MATH 1013 3.00; SC/MATH 1014 3.00; computer science~~: LE/EECS 1012 3.00;~~ foundational science: ~~SC/PHYS 1010 6.00;~~ and one of SC/CHEM 1000 3.00 OR SC/CHEM 1001 3.00. B. Major requirements: *EARTH AND ATMOSPHERIC SCIENCE STREAM* the space science program core as specified above; LE/ESSE 3030 3.00; LE/ESSE 3040 3.00; LE/ESSE 3280 3.00~~; LE/ESSE 3300 3.00~~; LE/ESSE 3610 3.00; SC/MATH 3241 3.00; SC/MATH 3271 3.00; ~~SC/PHYS 4361 3.00~~; LE/ESSE 4020 3.00 or SC/PHYS 4250 3.00; LE/ESSE 4220 3.00; LE/ESSE 4230 3.00; at least 15 credits from: LE/ESSE	3.00; SC/PHYS 2020 3.00; SC/PHYS 2030 3.00; SC/PHYS 2040 3.00; SC/PHYS 2060 3.00; SC/PHYS 2213 3.00. **Note:** alternatively the first year engineering core would be an acceptable substitute for the first year courses. All Honours BSc degree candidates are encouraged to complete a non-credit industrial internship (normally salaried). This provides experience in a four-month to 12-month placement, normally after the third year of study. Specialized Honours BSc A. General education: non-science requirement: 12 credits; mathematics: SC/MATH 1013 3.00; SC/MATH 1014 3.00; computer science: LE/EECS 1541 3.00; foundational science: SC/PHYS 1011 3.00 or SC/PHYS 1411 3.00 or SC/PHYS 1421 3.00 or SC/PHYS 1800 3.00, and SC/PHYS 1012 3.00 or SC/PHYS 1412 3.00 or SC/PHYS 1422 3.00 or SC/PHYS 1801 3.00, or SC/PHYS 1010 6.00, and one of SC/CHEM 1000 3.00 OR SC/CHEM 1001 3.00. B. Major requirements: *EARTH AND ATMOSPHERIC SCIENCE STREAM* the space science program core as specified above; LE/ESSE 3030 3.00; LE/ESSE 3040 3.00; LE/ESSE 3280 3.00; LE/ESSE 3600 3.00; LE/ESSE 3610 3.00; SC/MATH 3241

4000 3.00; LE/ESSE 4110 3.00 (cross-listed to: SC/PHYS 4110 3.00); LE/ESSE 4130 3.00; LE/ESSE 4140 3.00; LE/ESSE 4160 3.00; LE/ESSE 4610 3.00; LE/ESSE 4630 3.00; SC/PHYS 4330 3.00; SC/PHYS 4360 3.00. *PHYSICS AND ASTRONOMY STREAM* the space science program core as specified above: SC/PHYS 3020 3.00; SC/PHYS 3040 6.00; SC/PHYS 3050 3.00; SC/PHYS 3070 3.00; SC/PHYS 3150 3.00; SC/PHYS 3250 3.00; SC/PHYS 3280 3.00; three credits from: SC/PHYS 3010 3.00, SC/PHYS 3030 3.00, SC/PHYS 3080 3.00, SC/PHYS 3090 3.00, SC/PHYS 3220 3.00, SC/PHYS 3310 3.00, other courses approved by the Department of Physics and Astronomy; LE/ESSE 4110 3.00 (cross-listed to: SC/PHYS 4110 3.00); SC/PHYS 4330 3.00; SC/PHYS 4350 6.00; at least 11 credits from: LE/ESSE 4610 3.00, SC/PHYS 4010 3.00, SC/PHYS 4020 3.00, SC/PHYS 4040 3.00, SC/PHYS 4050 3.00, SC/PHYS 4070 3.00, SC/PHYS 4120 3.00, SC/PHYS 4270 4.00, SC/PHYS 4310 3.00, SC/PHYS 4360 3.00, SC/PHYS 4410 3.00. C. Science breadth: satisfied by above requirements. D. Upper level requirement: a minimum of 42 credits at the 3000	4000 3.00; LE/ESSE 4110 3.00 (cross-listed to: SC/PHYS 4110 3.00); LE/ESSE 4130 3.00; LE/ESSE 4140 3.00; LE/ESSE 4160 3.00~~; LE/ESSE 4610 3.00~~; LE/ESSE 4630 3.00~~; SC/PHYS 4330 3.00; SC/PHYS 4360 3.00~~. *PHYSICS AND ASTRONOMY STREAM* the space science program core as specified above: SC/PHYS 3020 3.00; SC/PHYS 3040 6.00; SC/PHYS 3050 3.00; SC/PHYS 3070 3.00; SC/PHYS 3150 3.00; SC/PHYS 3250 3.00; SC/PHYS 3280 3.00; three credits from: SC/PHYS 3010 3.00, SC/PHYS 3030 3.00, SC/PHYS 3080 3.00, SC/PHYS 3090 3.00, SC/PHYS 3220 3.00, ~~SC/PHYS 3310 3.00, other courses approved by the Department of Physics and Astronomy;~~ LE/ESSE 4110 3.00 (cross-listed to: SC/PHYS 4110 3.00); SC/PHYS 4330 3.00; SC/PHYS 4350 6.00; ~~at least 11 credits from: LE/ESSE 4610 3.00~~, SC/PHYS 4010 3.00, SC/PHYS 4020 3.00, SC/PHYS 4040 3.00, SC/PHYS 4050 3.00, SC/PHYS 4070 3.00, SC/PHYS 4120 3.00, SC/PHYS 4270 4.00, SC/PHYS 4310 3.00, ~~SC/PHYS 4360 3.00~~, SC/PHYS 4410 3.00. C. Science breadth: satisfied by above requirements. D. Upper level requirement: a minimum of 42 credits at the 3000	3.00; SC/MATH 3271 3.00; LE/ESSE 4020 3.00 or SC/PHYS 4250 3.00; LE/ESSE 4220 3.00; LE/ESSE 4230 3.00; LE/ESSE 4361 3.00; at least 15 credits from: LE/ESSE 3670 3.00; LE/ESSE 4000 3.00; LE/ESSE 4110 3.00 (cross-listed to: SC/PHYS 4110 3.00); LE/ESSE 4130 3.00; LE/ESSE 4140 3.00; LE/ESSE 4160 3.00; SC/PHYS 4330 3.00; LE/ESSE 4360 3.00; LE/ESSE 4630 3.00. *PHYSICS AND ASTRONOMY STREAM* the space science program core as specified above: SC/PHYS 3020 3.00; SC/PHYS 3040 6.00; SC/PHYS 3050 3.00; SC/PHYS 3070 3.00; SC/PHYS 3150 3.00; SC/PHYS 3250 3.00; SC/PHYS 3280 3.00; three credits from: SC/PHYS 3010 3.00, SC/PHYS 3030 3.00, SC/PHYS 3080 3.00, SC/PHYS 3090 3.00, or SC/PHYS 3220 3.00; LE/ESSE 4110 3.00 (cross-listed to: SC/PHYS 4110 3.00); SC/PHYS 4330 3.00; SC/PHYS 4350 6.00; at least 8 credits from: LE/ESSE 3670 3.00, LE/ESSE 4360 3.00, LE/ESSE 4361 3.00, SC/PHYS 4010 3.00, SC/PHYS 4020 3.00, SC/PHYS 4040 3.00, SC/PHYS 4050 3.00, SC/PHYS 4070 3.00, SC/PHYS 4120 3.00, SC/PHYS 4270 4.00, SC/PHYS 4310 3.00, SC/PHYS 4410 3.00. C. Science breadth: satisfied by above requirements. D. Upper level requirement: a

level or above. E. Additional elective credits, as required, for an overall total of 120 credits. 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.	level or above. E. Additional elective credits, as required, for an overall total of 120 credits. 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.	minimum of 42 credits at the 3000 level or above. E. Additional elective credits, as required, for an overall total of 120 credits. 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.

From:	Joanne Sequeira
To:	Mary-Helen Armour; Sibonile Siyakatshana
Cc:	Faculty of Science Associate Dean Research & Graduate Education
Subject:	Fw: Email from Senate Executive re. FSc Graduate Curriculum Committee
Date:	Friday, May 08, 2020 10:12:34 AM
Attachments:	The Graduate Education Committee.docx

Good morning,

Please find attached changes to the membership composition of the committee.

Here is Jennifer's response for the concerns raised by Senate Executive.

1. *Because the Faculty of Graduate Studies review committee (APPC) no longer has an approval role for changes to graduate education within the faculty, the Faculty of Science will need a review committee at the Faculty Council level. The committee structure was developed to include those who are closest to graduate education namely the GPDs.*
2. *We will add one member at large.*
3. *We will add one graduate student to the committee.*
4. *We will add one member from the Faculty of Health or from Lassonde School of Engineering.*

Best,
Joanne Sequeira

From: Cheryl Underhill
To: Sibonile Siyakatshana
Cc: Almira Mun; Pascal Robichaud; Amanda R Wassermuhl Subject: Proposed changes to Faculty of Science Council Rules Date: February 25, 2020 9:18:02 AM

Dear Sibonile and Almira,

Following a discussion with the Dean of the Faculty of Graduate Studies at its meeting on February 11, 2019, the Senate Executive Committee began to hone its thoughts on Faculty Councils' adoption of graduate studies curriculum and standards approval structures. At that same meeting, the Executive Committee reviewed changes to the Faculty Council Rules and procedures for the Faculty of Science. Several suggestions / questions emerged about the proposed Graduate Education Committee. Accordingly and to aid its ongoing review of the new standing Committee of Council, the Executive Committee requests additional information be provided from the Faculty as follows:

A rationale for the proposed composition of the Graduate Education committee, which includes the process undertaken to design the Committee structure Thoughts on broadening

the composition of the committee beyond just Graduate Program Directors to add members at large with Knowledge of graduate programming, and experience with curriculum approvals at the Faculty-level. Thoughts on adding a minimum of one graduate student member to the Committee. Thoughts on having members of a Faculty of Science graduate program who are not members of the anchor Faculty be eligible to serve on the Committee (i.e., a faculty member in a cognate program at Glendon).

Upon receiving the additional information, the Executive Committee will resume its review of the changes to Council Rules. Please do not hesitate to be in touch if you wish to discuss further any of the above.

Cheryl Underhill Senior Assistant Secretary of the University University Secretariat York University 1050 Kaneff Tower 416 736-2100 Extension 30335

The Graduate Education Committee

Amendment to the Rules and Procedures of Council

Item for Action: Creation of a Standing Committee Responsible for Graduate Studies (The Graduate Education Committee)

Mandate

To provide broad review and commendation to Council via the Academic Policy and Planning Committee of all proposals received from Graduate Programs with respect to:

• New Course Proposals

• Course Change Proposals

• Minor Changes to Program/Graduate Diploma Academic Requirements

• Major Modifications to Program/Graduate Diploma Academic Requirements

• New Graduate Fields

• New Graduate Diplomas

• New Graduate Degree Programs

Membership

The Graduate Education Committee shall consist of:

- Associate Dean – Research & Graduate Education (ex officio)

- Graduate Program Director (or designate who must be a member of the graduate program) of each Graduate Program in the Faculty of Science

-one graduate student member from any Graduate Program within the Faculty of Science

-one full-time faculty member from the Faculty of Health or Lassonde School of Engineering who is appointed to teach in any FSc graduate program

- A member at large with knowledge of graduate programming, and experience with curriculum approvals at the Faculty-level.

The Chair of the Committee is selected by the voting members of the Committee for a one-year term.

Building a Better Future:
York University Academic Plan 2020-2025

The University Academic Plan (UAP) 2020-2025 is about coming together to make positive change for our students, our campuses, and our local and global communities.

This UAP is launching at a moment of unprecedented trial for human and planetary health, security, and well-being. In the midst of a global pandemic, York University has demonstrated our fundamental solidarity and commitment to serving the public good while caring for all of our members. As a leading generator of knowledge, York has brought expertise from across disciplines to better understand the myriad dimensions of this historic crisis and to build new tools and strategies to overcome it. Notwithstanding physical distancing, we have truly come together as a community. In the process, we have proven once again York's commitment to an enduring and distinctive set of core values:

- We strive for **Excellence** in fulfilling all aspects of our mission.
- We are **Progressive**, encouraging open minded inquiry, innovative approaches, and forward looking solutions.
- We champion **Diversity and Inclusivity**, embracing differing perspectives, peoples, and ways of knowing, and fostering global fluency and cross-cultural knowledge.
- We are passionate about advancing **Social Justice and Equity** through critical insight, creative problem solving, and socially responsible action.
- We uphold **Sustainability** - environmental, social, and fiscal - as a vital compass for decisions and initiatives.

These values are embedded in York University's Mission and Vision statements:

Mission

The mission of York University is the pursuit, preservation, and dissemination of knowledge. We promise excellence in research and teaching in pure, applied, and professional fields. We test the boundaries and structures of knowledge. We cultivate the critical intellect. York University is part of Toronto: we are dynamic, metropolitan, and multi-cultural. York University is part of Canada: we encourage bilingual study, we value diversity. York University is open to the world: we explore global concerns. A community of faculty, students, staff, alumni, and volunteers committed to academic freedom, social justice, accessible education, and collegial self-governance. York University makes innovation its tradition. *Tentanda Via*: The way must be tried.

Vision

York's vision is to provide a broad sociodemographic of students with access to a high quality education at a research intensive University that is committed to enhancing the well-being of the communities we serve.

The Journey to 2020

After a decade of rapid development York has arrived as a fully comprehensive, research-intensive, multi-campus, urban University. We combine groundbreaking scholarship, discovery, and artistic creation with renowned strengths in community engaged and industry partnered research for maximum social and economic impact.

We are a full spectrum University, increasingly recognized for excellence in health, engineering, and sciences, while we continue to lead in liberal arts, creative and performing arts, and professional studies. The comprehensive strengths of our Keele campus are enhanced by our bilingual Glendon campus, our downtown professional learning sites devoted to law and business, and our international campuses in Hyderabad, India and Las Nubes, Costa Rica.

York boasts one of the largest and most diverse undergraduate and graduate student bodies in Canada, almost 18% of whom are now international students. Through the ingenuity of our faculty, we have dramatically grown the opportunities for students to access our programs virtually from anywhere in the world, and to learn experientially through community placements, capstone projects, and research internships. Students are embracing new programs in emerging areas like Global Health, Indigenous Studies, Digital Media, and Management of Artificial Intelligence. Our School of Continuing Studies has quickly become one of North America's largest and most successful, offering cutting-edge and flexible pathways to education for adult learners looking to retool their careers.

Through the growth of Innovation York, we have emerged as a thriving regional hub for entrepreneurship and knowledge mobilization. We value our deep connections to local and global partners, who work with us to contribute to the wellbeing of both people and communities. York University has a global alumni network of over 325,000 people in more than 170 countries, who are making a positive impact on their communities and excelling in every field of human endeavour.

Where We Are Going

York is entering a new phase of purposeful expansion in directions that anticipate the needs of future learners, both locally and globally, as well as the evolving needs of society. We will launch a new campus in Markham centred on technology and entrepreneurship. We will develop an integrated health precinct with partners in Vaughan. We will take steps to realize the potential of the Lands for Learning at our flagship Keele Campus. We will elevate our international partnerships and profile, and the global connectivity of our research and our graduates. To enable this future-oriented vision, we will invest in robust professional development for our instructors and in the significant renewal of our research and teaching infrastructure, both physical and virtual.

York has scaled up its health-related teaching, research, and innovation based on a vision of keeping more people healthier, longer. We are well placed over time to establish a medical school that is designed in a manner consistent with this vision, to serve one of Canada's fastest

growing and most diverse regions through a community-based care model that integrates physicians into broader health and wellbeing promotion teams.

Focusing on the next five years, this Plan charts a path to positive change in relation to six Priorities that are foundational to York University's mission, vision, and identity. For each Priority the Plan explains the reasons why action is imperative and the key aims that will guide us. Permeating all six Priorities is a theme of *coming together* as both a precondition and an outcome of fulfilling the Plan. A better future must be rooted in strong relationships – among the members of our own institution, across our multiple campuses, with our closest neighbours and Indigenous communities, and with our burgeoning networks of partners near and far.

In the spirit of coming together, the people of YorkU have also expressed a strong desire to bring our unique capacities to bear on some of the most urgent issues facing the planet, from climate change to inequality to truth and reconciliation to forced migration, among others. Over the next five years, we will challenge ourselves as a University to deepen our collective contributions to the United Nations' Sustainable Development Goals (SDGs). The York University SDG Challenge will transect all of our Priority areas and will be open to all interested members of our community. York is already recognized globally for our excellence in SDG-relevant research, education, innovation, and civic action. The SDG Challenge will further elevate our engagement and project our distinctive ethos as a community of changemakers.

York University's Planning Ecosystem

The UAP 2020-2025 marks a new beginning. At the same time, it builds on the transformational work already underway across the institution. This Plan is designed to function as a meta-document that links our existing academic plans and initiatives into a coherent whole. It embeds and affirms the University's Strategic Research Plan, its Indigenous Framework, and a new Internationalization & Global Engagement Strategy, among others. These focused strategies are embraced as vital elements that infuse the UAP as an overarching statement of our direction over the next five years.

The UAP also informs our operational and budget plans. York is known as a leader in Integrated Resource Planning (IRP) to ensure that high-level strategies do not sit on a shelf but are translated into concrete implementation plans. Every faculty and administrative unit has an IRP that lays out the specific actions it is taking to implement the UAP with timelines and regular progress reports, so that human and financial resources are continually aligned to support our stated academic priorities and goals.

Six Priorities for Action

York University has an enduring commitment to critical inquiry and the pursuit of knowledge that comes from many differing perspectives and ways of knowing. As a learning community, we believe in the power of research, scholarship, creativity, education, and dialogue to transform ourselves and the world around us for the better. We share a collective belief in the university as a public trust.

This Plan is designed to uphold the fundamental values of the University, even as we evolve its role and reach to ensure our graduates are equipped for a future that will be defined by dramatic change.

- Climate and environmental change raise urgent questions for virtually every field of endeavour and a need to come up with innovative solutions.
- People are ever more connected through digital networks and physical mobility, generating complexity as well as immense possibilities to accelerate collaboration and problem solving.
- Technology is simultaneously enabling, enhancing, and disrupting every sphere of life and work, as well as revolutionizing how people learn, think, and create.

- Global power shifts translate into local tensions and inequities, highlighting the need for meaningful strategies to enhance international cooperation, economic inclusion, and social cohesion.

York University brings distinctive capabilities to the table to meet these challenges and find the opportunities that lie within them. This UAP positions York clearly as an agent of positive change for our students, for higher education, for society at large, and for the planet. We believe that at this juncture, to make a better future, the world needs more of York University.

Each of the six Priorities focuses on a key dimension of positive change that York University will pursue over the life of the Plan. The Priorities are conceptualized as a wheel to reflect their fluidity and interdependence. Each Priority depends upon the others to fully realize the UAP, just as the people of YorkU depend upon each other to thrive as a whole community.

21st Century Learning: Diversifying Whom, What, and How We Teach

Why: Every York University graduate, regardless of background or field of study, must be equipped with the knowledge, transferable skills, and values to navigate a 21st century world in which change is the only constant.

This Priority speaks to the unparalleled diversity of our student body as a source of pride and a comparative advantage that differentiates York University as an institution. York has become a global magnet for talented people drawn by our academic excellence, cosmopolitan character, and commitment to making a positive difference. The next five years will see:

- continued efforts to make York an attractive destination for more Indigenous students, in line with our Indigenous Framework; and
- additional growth and diversification of our international student body, reaching our goal of 20-25% of our students being international.

This Priority also highlights the value we place on diversity of thought. To prepare our students to live, work, and act meaningfully in the world, we will:

- continually reinvent our programs to address emerging issues and labour market needs that call for new pedagogical approaches and cross-disciplinary thinking
- pursue inclusive excellence by decolonizing curriculum and ensuring our graduates are known for their global mindset, ethical judgment, and superior ability to integrate diverse ideas and worldviews
- build essential 21st century skills into our programs, including digital fluencies, information literacies, critical thinking, and the ability to ask good questions, marshall evidence, and communicate effectively in a variety of media

Finally, this Priority speaks to diversifying how we teach in an era of perpetual, universal learning. Rather than acquiring static knowledge, the hallmark of a quality education is now intellectual agility, adaptability, and knowing how to learn in any context. To meet this challenge we will:

- offer a wider range of credentials and flexible delivery options, in person and online, to expand access to learning for diverse individuals at multiple stages of their lives and careers
- attain our goal of providing every student with an experiential learning opportunity, regardless of program
- create more physical and virtual capacity for active and collaborative learning, so that students gain skills in working with others along with the joy of belonging to a learning community, wherever they are located

- encourage students to become lifelong learners with the curiosity, research and creative skills, and habits of mind to continually question and update their own knowledge
- enhance and update teaching and professional development supports for all instructors, including tenure-stream and contract faculty as well as teaching assistants.

Knowledge for the Future: From Creation to Application

Why: As change accelerates around us, we aim to be more responsive to our communities by generating critical knowledge and works of art, ideas that engage multiple perspectives, and innovations that propel Ontario as a global knowledge-economy leader.

We have laid out an ambitious agenda for the continued growth and application of our research, scholarship, and creative activity in our Strategic Research Plan (SRP) 2018-2023: Towards New Heights. We remain committed to this agenda, including in particular:

- increasing the research participation of faculty and trainees at all levels across the institution
- accelerating growth in the number and diversity of our scholarly and artistic outputs and research funding base
- expanding the influence of our work through broadening and deepening our external partnerships and engagement in the generation and sharing of knowledge and creative works
- maximizing our impact by building on the success of Innovation York to expand student, faculty, and community access to entrepreneurial programming and to increase our innovation activities
- implementing our Open Access Policy (2019)

Based on a thorough scan of activity across the University, the SRP mapped our established research and creative strengths across six intersecting themes, in which we are demonstrating national and international leadership:

Advancing Fundamental Inquiry and Critical Knowledge	Analyzing Cultures and Mobilizing Creativity
Building Healthy Lives, Communities, and Environments	Exploring and Interrogating the Frontiers of Science and Technology
Forging a Just and Sustainable World	Integrating Entrepreneurial Innovation and the Public Good

We expect to continue to grow and excel in these areas, with the help of investments that are already underway in enhanced infrastructure and in supports for our faculty. These include maintaining consistent high quality supports for individual investigators across the institution, as well as more focused investments in large-scale, collaborative research programs that cross disciplines and often borders with an array of partners. York University enters this UAP with an expanded cohort of graduate students and post-doctoral fellows from Canada and around the world, who will both participate in and accelerate this agenda.

The continued growth of our research and creative activities also demands that we support scholarly communities in keeping with the theme of *coming together.* York's excellence in inter- and transdisciplinary research is renowned and positions us for leadership in addressing the most complex and pressing issues of the day, such as those highlighted by the UN's SDGs. During this Plan, we will further cultivate this way of thinking across disciplines by means of our Organized Research Units and beyond, and find ways to infuse it deeply in student learning as well as in our research and creative activities and output.

The SRP 2018-2023 identified five areas where York has a clear opportunity to achieve new levels of research success in ways that bring a distinctively York perspective to addressing compelling challenges of our time:

Exciting initiatives are already underway, which include a new Centre for Indigenous Knowledges and Languages and an AI Taskforce, examining how York can become a distinctive leader in research and teaching that engages critically and humanistically with the development of technologies including artificial intelligence and machine learning.

Over the life of this UAP, we will continue to resource these efforts in particular by implementing our Faculty Complement Renewal Strategy, which calls for continued growth, renewal, and diversification of our tenure-stream faculty complement, including the use of cluster hiring to advance strategic priorities. This will also require focused efforts to meet current and future research infrastructure needs, to provide mentorship for an incoming generation of scholars, and to ensure that our faculty's research and creative outputs are disseminated ever more widely and recognized both internally and externally.

From Access to Success: Next Generation Student Supports

Why: With many of our students facing current challenges and uncertain futures, York will devote additional attention to supporting students of all backgrounds and circumstances to complete their studies successfully and to realize their full potentials.

A core value of York University since its inception has been to provide access to all eligible students so that no talent is left behind. We serve large numbers of students who are new Canadians, Black, Indigenous, racialized, from lower income backgrounds, or who are among the first in their families to attend university. We are proud that our campuses teem with students of diverse sexualities, abilities, nationalities, religions, political beliefs, and linguistic backgrounds. Indeed, it is this vibrancy and promise that attract many people to come to York or to support our work.

We also recognize that many of our students may have substantial work and family commitments, or face systemic barriers as part of the experience of belonging to a minority in society or at university. As a large institution that has grown quickly, York also recognizes that we must reduce the complexity of navigating our University in order to improve the experience of all students: whether graduate, undergraduate, or those engaged in continuing studies.

With progress already happening in many areas, we will redouble our efforts over the course of this UAP to achieve positive change for our students in the following areas:

- more seamless, timely, and reliable access to excellent academic and career advising, as well as accessibility and other supports, through a combination of in-person service and digital systems, including our recently launched Student Virtual Advisor
- earlier feedback to students on their academic standing, and the use of data analytics to enable proactive, early interventions with students who are struggling
- more robust resources to assist international students with their distinctive needs
- achievement of our Faculty Complement Renewal Strategy to diversify our faculty to better reflect the makeup of our student body
- increased opportunities to practice relationship-building across differences
- more chances to learn about Indigenous worldviews and the history of Canada vis-à-vis Indigenous peoples
- new systems to track our progress on improving outcomes for all of our students and especially those from underrepresented groups

Advancing Global Citizenship

Why: York University draws people from around the world who seek to learn from each other and to gain the global fluencies needed to work locally and across borders toward a better future.

More than ever, universities have a responsibility to contribute to positive change through global cooperation and borderless education. York is already wellknown for its strengths in global languages and internationally engaged research and teaching, with alumni and partners around the world. Our Glendon campus provides a unique environment for cross-linguistic and cross-cultural teaching, research, and dialogue. We have an eco-campus in Las Nubes, Costa Rica and offer global management education at our campus in Hyderabad, India. In addition, we are embedded in one of Canada's most multicultural and economically vibrant urban regions, where many employers seek highly qualified personnel with a global orientation.

York University is launching an Internationalization and Global Engagement Strategy (2020), which sets the stage for a new phase of development that will bring greater resources and coordination to our efforts in this area and will reinforce our commitment to ethical internationalization. The pan-university consultation informing this Strategy has underlined the importance of promoting values of integrity, reciprocity, reflexivity, inclusivity, and sustainability in our international programs and activities. It sets an agenda for action in four areas:

- global outlook and fluency – informing curricula and global learning, while leveraging our own diversity
- global nature of research – attracting international scholars and supporting international collaborative research
- international students – robust recruitment from a broader sweep of countries, creating a supportive and inclusive environment, and supporting transitions to careers or further study
- global reach and profile – communicating more actively, enhancing global reputation, expanding partnerships, and fostering alumni connectivity

York is committed to supporting this agenda with enhanced resources and activities in each of these areas. We will work with Universities Canada and other partners to ensure that York can fully leverage new public investments such as the federally funded Outbound Student Mobility Program.

Working in Partnership

Why: York University understands that by partnering with other entities and sectors we gain vital insights and capacity to create positive impact for our students, our campuses, and our broader communities.

York has always embraced the view that we have much to learn from the communities we serve. We are a longtime leader in community-engaged research, teaching, and civic action. Our interactions with entrepreneurs and industry have grown exponentially in recent years with the launch of Innovation York, YSpace in Markham, and several Faculty-based innovation hubs. Through our Indigenous Framework, we are committed to engaging and supporting Indigenous

communities and recognizing the support they provide to York. We know from experience that by working with other kinds of organizations we broaden our field of vision and increase our collective problem-solving capacities, while bringing our students into contact with valuable learning and career opportunities.

Over the course of this Plan, we will continue to build cross-sector and inter-community partnerships that can serve as vital catalysts for positive change. As a university, we will model new and deeper forms of collaboration with industry, government, alumni, donors, and community partners, engaging all of our campuses and orienting students to both career paths and social responsibilities. Signature activities will include the following:

- developing with partners in Vaughan an integrated, interdisciplinary health precinct that will serve the needs of a growing region, while creating synergies for health-related research, teaching, and innovation
- establishing a UN-sponsored CIFAL[1] centre to provide cross-sectoral training and development programs that will advance the UN SDGs
- attracting partners to help realize the potential of our Keele campus Lands for Learning to support both our academic mission and our social and environmental responsibilities
- implementing York University's social procurement policy, one of the first among Canadian academic institutions, as part of our broader commitment to being an anchor institution for the region
- continuing to work with York's Indigenous Council to strengthen the Indigenous presence on campus
- connecting our entrepreneurship and innovation activities to the broader innovation ecosystem of Ontario

Living Well Together

Why: Making positive change requires that all members of our diverse community feel welcomed into a sense of belonging, common purpose, and shared responsibility to support and enrich each other's work.

Anishnaabe teachings refer to the gift of Mino Bimaaddiziwin or the Good Life. Given the scale and breadth of York University, with many people engaging remotely or commuting some distance to our campuses, and with 325,000 alumni living and working around the world, we must make a conscious effort to know each other and to build a community reflective of this Good Life. Our students, staff, and faculty have let us know that a stronger sense of connection, inclusion, and wellbeing are among the key changes they are seeking in their daily experience

[1] CIFAL stands for Centre international de formation des autorités et leaders' (in English: International Training Centres for Authorities and Leaders). The CIFAL Global Network aims to strengthen capacities of government officials and civil society leaders to advance sustainable development: https://unitar.org/about/offices-training-centres-around-world/cifal-global-network.

of life at the University. Our alumni are seeking more opportunities to remain engaged with the University. In support of this Priority, we will pursue the following over the course of this Plan:

- renewing our physical environment with inspiring and humane natural and built spaces, including an expanded Joan and Martin Goldfarb Art Gallery of York University within a revitalized Harry Arthurs Common;
- enhancing our virtual presence to offer compelling and intuitive ways to connect with the University and build a broader, networked community of learning and mentorship;
- continuing to implement mental health and wellbeing strategies, policies, and collective actions that create supportive and empowering environments for all members of the community;
- purposeful efforts to foster dialogue, respect, kindness, empathy, active listening, and open-mindedness to diverse points of view;
- drawing upon our strengths in the creative and performing arts to create social connection and community pride;
- continued actions to support reconciliation through our Indigenous Framework, including additional Indigenous spaces and art works;
- systematic efforts to embed human rights, equity, diversity, and inclusion training across the University;
- enhanced efforts to engage and support our vibrant network of alumni and donors; and
- committing to a culture of service excellence, in which we all are responsible to support each other's success.

Answering the Call: A University-Wide Challenge to Contribute to the UN Sustainable Development Goals

In addition to the six foundational Priorities above, members of the York University community have expressed a strong desire to make a difference on compelling issues of the day. Community members have pointed to a range of complex societal issues to which York is ideally placed to contribute, given our commitment to social responsibility, our extensive network of partnerships, and our excellence in thinking across disciplines. It is striking that most of the issues that surfaced in these conversations are referenced in the United Nations Sustainable Development Goals (SDGs), a framework that calls on member countries to take urgent action in seventeen areas that are critical to ensure peace and prosperity for people and the planet. The impact of the COVID-19 pandemic has further highlighted the urgency of this agenda.

York University is already recognized as an international leader in SDG-relevant research, teaching, partnerships, and campus practices. By challenging ourselves to deepen this work over the next five years, and to track and report on our contributions, we reaffirm longstanding York values of social justice, equity, sustainability, and excellence in all that we do. This SDG Challenge will galvanize our community in coming together to engage critically with the SDGs and to take meaningful steps, both small and large, toward a more just and sustainable future.

Beginning in this 75th anniversary year of the United Nations, York's SDG Challenge will be a pan-University exercise to support and recognize a wide range of grassroots activities that may touch on any of the Priorities in the Plan. These activities may be purely internal or they may engage others from our nearest neighbourhoods to the farthest corners of the world. They may involve fundamental inquiry and artistic creation, or seek immediate changes in skills, policies, aesthetic practices, or behaviours. They may emanate from any academic discipline or administrative unit, or spark new collaborations across different areas of the University. They might even involve some friendly competition for a good cause. By supporting students, faculty, contract instructors, staff, alumni, donors, and volunteers to come together for SDG-related learning and initiatives, we will create leadership opportunities for our people and forge stronger relationships along the way. By telling the story of our SDG-related work, we will build community pride and put a spotlight on the qualities that make York University a truly unique and special place.

What will the York SDG Challenge mean in practice? Fully answering this question will require the further engagement of the York community. The Challenge will be most successful if ideas

for how best to "answer the call" are crowd-sourced from all those who want to get actively involved in the work. This suggests a bottom-up approach with an emphasis on personal initiative as well as collaboration, educating ourselves and others, and building all of our skills and capacities for acting meaningfully in relation to the Goals.

The University is committed to providing a support infrastructure to facilitate groups coming together around SDG-related projects or activities, to enable their work with a variety of resources, and to document outcomes so that we can build engagement and convey to ourselves and others the positive impact that we are having. The allocation of resources among the different SDGs and among different activities will follow the evolving interests of the York community.

To take one obvious example, Climate Action (SDG #13) is an area of strong interest and expertise at York, crossing virtually all disciplines and functions. By drawing on existing reports and information, we can generate a baseline understanding of how this Goal is being advanced currently through our academic curricula, research and creative activities, student clubs and extra-curriculars, campus operations, local and international partnerships, innovation and entrepreneurship programs, alumni engagement, capital planning, and other activities. This would serve as a directory of ongoing intiatives that could benefit from more people getting involved, as well as revealing opportunities to join forces or to create new initiatives. From here, a Convening Group could be established, including both academic and professional staff leaders, with support to organize launch events open to all interested members of the York community. Launch events could be imagined in a host of different ways to generate ideas, share knowledge, and define projects of interest. Those who already have an idea could be invited to submit proposals through an open call. As each year draws to a close, a culminating event could showcase accomplishments, reset agendas, and invite new participants to join in next steps.

By furthering SDG-related work that intersects with the Priorities, this Plan will highlight the distinctive ethos of York as a University committed to shaping a better future and having a positive impact on our students, our communities, and the world around us.

Online course surveys in summer science courses for ongoing online course survey project being conducted by M.H. Armour, C. Wolfe and J. Lederman.

Since 2017 we have been working on series of studies of student experience in Natural Science online courses. The first year was funded with AIF money, but we have continued with support from the Faculty. This summer we are looking to extend this to all science courses where instructors are willing to mount our surveys as this is a unique experience to study the student experience when the only option is online vs. in the previous situations where they chose to take a course online.

This project has ethics approval and all protocols are in place for us to produce publishable results as well as internal documents from this effort.

Mary

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