COUNCIL OF THE FACULTY OF SCIENCE



NOTICE OF MEETING

September 12, 2023 3pm – 4:30pm LUM 306

AGENDA

- 1. Call to Order and Approval of Agenda
- 2. Chair's Remarks
- 3. Approval of May 9, 2023 Minutes
- 4. Business Arising
- 5. Inquiries and Communications
 > May 25, 2023 Senate Synopsis
 > June 29, 2023 Senate Synopsis
- 6. Dean's Remarks
- 7. Associate Dean and Head of Bethune College Remarks
- 8. Reports from Science Representatives on Senate Committees
- 9. Report from Student Caucus Representative
- 10. Reports from Standing Committees of Council
 - a) Executive Committee:
 - Ratification and Call for Nominations for Senate and Standing Committee of Council
 - > Vacancies report on the Standing Committees of FSc Council
 - **b)** Committee on Equity, Diversity and Inclusivity:
 - > Annual Report
 - c) Committee on Teaching & Learning:
 - > Annual Report
 - d) Graduate Curriculum Committee:
 - > Annual Report
 - > GS/BIOT & GS/PHYS consent agenda items
 - e) Research and Awards Committee:
 - > Annual Report
 - f) Senate T & P Review Committee:
 - > Annual Report
- 11.Other Business
 - a) Student Services Nona Robinson, Vice-Provost Students & Yukimi Henry, Executive Director, Community Support & Services

COUNCIL OF THE FACULTY OF SCIENCE



science

MINUTES

May 9 2023 3pm – 4:30pm LUM 306 & Zoom

MINUTES

1. Call to Order and Approval of Agenda

T. Kirchner, Chair of Council called the meeting to order and a motion was moved, seconded and carried to approve the Agenda as presented.

2. Chair's Remarks

T. Kircher welcomed members and noted it was his last meeting as Council Chair, Nikola Kovinich will be Council Chair during the 2023-24 academic year.

- 3. Approval of April 11, 2023 Minutes A motion was moved, seconded and carried to approve the Minutes.
- 4. Business Arising There was none.
- 5. 5. Inquiries and Communications > April 27, 2023 Senate Synopsis

6. Dean's Remarks

Dean Wang congratulated and thanked Tom Kirchner for his leadership as Council Chair during the 2022-23 academic year.

He noted that the Farquharson Life Sciences West Wing renovations were really impressive.

Events:

York Science Social is happening on Thursday, May 11 at 2pm – 4pm in the New Student Centre.

Canadian Council of Deans is having the annual in person meeting held on the York University campus from Friday – Sunday, hosting approximately 30 Deans.

Canadian Council of Deans of Science (CCDS) Annual General Meeting (AGM) hosted by York University on Friday May 12 – May 14.

Thank you:

Thank you to Monique Golding for helping a student that fainted near the Dean's

Office.

7. Associate Dean and Head of Bethune College Remarks Associate Dean Students, M. Scheid:

23-24 admissions update: 4876 offers have been sent to students, 635 students have accepted.

York Science Scholars Award offers have been sent to students – thank you to the faculty members who agreed to host students.

Gentle reminder to submit grades by May 24, 2023 to the Registrar's Office.

Gerald Audette on behalf of Associate Dean Curriculum & Pedagogy, H. Kouyoumdjian:

Year End Debrief event happening on May 24 from 12pm – 130pm in LUM 306.

Associate Dean Faculty Affairs, G. Audette:

Shared a document to give an update on Faculty searches.

Complement planning for 2023-24 begins July 1, 2024. Departments should send requests by May 17, 2023.

Sabbatical requests have been received, expect responses soon.

Gerald Audette on behalf of Associate Dean Research & Partnerships, V. Saridakis:

Gerald shared a document URSA, ENURA & YSSA students have began working in their labs.

Summer Student research Conference is scheduled for mid-August, invitations will be sent out soon.

- 8. Reports from Science Representatives on Senate Committees There was none.
- 9. Report from Student Caucus Representative

There was none.

10.Reports from Standing Committees of Council

a) Executive Committee:

- > Vacancies report on the Standing Committees of FSc Council T. Kirchner noted the vacancies that remain
- b) Undergraduate Curriculum Committee:
 - > consent agenda items

11. Other Business

a) DEDI Strategy Presentation – Amy Gaukel, Senior Executive Officer, Division of Equity, People and Culture

Amy Gaukel & Alice Pitt presented the DEDI Strategy – Council was encouraged to reach out by email with questions.



The Senate of York University

Synopsis

The 696th Meeting of Senate held on Thursday, 25 May 2023 via zoom

Remarks

The Chair of Senate, Professor Poonam Puri, welcomed Senators to the meeting.

The Chair, on behalf of Senate,

- congratulated the following recipients of the *Robert Everett Exceptional Leadership in Student Governance Award* which recognizes students who have demonstrated high distinction in governance:
 - Ana Kraljević an undergraduate student at Glendon
 - Ariana Mah, an undergraduate student at Glendon
 - Yashna Paresh Manek, an undergraduate student in the Faculty of Science
- Invited Senators to participate in sessions and events of Congress, starting May 26 and continuing through to June 2.
- Encouraged members of faculty to attend the Spring Convocation ceremonies to celebrate our graduates.

Inquiries and Communications

Senator van Wijngaarden shared highlights of the Academic Colleague to COU report, included in the agenda package.

Reports

Under President's items, President Lenton spoke to the following:

- Reminder that members are encouraged to attend Congress where more than nine thousand scholars, researchers and practitioners are expected to attend.
- Acknowledged participation and support of all involved in the planning of Congress and extended special thanks to Professor Andrea Davis for her leadership in support this important event.
- Encouraged Senators to participate in Convocation starting at Glendon on June 9, where our new Chancellor, Kathleen Taylor, will preside over her first York University Convocation ceremony, and where honorary degrees will be bestowed on distinguished candidates.

The Senate of York University Synopsis

- The new Financial Indicators released by the provincial government, which require Universities to balance in year deficits is problematic, as universities normally operate from a three-year rolling budget. As the provincial government is providing no new grant funding and has frozen tuition, universities are in discussions with government to address the resulting financial challenges.
- York @ 100: Conceptions in the current higher education context, including the vision of the University, long-term planning, and advancement of the United Nations Sustainable Development Goals (UNSDGs).

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

Approvals

Election of Members of Senate Committees/Other Elected Positions

Senate approved a slate of candidates presented by the Executive Committee with the result that several individuals were acclaimed to positions on Senate committees.

The Chair of Senate advised Senators that an election by e-vote will be held for Senator on the Board position and the contract faculty seat on ASCP, during the week of 29 May – 2 June 2023. Senators who have not yet provided their Passport York username to the Secretariat are reminded to do so.

The Vice-Chair of Senate called on Senators to consider participating on Committees where members are needed and advised that efforts are continuing to fill the remaining vacancies.

Senate approved the following recommendations of its Academic Policy, Planning and Research Committee:

• Strategic Research Plan 2023-2028.

Committee Information Reports

Executive Committee

The Vice-Chair highlighted the planned schedule of rotating in-person and virtual meetings for the 2023-2024 year, included in the Executive Committee's report in the document package. Senate Committees may determine their meeting mode of delivery.

The Senate of York University Synopsis

Academic Policy, Planning and Research Committee (APPRC)

The Chair of APPRC, Senator Moir, provided an update on *Connected Minds: Neural and Machine Systems for a Healthy, Just Society* project, followed by brief presentation to Senate by Vice President Asif to explain and celebrate the significant research development.

Senate received a report from the Chair of APPRC on:

- The Joint APPRC-ASCP Task Force on Pedagogy
- The Markham Campus preparation of the academic dimensions
- The strategic repositioning of Glendon College

Academic Standards, Curriculum and Pedagogy Committee (ASCP)

The Chair of ASCP, Senator Bunch, informed Senate that the draft Policy on Academic Conduct, and the draft policy on Academic Relief for Students, will be shared for information at the June meeting of Senate, with anticipation that the documents will be reviewed/discussed at Senate in the Fall.

Additional Information about this Meeting

Please refer to the full Senate agenda and supplementary material <u>posted online</u> with the **25 May 2023** meeting for details about these items.

https://www.yorku.ca/secretariat/senate/meeting-agendas-and-synopses/

June 29 Meeting of Senate

Senate's next meeting will be held at 3:00 pm on Thursday, 29 June 2023.



The Senate of York University

Synopsis

The 697th Meeting of Senate held on Thursday, 29 June 2023 via zoom

Remarks

Editorial correction to the 27 April 2023 minutes, approved by consent at the 25 May 2023 meeting of Senate: the **effective date** for the *establishment of a Specialization in Construction Law* in the Professional LLM program, Osgoode, **is FW2024**, not FW2023 as stated in minutes. Minutes will be amended accordingly.

Reports

Under President's items, President Lenton spoke to the following:

- Acknowledged the attack at University of Waterloo and expressed sympathy and solidarity.
- Expressed thanks for Senators who attended convocation.
- Highlights of achievements to Plan (UAP priorities), including more than 99% achievement for performance metrics in Year 3 of the Strategic Mandate Agreement. In 2023-24, the provincial government will begin to link funding to achievements.

The President's monthly "Kudos" report on the achievements of members of the York community was received.

Approvals

Senate approved the following recommendation of its Executive Committee:

• That nominations be closed for the elections to Senate Committees and other Senate-elected positions.

Senate approved the following recommendations of its Academic Policy, Planning and Research Committee:

- The chartering of the following Organized Research Units for a five-year period, commencing 1 July 2023:
 - o the Dahdaleh Institute for Global Health Research
 - the Sensorium Centre for Digital Arts and Technology
- Restructuring of the BA degree program in African Studies, Department of Social Science, LA&PS, effective FW2024.

The Senate of York University Synopsis

Senate Elections

Senate approved a slate of candidates presented by the Executive Committee with the result that several individuals were acclaimed to positions on Senate committees.

Committee Information Reports

Executive Committee

The Vice-Chair, Lauren Sergio, highlighted the following items in the information report:

- Summer Authority coming into effect, after this meeting until Senate convenes in September.
- The planned in-person meeting of Senate in September.

Academic Policy, Planning and Research Committee (APPRC)

The Chair of APPRC, Senator Moir, highlighted the following items in the information report:

• The provost and vice president academic, and the vice-president finance and administration (VPFA) presented in tandem to APPRC on 15 June on the operating budget context for academic planning.

APPRC in turn, facilitated an annual update to Senate on the budget context, presented by the Provost and the VPFA.

Academic Standards, Curriculum and Pedagogy Committee (ASCP)

The Chair of ASCP, Senator Bunch, highlighted the following items in the information report:

- Continuation of revisions to the *draft academic conduct policy*. Revisions are being undertaken by a working group comprising members of ASCP, SAC, and past working groups. The revised draft document will be posted on the ASCP page on the Secretariat's website for community review and comments. It's anticipated that the document will be presented to Senate in the fall.
- University practices related to *attending physician's statement for students* are under review with related draft document to be shared with the community for feedback.
- Minor changes to admissions requirements for graduate degree programs listed in the ASCP report to Senate were not approved by ASCP and as such will be excised from the report.

The Senate of York University Synopsis

Awards Committee

The Awards Committee transmitted the 2021-2022 Undergraduate Award Disbursement report, the 2021-2022 Report on Graduate Awards, and the 2022 New Awards report.

Academic Policy, Planning and Research / Academic Standards, Curriculum and Pedagogy

The following reports, included in the document package, were transmitted jointly by APPRC/ASCP:

- Report of the Joint Sub-Committee on Quality Assurance.
- 2021-2022 Annual Non-Degree Studies.

Other Business

Senate approved the following motion:

Considering the unrecognized impact of the recent revisions to the Senate Policy on Sessional Dates and the Scheduling of Examinations (May 2022), it is recommended that Senate request that the University Registrar in conjunction with the Senate ASCP Committee:

- make an adjustment to the Winter 2024 term dates to achieve a consistent structure of 12 meets for each course, and
- further review and undertake consultations with the Faculties to gather input on the implementation of the Sessional Dates policy to ensure that there is consistency in the number of class meets in the fall and winter terms, and to the extent possible in the summer session terms, for the previously announced sessional dates through to FW 2028-2029.

Additional Information about this Meeting

Please refer to the full Senate agenda and supplementary material <u>posted online</u> with the **29 June 2023** meeting for details about these items.

https://www.yorku.ca/secretariat/senate/meeting-agendas-and-synopses/

Senate's next meeting will be held at **3:00 pm on Thursday, 22 September 2023.**

2023-2024 FSc Report on vacancies for Senate and FSc Standing Committees of Council



RATIFICATION OF NOMINATIONS

Academic Policy and Planning Committee:

- P. Szeptycki, Department of Mathematics & Statistics (term 2023-2026)
- R. Schott, Department of Biology (term 2023 2026)
- E. Hessels, Department of Physics & Astronomy (term 2023 2024)
- R. Fournier, Department of Chemistry (term 2023 2026)
- M. Xu, Staff elected representative, (term 2023 2024)

Appeals Committee:

- M.W. Wong, Department of Mathematics & Statistics (term 2023-2026)
- S. Tulin, Department of Physics & Astronomy (term 2023 2024)
- D. Monaldi, Department of Science, Technology and Society (term 2023 2026)
- M. Hempstead, Department of Chemistry (term 2023 2024)
- L. Hébert, Department of Chemistry (term 2023 2024)

Committee on Equity, Diversity & Inclusion:

- V. Pavri, Department of Science, Technology and Society (term 2023 2024)
- P. Scholz, Department of Physics & Astronomy (term 2023 2024)
- C. Young, Department of Chemistry (term 2023 2026)

Committee on Examinations and Academic Standards:

- C. Storry, Department of Physics & Astronomy (term 2023 2024)
- E. Hyde, Department of Physics & Astronomy (term 2023 2024)
- J. Webb, Department of Science, Technology and Society (term 2023 2026)
- S. Domenikos, Department of Science, Technology and Society (term 2023 2026)
- T. Mirkovic, Department of Chemistry (term 2023 2026)
- P. Johnson, Department of Chemistry (term 2023 2026)
- T. Zeng, Department of Chemistry (term 2023 2026)
- I. Moyles, Department of Mathematics & Statistics (term 2023-2024)

Committee on Teaching & Learning:

- A. McEachern, Department of Mathematics & Statistics (term 2023-2026)
- N. Blinov, Department of Physics & Astronomy (term 2023 2024)
- C. Boukaré, Department of Physics & Astronomy (term 2023 2024)
- T. Mirkovic, Department of Chemistry (term 2023 2026)
- D. Hossain, Staff elected representative, (term 2023 2024)

Executive Committee:

- C. Douglas, Department of Science, Technology and Society (term 2023 2026)
- T. Kirchner, Department of Physics & Astronomy (term 2023 2024)
- W. Booth, Staff elected representative, (term 2023 2024)
- M. Vicari, Department of Biology (term 2023 2026)

Faculty Council:

M. Yousaf, Vice Chair, Department of Chemistry (term 2023 – 2024)

Graduate Curriculum Committee:

P. Ingram, Department of Mathematics & Statistics (term 2023-2026)
D. Golemi-Kotra, Department of Biology (term 2023 – 2026)
A. Muzzin, Department of Physics & Astronomy (term 2023 – 2026)

Graduate Student Nominations for 2023-2024 Faculty Council:

Aishwarya Subramanian, Department of Biology (term 2023 – 2024) Jessica MacPherson, Department of Biology (term 2023 – 2024) Andrea Angelucci, Department of Chemistry (term 2023 – 2024) Thomas Vacheresse, Department of Physics (term 2023 – 2024) Aysa Tajeri, Department of Mathematic & Statistics (term 2023 – 2024)

Petitions Committee:

- S. Jerzak, Department of Physics & Astronomy (term 2023 2024)
- J. Rogerson, Department of Science, Technology and Society (term 2023 2026)
- S. Morin, Department of Chemistry (term 2023 2026)
- A. Mills, Department of Biology (term 2023 2026)

Research & Awards Committee:

H. Zhu, Department of Mathematics & Statistics (term 2023-2026)

- D. Golemi-Kotra, Department of Biology (term 2023 2026)
- R. Kannan, Department of Physics & Astronomy (term 2023 2024)
- H. Mialet, Department of Science, Technology and Society (term 2023 2026)

Tenure & Promotion Committee:

E. Hamm, Department of Science, Technology and Society (term 2023 – 2026)

- M. Horbatsch, Department of Physics & Astronomy (term 2023 2024)
- C. Bergevin, Department of Physics & Astronomy (term 2023 2024)
- D. Lungu, Department of Science, Technology and Society (term 2023 2026)
- A. Orellana, Department of Chemistry (term 2023 2026)
- D. Ifa, Department of Chemistry (term 2023 2026)

Mark Bayfield, Department of Biology (term 2023 - 2026)

Undergraduate Curriculum Committee:

M.W. Wong, Department of Mathematics & Statistics (term 2023-2026)

- J. Attalah, Department of Biology, (term 2023 2026)
- L. Robertson, Department of Biology, (term 2023 2026)

Academic Policy, Planning and Research Committee (APPRC)

G. Monette, Department of Mathematics & Statistics (term 2023 - 2026)

2023-2024 FSc Report on vacancies for Senate and FSc Standing Committees				
Committee	Rules of Faculty Council - membership	Meeting time / Membership	Te	erm To
	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 three years.	As per Senate website	Decimation	
	Member at large	G. Audette	Designated	
Senate	Member at large Member at large	William van Wijngaarden, Physics & Astronomy EJ Janse van Rensburg, Mathematics & Statistics	2023	2024 2025
Condito	Member at large Member at large	Baumgartner, Chemistry J. Elwick, Science, Technology & Society	2021 2022	2024 2025
	Member at large Member at large	VACANT, Biology V. Saridakis, Biology	2023 2021	2026 2024
	Department Chair Department Chair	V. Pavri, Department of Science, Technology & Society R. Tsushima, Department of Biology	2021 2021	2024 2024
	Department Chair	M. Haslam, Department of Mathematics & Statistics	2023 Designated	2026
	Student representative	VACANT	2023	2025
Foculty Council	Student representative	Madeline Blanco	2022	2024
	Vice-Chair of Council	M. Yousaf	2023	2024
Staff Representatives		W. Booth	2023	2024
		D. Hossain	2023	2024
ESo Bons on Sonata Committees		W. Xu	2023	2024
Senate Executive	1 member from FSc	T. Baumgartner	2021	2024
Academic Policy, Planning and Research Committee (APPRC)	1 member from ESc	G Monette	2023	2026
ASCP (Academic Standards, Curriculum and Pedagogy			2020	2020
Committee) Sub-Committee on Honorary Degrees & Ceremonials	1 member from FSc 1 member from FSc	Mary-Helen Armour M. Yousaf	2021 2021	2024 2024
	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, Technology & Society/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.	430pm		
Executive Committee	Chair of Council Vice-Chair of Council	N. Kovinich M. Yousaf	2023	2024 2024
	Dean, Ex officio	R. Wang	Designated	
	Staff representative	W. Booth	2023	2024
	Undergraduate Student Rep Biology	VACANT M. Vicari	2023	2024
	Chemistry	D. Wilson	2022	2025
	Math & Stats Physics & Astronomy	E. J Janse van Rensburg T. Kirchner	2022 2023	2025 2024
	Science, Technology & Society The <u>Academic Policy and Planning Committee</u> shall include the Dean or designate (<i>ex officio</i>), the Master of Norman Bethune College and one member elected from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, and Science, Technology & Society/Natural Science, one student member of Council, and one of the staff members elected to Council.	C. Douglas APPC will normally meet the last Thursday of each month (September to April) from 9:00 am - 10:30 am	2023	2026
APPC	Associate Dean, Faculty Attairs, Ex officio Head of Bethune College	G. Audette J. Amanatides	Designated Designated	
	Undergraduate Student Representative	VACANT	2023	2024
	Biology	R. Schott	2023	2024 2026
	Chemistry Math & State	R. Fournier	2023	2026
	Physics & Astronomy	E. Hessels	2023	2026
	Science, Technology & Society	S. Domenikos The Curriculum Committee will normally meet every last Tuesday of each month (Sentember to April)	2022	2025
	(ex officio), the Chair or nominee from each teaching Division or Department, three members elected by Council and two student members of Council. Member at Large	J. Attalah	2023	2026
	Member at Large	VACANT R Wang	2023 Designator	2026
Undergraduate Curriculum Committee	Assoc Dean, Curriculum & Pedagogy, Ex officio	H. Kouyoumdjian	Designated	
	Undergraduate Student Rep Undergraduate Student Rep	VACANI VACANT	2023 2023	2024 2024
	Biology	M. Vicari	2022	2025
	Chemistry Math & Stats	M.W. Wong	2022 2023	2025
	Physics & Astronomy	M. George	2021	2024
	Member at Large	L. Robertson	2022	2026

2023-2024 FSc Report on vacancies for Senate and FSc Standing Committees				
Committee	Rules of Faculty Council - membership	Meeting time / Membership	Te	erm
	The <u>Committee on Examinations and Academic Standards</u> shall consist of an Associate Dean (ex officio), five members elected by Council from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy and Science, Technology & Society/Natural Science, and one student member of Council.	CEAS will normally meet every alternate Wed / Thurs from 1:00 - 3:00 pm year round.	From	Το
CEAS	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 Undergraduate Student Rep Undergraduate Student Rep Biology Chemistry	M. Scheid VACANT VACANT J. Atallah / ALT. VACANT P. Johnson & T.Zeng / ALT T. Mirkovic Markon & Numither ALT Y. Conce	Designated 2023 2023/2021 2023/2021 2023/2023	2024 2024 2026/2024 2026/2026
	Physics & Astronomy	C. Storry, ALT. E. Hyde	2023/2023	2025/2025
Petitions	Science, Technology & Society The Petitions Committee for the purpose of hearing student petitions shall consist of an Associate Dean (<i>ex officio</i>), 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. Associate Dean, Ex officio Undergraduate Student Rep Undergraduate Student Rep Biology Chemistry	J. Webb / ALT. S. Domenikos Each panel meets once a month on Wednesday or Thursday from 2:30 pm - 4:00 pm M. Scheid VACANT VACANT S. Morin C. Jang R. Fournier	2023/2023 Designated 2023 2023 2022 2022	2026/2026 2024 2024 2026 2025 2025
	Physics & Astronomy Math & State	S. Jerzak	2023	2024
	Science, Technology & Society	J. Rogerson	2022	2025
	Member at Large	A. Mills	2023	2026
	The <u>Committee of render and render of the Committee and Committee Of the Committee States of the Committee State of the Committee States of the Committee Council shall elect</u>	Soci T & P Committee with formany meet the last Friday of each month (September to way) from 9:00 am - 11:00 am in LUM 305B		
SRC T & P Committee	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.	0 Audus	Decimentari	
	Associate Dean - Faculty, Ex officio Undergraduate Student	G. Audette Ali Basher	Designated 2022	2025
	Biology Chemistry	M. Bayfield/ ALT. VACANT	2023/2023	2026/2026
	Physics & Astronomy	M. Horbatsch /ALT. C. Bergevin	2023/2023	2020/2020
	Math & Stats	Y. Gao / ALT Jianhong Wu	2021/2022	2024/2025
	Science, Technology & Society 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	E: Harim / ALT. D. Lungu CoTL normally meets every third Thursday of each month (September to May) from 10:00 am - 11:30 am	2023	2026
	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote.			
	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote. Associate Dean - Students, Ex officio Associate Dean - Curriculum & Pedagogy	M. Scheid H. Kouyoumdjian	Designated Designated	8
	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote. Associate Dean - Students, Ex officio Associate Dean - Curriculum & Pedagogy Graduate Student Representative Graduate Student Representative	M. Scheid H. Kouyoumdjian J. MacPherson Aysa Tajeri	Designated Designated 2023 2023	2024 2024
CoTL	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote. Associate Dean - Students, Ex officio Associate Dean - Curriculum & Pedagogy Graduate Student Representative Graduate Student Representative Undergraduate Student Representative Stacies Science I thrary. Designated	M. Scheid H. Kouyoundjian J. MacPherson Aysa Tajeri VACANT M. Wang	Designated Designated 2023 2023 2023 Designated	2024 2024 2024
CoTL	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote. Associate Dean - Students, Ex officio Associate Dean - Curriculum & Pedagogy Graduate Student Representative Graduate Student Representative Undergraduate Student Representative Stacie Science Library, Designated IT Representative Tacebien Commence Rev	M. Scheid H. Kouyoundjian J. MacPherson Aysa Tajeri VACANT M. Wang V. Gotcheva V Su	Designated Designated 2023 2023 2023 Designated Designated Designated	1 2024 2024 2024 2024
CoTL	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote. Associate Dean - Students, Ex officio Associate Dean - Curriculum & Pedagogy Graduate Student Representative Undergraduate Student Representative Stacle Science Library, Designated IT Representative Teaching Commons Rep Staff representative, Elected	M. Scheid H. Kouyoundjian J. MacPherson Aysa Tajefi VACANT M. Wang V. Gotcheva Y. Su D. Hossain	Designated Designated 2023 2023 Designated Designated 2023 2023	2024 2024 2024 2024 1 2024
CoTL	indicate their interest in serving on the committee in writing to the committee, who will then approve by majority vote. Associate Dean - Students, Ex officio Associate Dean - Curriculum & Pedagogy Graduate Student Representative Graduate Student Representative Undergraduate Student Representative Stacie Science Library, Designated IT Representative Teaching Commons Rep Staff representative, Elected Biology Biology	M. Scheid H. Kouyoundijan J. MacPherson Aysa Tajefi VACANT M. Wang V. Gotcheva Y. Su D. Hossain VACANT J. Atallah	Designated Designated 2023 2023 Designated Designated 2023 2023 2023	2024 2024 2024 2024 2024 2024 2026 2026
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2023-2024 FSc Report on vacancies for Senate and FSc Standing Committees				
Committee	Rules of Faculty Council - membership	Meeting time / Membership	Т	erm
		- · · ·	From	То
Graduate Curriculum Committee	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 Diploma Academic Requirements, New Graduate Fields, New Graduate Diploma Academic Requirements, New Graduate Fields, New Graduate Diploma Academic Requirements, New Graduate Education (ex officio) - Graduate Education Committee shall consist of: - Associate Dean – Research & Graduate Education (ex officio) - 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-revel. The Chair of the Committee is selected by the voting members of the Committee for a one-year term.	Meeting is held based on availability.		
	Associate Dean – Associate Dean Students (ex officio)	M. Scheid	Designated	ł
	Biology	J. Paluzzi	2023	2026
	Chemistry	R. Hili	2023	2026
	Physics & Astronomy	A. Muzzin	2023	2026
	Math & Stats	P. Ingram	2023	2026
	Science, Technology & Society	VACANT	2023	2026
	Member from Faculty of Health OR Lassonde	VALANI D. Colomi Kotro	2023	2026
	Graduate student	D. Golenii-Koira Farnaz Mansouri-Noori	2023	2026
Committee on Equity, Diversity & Inclusion	The purpose of the Committee on Equity, Diversity & Inclusivity is to provide broad review and leadership to Council on matters of Equity, Diversity and Inclusivity issues with respect to: • Tenure and Promotions • Hiring and Retention of members form EDI groups • Approaches to addressing gender bias in the workplace • Research engaging equity recognized groups • Workload and service contributions of EDI members • EDI experiences in Teaching and Learning The Equity, Diversity and Inclusivity committee shall consist of: • Associate Dean, Research and Partnerships (ex officio) • Associate Dean, Research and Partnerships (ex officio) • One primary and one alternate member from each of Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy and Science, Technology & Society. • Two graduate students or postdoctoral fellow/visitors (one primary and one alternate I from any graduate program within the Faculty of Science	Meeting is held the last Wednesday of every month.		
	Associate Dean - Faculty, ex officio	G. Audette	Designated	a l
	Associate Dean, Research & Partnerships (ex officio)	V. Saridakis	Designated	t
	Undergraduate Student Representative	VACANT	2023	2024
	Graduate Student	Aishwarya Subramanian	2023	2024
	Graduate Student	Thomas Vacheresse	2023	2024
	Biology	T. Kelly	2021	2024
	Chemistry	C. Young	2023	2026
			0000	2026
	Physics & Astronomy	P. Scholz	2023	2020
	Physics & Astronomy Math & Stats	A. Woldegerima ALT A. Lumley	2023	2026

Faculty of Science

Equity, Diversity, and Inclusion (EDI committee) 2022-2023 Annual Report Co-Chairs: Vera Pavri and Tamara Kelly

In 2022-23, the FSc EDI committee has continued to work on initiatives outlined by the previous year's group. Below we have outlined our progress on these projects and some of our accomplishments this year:

Project listed in 2021-22	Progress
EDI workshops for new hires and welcome letters containing implicit EDI language.	C. Le will work with the Associate Dean, Faculty (G. Audette) this summer to create a welcome package for new FSc hires that includes key messaging related to EDI training requirements.
EDI speaker series – may be done with other groups such as Bethune College	Co-hosted talk by Dr. Jaclyn Stewart on "A data driven approach to equitable course outcomes in science" on Dec. 1/22
EDI info stickers	D. Harris and members of the Physics and Astronomy Department created a document highlighting resources at York available to students in distress. The committee will distribute this information to a wider student audience in the Faculty.
 Faculty/Staff/Student Code of Conduct a. Information about respectful workplace practices b. Educate about "smart-bully" behaviours c. Guidelines for reporting conflicts between faculty, staff, students 	V. Pavri organized a new EDI workshop series entitled "Building a Defense System against Microaggressions: Supporting Healthy Workplaces." This workshop was facilitated by Christine Sinclair and Carolina Ruiz from the Centre for Human Rights, Equity and Inclusion. Two sessions took place in W2023, and we aim to have two workshops per term in 2023 – 24.
EDI reading and discussion groups	A. Nahornick and T. Kelly held two monthly reading clubs for faculty members focused on EDI. One was a book club (<i>Inclusive Teaching by Kelly Hogan and Viji Sathy</i>) and the other was a workshop for participants who read different articles each month related to EDI content.
EDI curriculum development	A. Nahornick and T. Kelly adapted an EDI syllabus from Carleton University's EDI Toolkit (Mullally and Thomson); during the pilot year it was used by 14 instructors.
TA training in EDI	N. Bragagnolo created an EDI workshop for FSc Teaching Assistants that focuses on areas like TA-student interactions and assessments. See below (point "d') for more details.
EDI workshops for NSERC discovery grants	-

Research on EDI practices linked to first- year retention and success rates among vulnerable populations	T. Kelly is the York lead on a national project (Canadian Consortium of Science Equity Scholars) dedicated to enhancing equity in post-secondary science in foundational science courses. 2022-23 was the pilot year with full roll-out expected in 2023-24. While not directly an effort of the EDI committee, it has the opportunity to provide a substantial amount of information to the committee.
 Initiatives focusing on students with	As part of the <i>Inclusive Teaching</i> book club there have been
financial vulnerabilities Educate instructors about need for	discussions about the use of OERs to reduce financial
cheaper course resources	burdens on students. As this is a pedagogy matter, CoTL and
(including use of OER) Reduction of paid assignments Food bank drives	the AD C&P will be hosting a workshop on OERs in Fall 2023.

While we are happy with the steps we've thus far in meeting our long-term goals, our committee also sees many areas that require improvement. These include:

- a) The FSc EDI committee has been operational for 2.5 years. During this time, we have seen high turnover and low attendance. For such a small committee, this can be particularly problematic when it comes to initiating and continuing EDI-related projects. With this lack of adequate representation, committee members are requesting more support and resources from the Dean's Office to fulfill our three-year plan. In addition, because of the unique nature of this committee (e.g., more project than monthly "task" oriented), we are seeking a minimum three-year commitment from colleagues assigned to this committee by their Department Chairs.
- b) Committee members would like to see more equitable representation on the EDI committee. Currently, the committee is disproportionately skewed with female members. The Faculty should work to recruit allies (i.e., individuals of dominant groups) to the committee.
- c) Many of our EDI initiatives are student focused at both the graduate and undergraduate level. Given the high turnover of these representatives, the committee thinks that it would be beneficial to assign our grad and undergrad reps specific activities on our EDI task list. This includes TA training and student-related events such as food and/or clothing drives.
- d) Our current grad rep (N. Bragagnolo) devoted a great deal of time and effort into creating a TA-training program focusing on EDI content (e.g., TA-student interactions). The first session had few attendees, and our committee would like a greater commitment from each department (e.g., GPA and GPD involvement) to advertise and promote these workshops. We also need more information about whether such training can be part of a new TA's total allocated hours.
- e) Committee members would like to see more connections between our Faculty-level committee and York's University-level EDI committee. This would include a monthly update highlighting EDI initiatives happening at York more broadly to see where it fits with the Faculty level work our committee is doing.

To: Faculty of Science Council From: FSE Committee on Teaching and Learning (CoTL) Date: July 31 2023 Re: Annual Report for 2022 - 2023

Dear Council,

CoTL has been working this year to finalize and approve major changes to our Rules of Order and Teaching Awards in the Faculty of Science, in addition to promoting and sharing evidence-based teaching and learning practices through events and reading groups. CoTL met virtually 9 times to discuss CoTL business and adjudicate the FSc teaching awards. We would like to thank S. Siyakatshana for administrative support, as well as our outgoing committee members for their service.

- 1. **Membership:** The membership* consisted of the following.
 - M. Scheid, Associate Dean Students, Designated
 - H. Kouyoumdjian, Associate Dean Curriculum & Pedagogy, Designated
 - M. Wang, Stacie Science Library, Designated
 - T. Kelly, Pedagogical Innovation Chair in Science Education (term until 2023)
 - P. Wilson, Bethune College Head (term until 2023)
 - D. Golemi-Kotra, Department of Biology, (term until 2023)
 - J. Atallah, Department of Biology, (term until 2023)
 - T. Mirkovic, Department of Chemistry, (term until 2023)
 - T. Zheng, Department of Chemistry, (term until 2023)
 - S. Rugheimer, Department of Physics & Astronomy, (term until 2023)
 - C. Marsan, Department of Physics & Astronomy, (term until 2023)
 - P. Sargent, Department of Mathematics & Statistics, (term until 2023)
 - J. Cao, Department of Mathematics & Statistics, (term until 2024)
 - R. Marushia, Department of Science, Technology and Society (term until 2022)
 - V. Gotcheva, ITC Director, Office of the Dean, Designated
 - K. Pabst, Teaching Commons Representative, Designated (replaced by Yelin Su in 2023)
 - D. Hossain, Staff Representative (term until 2023)
 - S. Damian, Undergraduate Student Representative (term until 2023)
 - G. Gerzon, Graduate Student Representative (term until 2023)
 - A. Nahornick, Educational Development Specialist (guest)
 - *terms may not be accurate as listed

Each meeting was conducted under quorum and members were active in all discussions and initiatives.

- 2. **Teaching Awards:** CoTL administered the Excellence in Teaching Awards in the Fall based on completed packages. CoTL selected the following recipients for the annual Faculty of Science Excellence in Teaching Awards.
 - a) Teaching Assistants
 - i. Richard Jarrell Excellence in Teaching: Farwa Sajadi (Biology) and Evangelia Tsamali (Lassonde)
 - b) Faculty
 - i. Contract Stream: Dr. Alireza Rafiee (Science, Technology & Society, Division of Natural Sciences)
 - ii. Junior Tenure Stream: Dr. Christopher Jang (Biology)
 - iii. Senior Tenure Stream: no nominees

3. Revising & Approving Changes to the CoTL Rules of Order: CoTL continued to work on the new Award categories proposed at the end of the 2021 – 2022 academic year, now titled the Educational Leadership Awards. In creating the new Awards, members encountered a number of questions about existing Rules and their interpretation. A Subcommittee worked to finalize the language for our new Awards, while also reviewing and revising existing Rules of Order. The provisions of our new Rules were thoroughly reviewed by CoTL members and passed in March 2023. The new Rules of Order, including Educational Leadership Awards, were included at Faculty Council on the consent agenda in April 2023. CoTL also separated a number of internal processes, such as advertising and voting procedures, in our first Standard Operating Procedures (SOP) document, which was passed in May 2023.

The new Educational Leadership Awards were announced to the Faculty on July 31, 2023. These exciting new Awards are designed and intended to recognize excellence beyond the classroom: accomplishments in undergraduate education that are not necessarily direct instruction, but have major, positive impacts for student, faculty, and/or programs. The activities include, but are not limited to, the following criteria:

- i. Leading professional development opportunities for faculty members or students at any level.
- ii. Leading and/or implementing major curriculum projects, such as curriculum development, renewal, or improvement.
- iii. Leading substantive projects in teaching-related activities, such as program mapping, policy renewal and review, petitions, and academic integrity.
- iv. Formal or informal mentorship and advising in teaching, learning, or academics to individuals or groups.
- v. Modeling and/or disseminating evidence-based teaching practices.
- vi. Exceptional leadership and service in administrative roles, professional organizations, or committees related to teaching, learning, and student success.
- vii. Research or novel contributions related to teaching and learning, pedagogy, and innovations.
- viii. Significant and/or ongoing public outreach and education.
- ix. Activities to advance interdisciplinary, inter-professional and inter-institutional collaborations in teaching and learning.
- x. Activities to advance the inclusion of those historically excluded from academia, such as those based on gender, race, religion, sexuality, age, disability, or economic circumstance.

Instructors at any level may be nominated to the Faculty of Science Excellence in Educational Leadership Award. Graduate students may be nominated to the Faculty of Science Excellence in Educational Leadership at the Graduate Level Award. The same criteria apply to both, and the nomination process is the same for both awards. A faculty, staff or student may submit a single letter of nomination. A second letter of support is encouraged, but not required (unless the original nomination is by a student, in which case a second letter of support by staff or faculty is required).

The criteria for the Excellence in Teaching Awards remain unchanged. The minimum number of nomination letters for instructors remains at five. However, based on feedback from our CoTL members and greater Faculty of Science community, the minimum number of letters required for graduate students in the Richard Jarrell Award has been reduced from five letters to three. CoTL also clarified the Rules around multiple excellent nominees for Awards, and outlined clear voting procedures to determine those cases in which CoTL may award multiple nominees in the SOP. Other changes to the Rules of order clarified the process for coordinated nominations, the roles of graduate student letters in different awards, allowances for personal leave, and prioritization of FSC teaching and learning activities over those conducted in other divisions, among others.

4. **Revising and Expanding the CoTL website:** With the new Educational Leadership Awards, CoTL designed new Machforms to enable nominations and created a new website to house the multiple Award categories. Our <u>new CoTL homepage</u> and <u>Awards homepage</u> now guides users to the correct resources, Awards, and forms for both nominations and package materials. Our goal is that these new resources will make CoTL and the Awards more accessible for everyone, especially those who would like to nominate notable individuals for Teaching & Learning Awards.

5. **Revising and Expanding the CoTL website:** With the new Educational Leadership Awards, CoTL designed new Machforms to permit nominations, and created a new website to house the multiple Award categories. Our <u>new CoTL homepage</u> and <u>Awards homepage</u> now guides users to the correct resources, Awards, and forms for both nominations and package materials. Our goal is that these new resources will make CoTL and the Awards more accessible for everyone, especially those who would like to nominate notable individuals for Teaching & Learning Awards.

- 6. **Speaker Series and Events:** CoTL hosted or partnered with others in the FSC to provide Teaching and Learning Events, including:
 - a. Dec. 1, 2023: A Data-Driven Approach to Equitable Course Outcomes In Science. Speaker Dr. Jaclyn Stewart, UBC, hosted by the FSc Committee on EDI and CoTL.
 - b. Jan. 31, 2023: *Peer Grading Workshop Using Kritik:* speaker Dr. Mary Armour, FSc, hosted by CoTL
 - c. April 24, 2023: Sustainable Development Goals in the Classroom speakers Charles Hopkins, UNESCO Chair, and Katrin Kohl, Executive Coordinator for UNESCO Chair, York U., hosted by CoTL
 - d. June 12, 2023: *Conversations on Science Education Symposium* Keynote: Dr. Michelle Hogue, U. Lethbridge. Organized and host by Tamara Kelly, PICSE, and Ashley Nahornick, Educational Development Specialist, with support from CoTL.
- 7. Hosting the EDI Book Club and Reading Group : CoTL partnered with the FSc EDI Committee, Tamara Kelly (PICSE) and Ashley Nahornick (Educational Development Specialist) to host monthly reading groups. The EDI Book Club read *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom*, by Kelly Hogan and Viji Sathy. The EDI Reading Group read various articles related to EDI in higher education. Both reading groups had attendance from FSc members on all dates and stimulating, thoughtful conversations. We will coordinate to offer both these regular events again in 2023-24.

I have enjoyed serving as Chair of CoTL once again, and look forward to continuing with the committee in 2023-24. I extend my thanks to the members of CoTL for the opportunity to lead this committee.

Sincerely, R. Marushia FSc CoTL Chair

Graduate Curriculum Committee Report 2022 - 23



science

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.

Committee composition:

B. Stutchbury, R. McLaren, S. Moghadas (Chair), M. Johnson, Farnaz Mansouri-Noori (Graduate Student Rep), M. Scheid (ex-officio)

During the past year, the Graduate Curriculum Committee approved the following curriculum items:

- New Grading Schemes for the masters and doctoral programs in Chemistry, Physics and Astronomy, and Mathematics & Statistics.
- Changes to Graduate Program/Graduate Diploma Academic requirements for the MA, MSc and doctoral programs in Mathematics & Statistics
- Minor changes to the Biology MSc and Biology PhD program requirements (text for Calendar)
- New Course Proposal MATH 6940 3.0 Perturbation Methods

S. Moghadas, Chair June 22, 2023

GRADUATE CURRICULUM COMMITTEE



CONSENT AGENDA AUGUST 2023

Change to existing Course Proposal

- 1. GS/BIOT 5000 3.0 Data Analysis, Product Development and Commercialization in Biotechnology
- 2. GS/BIOT 5010 3.0 Introduction to Biotechnology Practices
- 3. GS/BIOT 5020 3.0 Science Communication and Writing
- 4. GS/BIOT 5030 3.0 Research and Development in Biotechnology
- 5. GS/BIOT 5040 3.0 Laboratory Skills in Biotechnology
- 6. GS/BIOT 5050 3.0 Data Analysis, Product Development and Commercialization in Biotechnology
- 7. GS/PHYS 6140 3.0 Advanced Topics In Particle Physics

Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Graduate Program: Master's in Biotechnology Management

- 2. Responsible Unit: Biology Markham
- 3. Subject Code (Rubric) and Course Number: BIOT 5000
- 4. Credit Value: 3.00
- 5. Long Course Title: Capstone Experience in Biotechnology Management

6. Type of Course Change(s) (indicate all that apply):

Х	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
Х	other (please specify) course design - mode of delivery

7. Effective Term/Calendar Year of Proposed Change(s):

2024-25, if possible

8. Rationale:

Course numbers and delivery modes were not designated in the original proposal.



9. Proposed Course Information:

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Number	Course Number
BIOT XXXX	BIOT <u>5000</u>
Course Design	Course Design
Any student who is enrolled in the Master's	Any student who is enrolled in the Master's
in Biotechnology Management program	in Biotechnology Management program
will be required to be enrolled in BIOT	will be required to be enrolled in BIOT
XXXX Capstone Experience in their final	<u>5000</u> Capstone Experience in their final
academic term. The Capstone Experience is	academic term. The Capstone Experience is
a "finishing" experience to consolidate	a "finishing" experience to consolidate
academic learning, paid internships and	academic learning, paid internships and
prepare students for after graduation.	prepare students for after graduation.
The course design encourages students to	The course design encourages students to
re-visit and draw upon content from the	re-visit and draw upon content from the
other courses in the Master's in	other courses in the Master's in
Biotechnology program as they work to	Biotechnology program as they work to
solve complex management problems in	solve complex management problems in
Biotechnology through face-to-face hands-	Biotechnology through face-to-face hands-
on classroom experience three hours a	on classroom experience three hours a
week. The course relies on student	week. The course relies on student
engagement with instructor, peers, and	engagement with instructor, peers, and
learning materials.	learning materials.
If demands warrants, this course could be	If demands warrants, this course could be
mounted as a remote online learning	mounted as a remote online learning
course, with three hours a week of "face-to-	course, with three hours a week of "face-to-
face" synchronous learning using an online	face" synchronous learning using an online
platform such as Zoom.	platform such as Zoom.
Experiential Education: This course is heavily experiential in nature. Students will work through a variety of management case exercises in	ONLN Experiential Education:



biotechnology with real-time problems of	This course is heavily experiential in
actual organizations and engage with these	nature. Students will work through a
organizations directly.	variety of management case exercises in
	biotechnology with real-time problems of
Students will learn how to investigate,	actual organizations and engage with these
interpret, and resolve some of the	organizations directly.
challenges that managers must address to	
succeed.	Students will learn how to investigate,
	interpret, and resolve some of the
In teams, students will identify, design, and	challenges that managers must address to
lead their own management consulting	succeed.
project in biotechnology based on the real-	
time needs of the organizations who visit	In teams, students will identify, design, and
the program, organizational	lead their own management consulting
representatives, or their paid internships.	project in biotechnology based on the real-
These projects will be developed in	time needs of the organizations who visit
response to a topic mutually identified by	the program, organizational
the student teams, organization, and course	These projects will be developed in
	response to a topic mutually identified by
Working in small groups, students will also	the student teams organization and course
avportance and develop their skills in	directors
teamwork collaborative research &	directors.
writing and group presentations. These	Working in small groups, students will also
experiences and skills mirror those	experience and develop their skills in
important for success in possible	teamwork collaborative research &
Biotechnology careers available for	writing and group presentations. These
students after graduation.	experiences and skills mirror those
	important for success in possible
As part of this project, students will be	Biotechnology careers available for
expected to reflect on their journey of	students after graduation.
developing their personal and	_
interpersonal competencies and reflect on	As part of this project, students will be
their team learning experience.	expected to reflect on their journey of
	developing their personal and
Additionally, during the classroom	interpersonal competencies and reflect on
sessions, students will discuss classroom	their team learning experience.
learning as a class and in small groups,	
reflect on their internship experiences, and	Additionally, during the classroom
reflect on their personal learning trajectory	sessions, students will discuss classroom
In the Master's in Biotechnology program.	learning as a class and in small groups,
Additionally, in-class activities (such as	reflect on their internship experiences, and
group discussion or debates) encourage	reflect on their personal learning trajectory
	In the Master's in Biotechnology program.



deeper understanding of the content and another approach to the course material.	Additionally, in-class activities (such as group discussion or debates) encourage deeper understanding of the content and
	another approach to the course material.

10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

This course is open only for Master's in Biotechnology management and Graduate Diploma in Biotechnology students

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable

Please submit completed forms and required supporting documentation by email to Joanne Sequeira, sequeira@yorku.ca



Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

- 1. Graduate Program: Master's in Biotechnology Management
- 2. Responsible Unit: Biology Markham
- 3. Subject Code (Rubric) and Course Number: BIOT 5010
- 4. Credit Value: 3.00
- 5. Long Course Title: Introduction to Biotechnology Practices
- 6. Type of Course Change(s) (indicate all that apply):

Х	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
Х	other (please specify) mode of delivery

7. Effective Term/Calendar Year of Proposed Change(s):

2024-25, if possible

8. Rationale:

Course numbers and delivery modes were not designated in the original proposal.

9. Proposed Course Information:



Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Number	Course Number
BIOT XXXX	BIOT <u>5010</u>
Course Design	Course Design
This course is a face-to-face lecture course	This course is a face-to-face lecture course
with three hours of lecture in the	with three hours of lecture in the
introduction to Biotechnology	introduction to Biotechnology
Practices. However, this course could be	Practices. However, this course could be
offered as an online course, if needed, such	offered as an online course, if needed, such
as during the COVID-19 pandemic, but	as during the COVID-19 pandemic, but
face-to-face learning would be preferred.	face-to-face learning would be preferred.
This course relies on student engagement	This course relies on student engagement
with the instructor, peers, and learning	with the instructor, peers, and learning
materials.	materials.
Experiential Learning:	<u>Delivery modes: LECT, BLEN, ONCA,</u> <u>ONLN</u>
Students will analyze scientific literature, research articles, and media materials as part of their report on new and emerging biotechnology practices. Students will draw on the knowledge and concepts being taught in class, critically reflect on the new material research, and communicate their understanding of biotechnology practices historically and today. Students will also engage in experiential learning through exploring case studies in	Experiential Learning: Students will analyze scientific literature, research articles, and media materials as part of their report on new and emerging biotechnology practices. Students will draw on the knowledge and concepts being taught in class, critically reflect on the new material research, and communicate their understanding of biotechnology practices historically and today.
biotechnology in-class. Students will work	Students will also engage in experiential
both individually and in groups to address	learning through exploring case studies in
the questions "what?" (e.g., what did they	biotechnology in-class. Students will work



learn about the material covered), "so what" (how does this information contribute to our knowledge in the field of biotechnology), and "what now" (what more would they like to know about this	both individually and in groups to address the questions "what?" (e.g., what did they learn about the material covered), "so what" (how does this information
topic or what further research needs to be conducted to expand on this topic). This activity should encourage reflection on the integration of key course concepts.	biotechnology), and "what now" (what more would they like to know about this topic or what further research needs to be conducted to expand on this topic). This activity should encourage reflection on the integration of key course concepts.

10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

This course is open only for Master's in Biotechnology management and Graduate Diploma in Biotechnology students

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable

Please submit completed forms and required supporting documentation by email to Joanne Sequeira, sequeira@yorku.ca



Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Graduate Program: Master's in Biotechnology Management

- 2. Responsible Unit: Biology Markham
- 3. Subject Code (Rubric) and Course Number: BIOT 5020
- 4. Credit Value: 3.00
- 5. Long Course Title: Science Communication and Writing

6. Type of Course Change(s) (indicate all that apply):

V	in course number
Χ.	
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
Х	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
Х	other (please specify) course design - mode of delivery

7. Effective Term/Calendar Year of Proposed Change(s):

2024-25, if possible

8. Rationale:

Course numbers and delivery modes were not designated in the original proposal. BIOT 5010 and BIOT 5020 are offered concurrently, hence it would not make sense to make one a prerequisite of the other. Moreover, material covered in BIOT 5020 are not scaffolded on concepts discussed in BIOT 5010.



9. Proposed Course Information:

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Number BIOT XXXX	Course Number BIOT <u>5020</u>
Brief Course Description: This course is designed to give students the opportunity to develop their science communication and writing. Students learn to write articles and reports for science audiences and general audiences, deliver effective oral presentations and communicate science using online platforms. One of the objectives of the course is to prepare students to successfully interview, secure and complete their paid internships or careers in biotechnology. Prerequisites: Must be enrolled in the Master's in Biotechnology Management program or Graduate Diploma in Biotechnology program. Must have completed BIOT 5010 Introduction to	Brief Course Description: This course is designed to give students the opportunity to develop their science communication and writing. Students learn to write articles and reports for science audiences and general audiences, deliver effective oral presentations and communicate science using online platforms. One of the objectives of the course is to prepare students to successfully interview, secure and complete their paid internships or careers in biotechnology. Prerequisites: Must be enrolled in the Master's in Biotechnology Management program or Graduate Diploma in Biotechnology program.
Biotechnology Processes Practices	Course Design
Course Design Currently, we plan on mounting this course as hybrid with 1 hour of "face to face" scheduled online contact and 2 hours of	Currently, we plan on mounting this course as hybrid with 1 hour of "face to face" scheduled online contact and 2 hours of workshop time in person per week.
workshop time in person per week. Please note that this course could also be mounted as fully online or fully-in person course.	Please note that this course could also be mounted as fully online or fully-in person course. <u>Delivery modes: LECT, BLEN, ONCA,</u> <u>ONLN</u>



Class time can be used to discuss, review, investigate and practice scientific communication and writing skills through writing exercises, communication exercises, role playing, problem-solving and cases studies in science communication techniques. In-class exercises and case studies will also offer a means to integrate and make connections among material taught elsewhere in the program as a means of reinforcement and deepening of learning.

In class activities will also offer students the opportunity to engage with their peers in small and large group discussions, e.g. Think, Pair, Share activities. Engagement with the course material and their peers supports the achievement of the courses' learning objectives by offering multiple means to review, discuss, and apply key course concepts.

Technology-Enhanced Learning:

Students will have access to a variety of technological tools designed to support their science communication development, including tools for document creating, editing, reviewing and sharing, reference management, collaboration, and/or information dissemination tools.

The learning management system (eClass) will be used to build a forum for the students to engage together online. The eClass course will be the space where students submit their science-based reviews, newspaper pieces, radio pieces, in-class exercises, ask questions, and engage with their fellow students. Class time can be used to discuss, review, investigate and practice scientific communication and writing skills through writing exercises, communication exercises, role playing, problem-solving and cases studies in science communication techniques. In-class exercises and case studies will also offer a means to integrate and make connections among material taught elsewhere in the program as a means of reinforcement and deepening of learning.

In class activities will also offer students the opportunity to engage with their peers in small and large group discussions, e.g. Think, Pair, Share activities. Engagement with the course material and their peers supports the achievement of the courses' learning objectives by offering multiple means to review, discuss, and apply key course concepts.

Technology-Enhanced Learning:

Students will have access to a variety of technological tools designed to support their science communication development, including tools for document creating, editing, reviewing and sharing, reference management, collaboration, and/or information dissemination tools.

The learning management system (eClass) will be used to build a forum for the students to engage together online. The eClass course will be the space where students submit their science-based reviews, newspaper pieces, radio pieces, in-class exercises, ask questions, and engage with their fellow students.



10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

This course is open only for Master's in Biotechnology management and Graduate Diploma in Biotechnology students

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable

Please submit completed forms and required supporting documentation by email to Joanne Sequeira, sequeira@yorku.ca



Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Graduate Program: Master's in Biotechnology Management

- 2. Responsible Unit: Biology Markham
- 3. Subject Code (Rubric) and Course Number: BIOT 5030
- 4. Credit Value: 3.00
- 5. Long Course Title: Research and Development in Biotechnology

6. Type of Course Change(s) (indicate all that apply):

Х	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
Х	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
Х	other (please specify) course design - mode of delivery

7. Effective Term/Calendar Year of Proposed Change(s):

2024-25, if possible

8. Rationale:

Course numbers and delivery modes were not designated in the original proposal. There was a typo in the name of BIOT 5010 course in the Brief Course Description part of the original proposal.



9. Proposed Course Information:

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Number	Course Number
BIOT XXXX	BIOT <u>5030</u>
Brief Course Description:	Brief Course Description:
This course introduces students to	This course introduces students to
research and development practices in the	research and development practices in the
Canadian biotechnology industry.	Canadian biotechnology industry.
Emphasis is placed on the biotechnology	Emphasis is placed on the biotechnology
drug and development process, standard	drug and development process, standard
operating procedures, regulations, clinical	operating procedures, regulations, clinical
trials, packaging and labelling, regulatory	trials, packaging and labelling, regulatory
compliance, good manufacturing practice	compliance, good manufacturing practice
and clinical research to prepare students to	and clinical research to prepare students to
secure and complete their paid internships	secure and complete their paid internships
in biotechnology and/or to find careers in	in biotechnology and/or to find careers in
biotechnology.	biotechnology.
Prerequisites: Must be enrolled in the	Prerequisites: Must be enrolled in the
Master's in Biotechnology Management or	Master's in Biotechnology Management or
Graduate Diploma in Biotechnology	Graduate Diploma in Biotechnology
program. Must have completed BIOT XXXX	program. Must have completed BIOT <u>5010</u>
Introduction to Biotechnology Processes	Introduction to Biotechnology Processes
Practices	<u>Practices</u>
Course Design	Course Design
The course design encourages students to	The course design encourages students to
engage in practical learning of	engage in practical learning of
biotechnology research and development	biotechnology research and development
through face-to-face lecture three hours a	through face-to-face lecture three hours a
week. This course relies on student	week. This course relies on student
engagement with the instructor, peers, and	engagement with the instructor, peers, and
learning materials.	learning materials.
If demand warrants, this course could be mounted as a remote online course, with	If demand warrants, this course could be mounted as a remote online course, with



face in-class collaborative learning coupled face in-class collaborative learning coupled with online asynchronous lectures. with online asynchronous lectures. Delivery modes: LECT, BLEN, ONCA, **Experiential Education:** ONI N Students will have the opportunity to **Experiential Education:** research and analyze scientific literature and media materials as part of their project Students will have the opportunity to on research and development in research and analyze scientific literature biotechnology. Students will draw on, and media materials as part of their project critically reflect on, and communicate their on research and development in understanding of the concepts addressed in biotechnology. Students will draw on, the course in relation to research and critically reflect on, and communicate their development in biotechnology. understanding of the concepts addressed in the course in relation to research and Students will also engage in experiential development in biotechnology. learning through exploring case studies in biotechnology research and development. Students will also engage in experiential Through these case studies, students will learning through exploring case studies in biotechnology research and development. be asked to critically reflect and address the questions "what?" (e.g., what did they Through these case studies, students will learn), "so what" (how does this be asked to critically reflect and address the questions "what?" (e.g., what did they information contribute to our knowledge of the field of biotechnology), and "what now" learn), "so what" (how does this (what more would they like to know about information contribute to our knowledge of this topic or what further research needs to the field of biotechnology), and "what now" be engaged in to expand on this topic). This (what more would they like to know about activity should encourage reflection and this topic or what further research needs to integration of key course concepts. be engaged in to expand on this topic). This activity should encourage reflection and Technology integration of key course concepts. Students will use polling technology as a means of engagement along with Technology collaborative discussions in breakout Students will use polling technology as a means of engagement along with rooms in order to delve deeper into assigned topics. 10% of students' final collaborative discussions in breakout grade will be based on their participatory rooms in order to delve deeper into work. assigned topics. 10% of students' final grade will be based on their participatory work.

three hours a week of synchronous contact using an online platform such as Zoom, or

as a blended course with scheduled face to



three hours a week of synchronous contact

using an online platform such as Zoom, or as a blended course with scheduled face to

10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

This course is open only for Master's in Biotechnology management and Graduate Diploma in Biotechnology students

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable

Please submit completed forms and required supporting documentation by email to Joanne Sequeira, sequeira@yorku.ca


Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

- 1. Graduate Program: Master's in Biotechnology Management
- 2. Responsible Unit: Biology Markham
- 3. Subject Code (Rubric) and Course Number: BIOT 5040
- 4. Credit Value: 3.00
- 5. Long Course Title: Laboratory Skills in Biotechnology
- 6. Type of Course Change(s) (indicate all that apply):

Х	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
Х	other (please specify) mode of delivery

7. Effective Term/Calendar Year of Proposed Change(s):

2024-25, if possible

8. Rationale:

Course numbers and delivery modes were not designated in the original proposal.



9. Proposed Course Information:

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Number	Course Number
BIOT XXXX	BIOT <u>5040</u>
Course Design	Course Design
The course design encourages students to	The course design encourages students to
develop their skills in biotechnology	develop their skills in biotechnology
methods and techniques through weekly	methods and techniques through weekly
experiential laboratory sessions.	experiential laboratory sessions.
Participants not only carry out protocols	Participants not only carry out protocols
but also design and troubleshoot	but also design and troubleshoot
experimental workflows to achieve an	experimental workflows to achieve an
assigned objective. Students will meet for	assigned objective. Students will meet for
two hours a week for lectures to introduce,	two hours a week for lectures to introduce,
explain and solidify understanding of	explain and solidify understanding of
methods in biotechnology. During the	methods in biotechnology. During the
laboratory meeting students will be	laboratory meeting students will be
engaging in small group learning, and	engaging in small group learning, and
during the lecture students will engage	during the lecture students will engage
with the instructor, peers, and learning	with the instructor, peers, and learning
materials.	materials.
Course Delivery Method:	Course Delivery Method:
This laboratory component of the course	This laboratory component of the course
relies completely on face-to-face learning.	relies completely on face-to-face learning.
The two hours of lecture are planned as	The two hours of lecture are planned as
face to face, however such as during the	face to face, however such as during the
COVID-19 pandemic, the lecture	COVID-19 pandemic, the lecture
component could be offered online, making	component could be offered online, making
the course a hybrid course offering.	the course a hybrid course offering.
Experiential Education	Delivery mode: LAB, LECT, BLEN
As a laboratory-based course, students will	Experiential Education
be engaged in hands-on workshops and	As a laboratory-based course, students will
modules in small-groups that offer	be engaged in hands-on workshops and



opportunity to perform methods in	modules in small-groups that offer
biotechnology. From this experience,	opportunity to perform methods in
students will have the opportunity to	biotechnology. From this experience,
reflect on the connections between class	students will have the opportunity to
learning material and laboratory	reflect on the connections between class
experiences, and how different laboratories	learning material and laboratory
demonstrate and apply key course learning	experiences, and how different laboratories
objectives.	demonstrate and apply key course learning
-	objectives.

10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

This course is open only for Master's in Biotechnology management and Graduate Diploma in Biotechnology students

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable

Please submit completed forms and required supporting documentation by email to Joanne Sequeira, sequeira@yorku.ca



Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Graduate Program: Master's in Biotechnology Management

- 2. Responsible Unit: Biology Markham
- 3. Subject Code (Rubric) and Course Number: BIOT 5050
- 4. Credit Value: 3.00

5. Long Course Title: Data Analysis, Product Development and Commercialization in Biotechnology

6. Type of Course Change(s) (indicate all that apply):

Х	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
Х	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
Х	other (please specify) course design - mode of delivery

7. Effective Term/Calendar Year of Proposed Change(s):

2024-25, if possible

8. Rationale:

Course numbers and delivery modes were not designated in the original proposal. There was a typo in the name of BIOT 5010 course in the Brief Course Description part of the original proposal.



9. Proposed Course Information:

Please insert approved course information on the left, and proposed course information on the right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Number	Course Number
BIOT XXXX	BIOT <u>5050</u>
Brief Course Description:	Brief Course Description:
This course offers a dual purpose. The first	This course offers a dual purpose. The first
part of the course will provide a	part of the course will provide a
comprehensive introduction to the	comprehensive introduction to the
software tools and methods for analyzing	software tools and methods for analyzing
biotechnology data, with an emphasis on	biotechnology data, with an emphasis on
statistical reasoning and critical	statistical reasoning and critical
interpretations of statistical information in	interpretations of statistical information in
the biotechnology industry. The second	the biotechnology industry. The second
part of the course, with provide training on	part of the course, with provide training on
biotechnology product development and	biotechnology product development and
commercialization.	commercialization.
Prerequisites: Must be enrolled in the	Prerequisites: Must be enrolled in the
Master's in Biotechnology Management	Master's in Biotechnology Management
program or Graduate Diploma in	program or Graduate Diploma in
Biotechnology program. Must have	Biotechnology program. Must have
completed BIOT XXXX Introduction to	completed BIOT <u>5010</u> Introduction to
Biotechnology Processes	Biotechnology <u>Practices</u>
Course Design The course design encourages students to engage in application-based learning of software tools and methods for biological data analysis, and training on biotechnology product development and commercialization. This course is planned to be mounted as a hybrid course. Students will have 2 hours of enline synchronous context a weak and	Course Design The course design encourages students to engage in application-based learning of software tools and methods for biological data analysis, and training on biotechnology product development and commercialization. This course is planned to be mounted as a hybrid course. Students will have 2 hours
a 1 hour problem-solving/case-study	a 1 hour problem-solving/case-study
period in person per week. This course	period in person per week. This course



relies on student engagement with the	relies on student engagement with the
instructor pages and learning materials	instructor poors and learning materials
instructor, peers, and rearning materials.	instructor, peers, and learning materials.
If demand warrants, this course could also	If demand warrants, this course could also
be offered as fully in-person.	be offered as fully in-person.
	Delivery modes: LECT, BLEN, ONCA,
Experiential Education	ONI N
Students develop their skills through two	Experiential Education
	Experiential Education.
nours of lecture and one nour of problem-	
solving period per week. The one-hour	Students develop their skills through two
problem-solving period per week provides	hours of lecture and one hour of problem-
students with a dedicated block of time to	solving period per week. The one-hour
engage in experiential learning through	problem-solving period per week provides
statistical problems and case studies in	students with a dedicated block of time to
product development in biotechnology	engage in experiential learning through
product development in biotechnology.	statistical problems and case studies in
Ctudente will here the encenturity to	statistical problems and case studies in
Students will have the opportunity to	product development in biotechnology.
locate, retrieve, synthesize, and evaluate	
data as part of their problem-solving	Students will have the opportunity to
project in statistics for biotechnology.	locate, retrieve, synthesize, and evaluate
Through this opportunity, students will	data as part of their problem-solving
draw on, critically reflect on, and	project in statistics for biotechnology.
communicate their understanding of	Through this opportunity students will
statistical concents and their limitations in	draw on critically reflect on and
statistical concepts and their minitations in	communicate their understanding of
relation to biotechnology, as well as	
communicate their understanding of social	statistical concepts and their limitations in
responsibility when reporting statistics.	relation to biotechnology, as well as
	communicate their understanding of social
	responsibility when reporting statistics.
Technology:	
Students will learn how to use industry-	
specific statistical programs to carry-out	Technology
statistical analyses on biotochnology data	Students will learn how to use industry
statistical analyses on biotechnology data	Students will learn now to use industry-
sets.	specific statistical programs to carry-out
	statistical analyses on biotechnology data
	sets.



10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

This course is open only for Master's in Biotechnology management and Graduate Diploma in Biotechnology students

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable

Please submit completed forms and required supporting documentation by email to Joanne Sequeira, sequeira@yorku.ca



Appendix I | Course proposals

Introduction to Biotechnology Practices

New Course Proposal Form | committee on academic standards, curriculum and pedagogy template

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science				
Department: Indicate department and course prefix (e.g. Languages, GER)	Markham	Date of Su	bmission:		
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	BIOT 5010	Var:	Academic Indicate b MTCU wei academic FEE=8, M	Credit Weight: both the fee, and ght if different from weight (e.g. AC=6, ET=6	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	ntroduction to Biotechnology Praction	ces			
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters	Introduction to Biotechnology Pract	ices			

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 characters

(approximately 300 words including spaces and punctuation).

2000

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and corequisites, 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...")

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. This course provides students with a theoretical background and working knowledge of the field of biotechnology. Students will learn fundamentals of biotechnology, latest discoveries, and biotechnology processes. The course will focus on how modern biotechnology is performed, and survey the scientific, ethical, and societal considerations in these contexts.

Prerequisites: Must be enrolled in the Master's in Biotechnology Management or the Graduate Diploma in Biotechnology program.

Expanded Description:

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

Course

This course provides students with a working knowledge of the field of Biotechnology. Students will learn fundamentals of biotechnology science, latest discoveries, and biotechnology processes. The course will also examine how modern biotechnology is performed, and survey the scientific, ethical, and societal considerations in these contexts.

Potential topics to be covered:

- What is biotechnology?
- Fundamental components of biotechnology science (cells, DNA, RNA, Proteins, genes, genomes)
- Modern biotechnology processes
- Industry trends and issues
- Scientific, ethical, and societal considerations
- Case studies on the interdisciplinary nature of biotechnology focusing on regional development of the biotechnology industry

Learning Objectives:

Upon successful completion of this course, students are expected to be able to:

- Describe what is biotechnology
- Describe the role of biotechnology in science.
- Explain the basic molecular and cellular concepts related to biotechnology.
- Compare and assess alternate practices in biotechnology from a modern viewpoint.
- Analyze case studies in biotechnology and select appropriate methods/practices.
- Describe, differentiate, and critically analyze developments in biotechnology practice.
- Interpret literature in the field of biotechnology.
- Explain and assess ethical issues/challenges associated with biotechnology applications.
- Explain and assess political issues/challenges associated with biotechnology applications.
- Identify limitations in scientific literature and practices related to biotechnology.
- Identify limitations in ones' knowledge and understanding in biotechnology.
- Demonstrate respect for different points of view.

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-toinstructor communication play, and how is it encouraged?

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

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial oncampus attendance. This course is a face-to-face lecture course with three hours of lecture in the introduction to Biotechnology Practices. However, this course could be offered as an online course, if needed, such as during the COVID-19 pandemic, but face-to-face learning would be preferred. This course relies on student engagement with the instructor, peers, and learning materials.

Delivery modes: LECT, BLEN

Experiential Learning:

Students will analyze scientific literature, research articles, and media materials as part of their report on new and emerging biotechnology practices. Students will draw on the knowledge and concepts being taught in class, critically reflect on the new material research, and communicate their understanding of biotechnology practices historically and today.

Students will also engage in experiential learning through exploring case studies in biotechnology in-class. Students will work both individually and in groups to address the questions "what?" (e.g., what did they learn about the material covered), "so what" (how does this information contribute to our knowledge in the field of biotechnology), and "what now" (what more would they like to know about this topic or what further research needs to be conducted to expand on this topic). This activity should encourage reflection on the integration of key course concepts.

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 contact scheduled detailed hours а breakdown of the estimated time students are likely to spend engaged in activities learning required by the course.

1. The course is planned to be offered once a year at Markham campus.

2. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. The Graduate Diploma in Biotechnology is also a new program at the Markham campus. The hiring plan will be determined based on the course offering for the Biotechnology Management and Graduate Diploma programs and enrollment projections.

3. The Master's in Biotechnology Management and Graduate Diploma in Biotechnology at York University at Markham Campus are new programs at a new campus. Prospective faculty members will have a strong background in pharmaceutical related biotechnology methods with a focus on pharmaceutical, diagnostic, and therapeutic strategies. We will also pay close attention to mentorship, effective teaching, and curricula skills of hires to ensure the faculty complement has the depth and breadth necessary to deliver an innovative and effective program in Biotechnology.

4. The schedule includes three lecture hours per week.

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 technologically to mediated forms of delivery please identify how the integrity of learning evaluation will be maintained. (e.g. will "onsite" examinations be required, etc.)

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 you that distinguish between required and suggested readings. А statement is required from bibliographer the 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 he included. If no additional readings are to be required, rationale а should be supplied.

LIBRARY SUPPORT STATEMENT MUST BE INCLUDED. In order to take into consideration, the principles of universal course design (flexible, accessible, enabling students to make choices and be more involved in the learning process), the final grade for the course will be based on the following.

10% In-class case studies in groups and individually (Responses will be assessed both on accuracy as well as the ability to make critical connections to concepts) (Best 4 out 5 cases studies)

20% Report on development of new and emerging practice in biotechnology. (Students will be given choice of the emerging practice to report on)

25% Midterm

45% Final Exam

There are several textbooks that will serve as reference books throughout this course:

- 1) Thieman, W. (2019). Introduction to Biotechnology, Global Edition (4th ed.). Pearson.
- Godbey, W.T. (2014). An Introduction to Biotechnology: The Science, Technology and Medical Applications. Academic Press.

The course will also use examples from current literature in journals such as: Journal of Biotechnology, Biotechnology Advances and Critical Reviews of Biotechnology, all of which the York Libraries have current subscriptions to.

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. At the new Markham campus, brand new purpose-built facilities and equipment will be ready for opening day. All facilities for teaching and learning have been planned.

This course will require a lecture hall, with space for approximately 24 students, internet and audiovisual equipment is required.

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.

This is a required course in the Master's in Biotechnology Management or Graduate Diploma in Biotechnology programs. This course is the first introduction for students into the programs and develops students' knowledge and critical understanding of biotechnology discoveries, and processes.

This course maps to the following program learning outcomes (M. Biotech Management proposal and associated learning outcomes in Graduate Diploma in Biotechnology):

PLO1. Describe the fundamental role of biotechnology in science within a management context

PLO2. Analyze the potential limitations, and/or ethical, political, or social implications of relevant biotechnology practices, their alternatives, as well as industry developments and trends.

PLO4. Analyze the Canadian biotechnology drug and development process, standard operating procedures, regulations, clinical trials, packaging and labeling, regulatory compliance, good manufacturing practice and clinical research.

PLO5. Implement the latest laboratory techniques in biotechnology including practical laboratory skills, experimental procedures, and analysis.

PLO9. Communicate clearly and effectively through written articles, reports, oral presentations, business documents, online platforms, and interviews with varied audiences.

PLO 12. Demonstrate academic integrity, ethical practice, personal responsibility, limitations of one's knowledge, and accountability in biotechnology management.

Expected course enrolment is 35.

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

Accessible format can be provided upon request.

Laboratory Skills in Biotechnology

New Course Proposal Form | committee on academic standards, curriculum and pedagogy template

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science				
Department: Indicate department and course prefix (e.g. Languages, GER)	Markham	Date of Su	ıbmission:		
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	BIOT 5040	Var:	Academic Indicate b MTCU wei academic FEE=8, Mi	Credit Weight: oth the fee, and ght if different from weight (e.g. AC=6, ET=6	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	aboratory Skills in Biotechnology				
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters	Laboratory Skills in Biotechnology				

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 Description:

Maximum characters

(approximately 300 words including spaces and punctuation).

Course

2000

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and corequisites, 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...")

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. This course focuses on essential laboratory techniques in biotechnology in relation to biomedical research. The main objective of the course is to develop fundamental skills dealing with experimental design, choice of laboratory techniques, implementation of laboratory protocols, data analysis, and communication of results in biotechnology.

Prerequisites: Must be enrolled in the Master's in Biotechnology Management or Graduate Diploma in Biotechnology program.

Expanded Description:

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

Course

This course focuses on essential laboratory techniques in biotechnology in relation to biomedical research. The main objective of the course is to develop fundamental skills dealing with experimental design, choice of laboratory techniques, implementation of laboratory protocols, data analysis (including bioinformatic), communication of results, and connecting findings to the developments in the field of biotechnology. Example projects include the design, expression, isolation, and validation of biomedically relevant recombinant proteins starting from molecular cloning and ending with activity assays. Although participants will be provided with protocols for various techniques, the choice of techniques and the overall workflow design will be part of the course deliverables. Also of note is the continuity of the project where techniques are not introduced as isolated mini lessons but are instead integrated in a comprehensive suite of steps leading to a culminating experimental goal in the course.

Potential topics to be covered:

- Laboratory safety
- Laboratory documentation, including writing SOP's.
- Molecular cloning techniques
 - Polymerase chain reaction
 - TOPO-cloning
 - Plasmid DNA isolation
 - o Restriction digests
 - Subcloning
 - Transformation and bacterial expression
- Protein purification and analysis
 - o Column chromatography.
 - Western immunoblotting
- Protein activity assays when possible.

Learning Objectives:

Upon successful completion of this course, students are expected to be able to:

- Demonstrate safe laboratory practices.
- Demonstrate proper laboratory documentation.
- Correctly use common laboratory equipment
- Perform current classical molecular biology techniques relevant to biomedical research (Examples include suite of techniques relevant to molecular cloning, protein purification and analysis, and protein functional assays etc.)
- Design and troubleshoot and experimental workflow consisting of several techniques in order to achieve an assigned goal.
- Complete laboratory techniques with accuracy and proficiency
- Explain and assess issues/challenges associated with some of the techniques in biotechnology.
- Identify limitations in biotechnology laboratory methods.
- Critically analyze and interpret data and findings.
- Work effectively with laboratory group.

• Demonstrate personal responsibility and accountability in the laboratory.

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-toinstructor communication play, and how is it encouraged?

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

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial oncampus attendance. The course design encourages students to develop their skills in biotechnology methods and techniques through weekly experiential laboratory sessions. Participants not only carry out protocols but also design and troubleshoot experimental workflows to achieve an assigned objective. Students will meet for two hours a week for lectures to introduce, explain and solidify understanding of methods in biotechnology. During the laboratory meeting students will be engaging in small group learning, and during the lecture students will engage with the instructor, peers, and learning materials.

Delivery mode: LAB

Course Delivery Method:

This laboratory component of the course relies completely on face-to-face learning. The two hours of lecture are planned as face to face, however such as during the COVID-19 pandemic, the lecture component could be offered online, making the course a hybrid course offering.

Experiential Education

As a laboratory-based course, students will be engaged in hands-on workshops and modules in small-groups that offer opportunity to perform methods in biotechnology. From this experience, students will have the opportunity to reflect on the connections between class learning material and laboratory experiences, and how different laboratories demonstrate and apply key course learning objectives.

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 contact scheduled detailed hours а breakdown of the estimated time students are likely to spend engaged in activities learning required by the course.

1. The course is planned to be offered once a year at Markham campus.

2. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. The Graduate Diploma in Biotechnology is also a new program at the Markham campus. The hiring plan will be determined based on the course offering for the Biotechnology Management and Graduate Diploma programs and enrollment projections.

3. The Master's in Biotechnology Management and Graduate Diploma in Biotechnology at York University at Markham Campus are a new programs at a new campus. Prospective faculty members will have a strong background in pharmaceutical related biotechnology methods with a focus on pharmaceutical, diagnostic, and therapeutic strategies. We will also pay close attention to mentorship, effective teaching, and curricula skills of hires to ensure the faculty complement has the depth and breadth necessary to deliver an innovative and effective program in Biotechnology.

4. The schedule includes two lecture hours, and three laboratory hours per week.

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 technologically to mediated forms of delivery please identify how the integrity of learning evaluation will be maintained. (e.g. will "onsite" examinations be required, etc.)

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 distinguish you between required and suggested readings. А statement is required from bibliographer the responsible the for 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. In order to take into consideration, the principles of universal course design (flexible, accessible, enabling students to make choices and be more involved in the learning process), the final grade for the course will be based on the following:

60% Laboratory modules/reports (Participate and complete in four of five laboratory modules, 4 modules, 15% each)

5% Peer and self-evaluation of collaboration experience and one's knowledge

35% Final Exam

There are several textbooks that will serve as reference books throughout this course:

- Brown, K. (2018). Biotechnology: A Laboratory Skills Course (2nd ed.) Bio-rad.
- Hing, S.B., Rashid, BM, & Santiago-Vasquez, L. (2016). Methods in Biotechnology (1st ed.). Wiley.
- Seidman, L. & Moore, C. (2008). Basic Laboratory Methods for Biotechnology (2nd ed.). Pearson.

The course will also use examples from current literature in journals such as : Trends in Biotechnology and Biotechnology Advances, all of which the York Libraries have current subscriptions to.

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. At the new Markham campus, brand new purpose-built facilities and equipment will be ready for opening day. All facilities for teaching and learning have been planned.

A laboratory space for approximately 24 students. We plan to share the custom-built laboratory space build-for the first-year biology at the new Markham campus. The first year Biology laboratory should be sufficiently equipped with the necessary tools needed including but not limited to the following examples:

- micropipettors (approximately 24 sets)
- 4-5 pH meters
- 4 spectrophotometers
- 12 microcentrifuges
- one or two tabletop centrifuges for harvesting bacteria
- two shaker-incubators for bacterial growth
- 12 agarose gel rigs, and associated power supplies
- access to an autoclave for preparation of sterile material.
- Nanodrop
- SDS page equipment x 12
- Plate reader and associated ELISA kits

This course will require a lecture hall, with space for approximately 24 students,

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.

This is a required course in the Master's in Biotechnology Management or Graduate Diploma in Biotechnology programs. It is entirely unique to the proposed programs by providing a focus on practical methods and techniques in biotechnology. It is specifically designed for the Master's in Biotechnology Management and Graduate Diploma in Biotechnology students, as a course that prepares students for their paid internship in Biotechnology and/or careers in Biotechnology

This course maps to the following program learning outcomes (M. Biotech Management proposal and associated learning objectives in Graduate Diploma in Biotechnology proposal):

PLO1. Describe the fundamental role of biotechnology in science within a management context

PLO6. Implement the latest laboratory techniques in biotechnology including practical laboratory skills, experimental procedures, and analysis.

PLO 9. Communicate clearly and effectively through written articles, reports, oral presentations, business documents, online platforms, and interviews with varied audiences.

PLO10. Employ appropriate strategies to work independently and in diverse teams.

PLO11. Demonstrate academic integrity, ethical practice, personal responsibility, limitations of one's knowledge, and accountability in biotechnology management.

Expected course enrolment is 24.

Faculty and Department Approval for Cross- listings:	Dept: Signature (Authorizing cross-listing)	Department	Date
If the course is to be cross-listed with another department, this section needs to	Dept:		
be signed by all parties. In some cases there may be more than two signatures	Signature (Authorizing cross-listing)	Department	Date
required (i.e. Mathematics, Women's Studies). In the majority of the cases either the Undergraduate	Signature (Authorizing cross-listing)	Department	Date
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.			

Accessible format can be provided upon request.

Research and Development in Biotechnology

New Course Proposal Form | committee on academic standards, curriculum and pedagogy template

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science				
Department: Indicate department and course prefix (e.g. Languages, GER)	Markham	Date of Su	bmission:		
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	BIOT 5030	Var:	Academic Indicate b MTCU wei academic FEE=8, M	Credit Weight: oth the fee, and ght if different from weight (e.g. AC=6, ET=6	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Research and Development in Biote	chnology			
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters	Research and Development in Biot	echnology	,		

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 Description:

Maximum characters

(approximately 300 words including spaces and punctuation).

Course

2000

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and corequisites, 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...")

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. This course introduces students to research and development practices in the Canadian biotechnology industry. Emphasis is placed on the biotechnology drug and development process, standard operating procedures, regulations, clinical trials, packaging and labelling, regulatory compliance, good manufacturing practice and clinical research to prepare students to secure and complete their paid internships in biotechnology and/or to find careers in biotechnology.

Prerequisites: Must be enrolled in the Master's in Biotechnology Management or Graduate Diploma in Biotechnology program. Must have completed BIOT 5010 Introduction to Biotechnology Processes Practices

Expanded Description:

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

Course

This course introduces students to research and development practices in the Canadian biotechnology industry. Emphasis is placed on the biotechnology drug and development process, standard operating procedures, regulations, clinical trials, packaging and labelling, regulatory compliance, good manufacturing practice and clinical research to prepare students to secure and complete their paid internships in biotechnology and/or find careers in biotechnology.

Potential topics to be covered:

- Biotechnology and drug development
- Treatment guidelines
- Standard Operating Procedures
- Clinical trial design
- Regulatory pathways
- Regulatory Compliance
- Canadian good manufacturing practices in biopharmaceuticals
- Packaging and labelling
- Clinical Research

Learning Objectives:

Upon successful completion of this course, students are expected to be able to:

- Provide an overview of the relationship between biotechnology and drug development process.
- Describe current Canadian biotechnology industry treatment guidelines.
- Compare and contrast standard operating procedures in the Canadian biotechnology industry.
- Critically analyse clinical trial design.
- Describe Canadian pharmaceutical regulatory pathways.
- Explain and assess compliance protocols in the biotechnology and drug development process.
- Describe and discuss Canadian good manufacturing practices in biopharmaceuticals.
- Review and analyze packaging and labelling protocols in biopharmaceuticals.
- Discuss and debate issues/challenges associated with research and development practices in the Canadian biotechnology industry.
- Explain and assess the impact of research and development practices on health and society.
- Communicate biotechnology and drug development concepts clearly to varied audiences.
- Demonstrate respect for different points of view.

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-toinstructor communication play, and how is it encouraged?

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

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial oncampus attendance. The course design encourages students to engage in practical learning of biotechnology research and development through face-to-face lecture three hours a week. This course relies on student engagement with the instructor, peers, and learning materials.

If demand warrants, this course could be mounted as a remote online course, with three hours a week of synchronous contact using an online platform such as Zoom, or as a blended course with scheduled face to face in-class collaborative learning coupled with online asynchronous lectures.

Delivery modes: LECT, BLEN

Experiential Education:

Students will have the opportunity to research and analyze scientific literature and media materials as part of their project on research and development in biotechnology. Students will draw on, critically reflect on, and communicate their understanding of the concepts addressed in the course in relation to research and development in biotechnology.

Students will also engage in experiential learning through exploring case studies in biotechnology research and development. Through these case studies, students will be asked to critically reflect and address the questions "what?" (e.g., what did they learn), "so what" (how does this information contribute to our knowledge of the field of biotechnology), and "what now" (what more would they like to know about this topic or what further research needs to be engaged in to expand on this topic). This activity should encourage reflection and integration of key course concepts.

Technology

Students will use polling technology as a means of engagement along with collaborative discussions in breakout rooms in order to delve deeper into assigned topics. 10% of students' final grade will be based on their participatory work.

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 detailed hours а breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.

1. The course is planned to be offered once a year at Markham campus.

2. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. The Graduate Diploma in Biotechnology is also a new program at the Markham campus. The hiring plan will be determined based on the course offering for the Biotechnology Management and Graduate Diploma programs and enrollment projections.

3. The Master's in Biotechnology Management and Graduate Diploma in Biotechnology at York University at Markham Campus are a new programs at a new campus. Prospective faculty members will have a strong background in pharmaceutical related biotechnology methods with a focus on pharmaceutical, diagnostic, and therapeutic strategies. We will also pay close attention to mentorship, effective teaching, and curricula skills of hires to ensure the faculty complement has the depth and breadth necessary to deliver an innovative and effective program in Biotechnology.

4. The schedule includes three lecture hours per week.

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 technologically to mediated forms of delivery please identify how the integrity of learning evaluation will be maintained. (e.g. will "onsite" examinations be required, etc.)

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 distinauish you between required and suggested readings. Α statement is required from bibliographer the 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. In keeping with principles of universal course design (flexible, accessible, enabling students to make choices and be more involved in the learning process), the final grade for the course will be based on the following:

20% In-class case study/simulations (Responses will be assessed both on accuracy as well as the ability to make critical connections to concepts) 10% In-class polls (to receive the full 10%, at least 70% of in-class polls should be submitted)

40% Project on selected topic on Biotechnology Research and Development 30% Final Exam

There is no textbook planned for this course. Supplemental reading materials will vary based on the latest research and developments in the Canadian Biotechnology Industry. In general, the existing electronic journal subscription should be sufficient for the course.

Example journals include:

- Nature Methods
- Nature Biotechnology
- Nature Biomedical Engineering
- Nano today
- PLoS Medicine
- Trends in Biotechnology
- Current opinion in Biotechnology
- Biotechnology advances

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.

At the new Markham campus, brand new purpose-built facilities and equipment will be ready for opening day. All facilities for teaching and learning have been planned.

This course will require a lecture hall, with space for approximately 24 students, internet and audiovisual equipment is required.

If mounted as an online course, a lecture hall will not be required.

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.

This is a required course in the Master's in Biotechnology Management or Graduate Diploma in Biotechnology programs. It is entirely unique to these programs, by providing training in research and development in the Canadian biotechnology industry. It is specifically designed for the Master's in Biotechnology Management and Graduate Diploma in Biotechnology students, as a course preparing students to secure and complete their two paid internships in Biotechnology management and/or careers in biotechnology.

This course maps to the following program learning outcomes (M. Biotech proposal and associated learning outcomes in Graduate Diploma in Biotechnology proposal):

PLO 1. Describe the fundamental role of biotechnology in science within a management context, while analyzing how alternative practices, industry developments, and trends may have limitations, and/or ethical, political, or social implications.

PLO 3. Analyze the Canadian biotechnology drug and development process, standard operating procedures, regulations, clinical trials, packaging and labeling, regulatory compliance, good manufacturing practice and clinical research.

PLO 6. Complete practical statistics and data analysis using R to biotechnology data sets.

PLO 8. Communicate clearly and effectively through written articles, reports, oral presentations, business documents, online platforms, and interviews with varied audiences.

PLO 11. Demonstrate academic integrity, ethical practice, personal responsibility, limitations of one's knowledge, and accountability in biotechnology management.

Expected course enrolment is 24.

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

Accessible format can be provided upon request.

Data Analysis, Product Development and Commercialization in Biotechnology New Course Proposal Form | committee on academic standards, curriculum and pedagogy template

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science				
Department: Indicate department and course prefix (e.g. Languages, GER)	Markham	Date of Su	bmission:		
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	BIOT 5050	Var:	Academic Indicate b MTCU wei academic FEE=8, MI	Credit Weight: oth the fee, and ght if different from weight (e.g. AC=6, ET=6	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Data Analysis, Product Developmen	t and Com	mercializa	tion in Biotechnol	ogy
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters	Data Analysis, & Product Developm	nent			

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 Description:

Maximum characters

(approximately 300 words including spaces and punctuation).

Course

2000

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and corequisites, 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...")

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. This course offers a dual purpose. The first part of the course will provide a comprehensive introduction to the software tools and methods for analyzing biotechnology data, with an emphasis on statistical reasoning and critical interpretations of statistical information in the biotechnology industry. The second part of the course, with provide training on biotechnology product development and commercialization.

Prerequisites: Must be enrolled in the Master's in Biotechnology Management program or Graduate Diploma in Biotechnology program. Must have completed BIOT 5010 Introduction to Biotechnology Processes Practices

Expanded Course Description:

Please provide a detailed course description, including topics / theories and learning objectives, as it will appear in supplemental calendars. This course offers a dual purpose. The first part of the course will provide a comprehensive introduction to the software tools and methods for analyzing biotechnology data, with an emphasis on statistical reasoning and critical interpretations of statistical information in the biotechnology industry. The second part of the course, with provide training on biotechnology product development and commercialization.

Potential topics to be covered:

- Identifying structure and trends in biological data
- Practical statistics and data analysis skills using industry software to analysis biological data.
- Basic programming skills

• Techniques commonly used to address biological data sets (regression analysis, correlation methods, sample estimation...).

- Techniques to analyse difficult data sets.
- Challenges and limitations associated with data analysis of biological data.
- Explaining and reporting data findings
- Exploring the big picture when it comes to developing biopharma products, from day one strategic planning to product commercialization (product concepts, product development, regulations, and commercial approvals)
- Overview of biotechnology commercialization key players, products in the market, markets size, and relative market shares, R&D, consumers, and key investors
- Due Diligence in Canada
- Financing
- Exploring proof of concepts tests and considerations
- Regulatory approvals
- Intellectual property protection and protecting the investments
- Testing in clinical trials, and indications
- Target validations process for drug developments
- Marketing biotechnology products

Learning Objectives:

Upon successful completion of this course, students are expected to be able to:

- Analyze biological data and identify structure and trends in the data, using a variety of graphical methods and statistical principles.
- Carry out statistical tests using the industry-relevant statistical programs
- Interpret the results of the statistical tests carried out.
- Apply regression and correlation methods.
- Carry out sample size estimation.
- Apply techniques to analyze difficult data sets.
- Analyze biotechnology case studies and identify the most appropriate statistical method for each case.
- Locate, select, understand, and critically evaluate scientific information (i.e. statistics, graphs, data) in biotechnology
- Explain and write-up statistical results and data analysis.

- Explain and assess challenges associated with statistics in biotechnology.
- Demonstrate academic integrity and social responsibility when reporting statistical data
- Identify limitations in ones' knowledge and understanding in practices related to statistical applications in biotechnology.
- Provide an overview of the landscape of biotechnology product development, including key players, products in the market, regulations and commercial approvals. Describe the steps in the in the process of commercialization of biotechnology products.
- Review current Canadian due diligence requirements for biotechnology product development
- Compare and contrast financing options for Canadian biotechnology product development
- Explain and assess proof of concept tests using case studies
- Review and analyze Canadian regulatory approvals for new biotechnology products
- Review and analyze ways to protect intellectual property with biotechnology products.
- Explain testing in clinical trials and associated indications for new biotechnology products.

Discuss and debate marketing techniques biotechnology products

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-toinstructor communication play, and how is it encouraged?

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

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial oncampus attendance. The course design encourages students to engage in application-based learning of software tools and methods for biological data analysis, and training on biotechnology product development and commercialization.

This course is planned to be mounted as a hybrid course. Students will have 2 hours of online synchronous contact a week, and a 1 hour problem-solving/casestudy period in person per week. This course relies on student engagement with the instructor, peers, and learning materials.

If demand warrants, this course could also be offered as fully in-person.

Delivery modes: LECT, BLEN, ONCA, ONLN

Experiential Education:

Students develop their skills through two hours of lecture and one hour of problem-solving period per week. The one-hour problem-solving period per week provides students with a dedicated block of time to engage in experiential learning through statistical problems and case studies in product development in biotechnology.

Students will have the opportunity to locate, retrieve, synthesize, and evaluate data as part of their problem-solving project in statistics for biotechnology. Through this opportunity, students will draw on, critically reflect on, and communicate their understanding of statistical concepts and their limitations in relation to biotechnology, as well as communicate their understanding of social responsibility when reporting statistics.

Technology:

Students will learn how to use industry-specific statistical programs to carry-out statistical analyses on biotechnology data sets.

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 contact scheduled hours detailed а breakdown of the estimated time students are likely to spend engaged in activities learning required by the course.

1. The course is planned to be offered once a year at Markham campus.

2. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. The Graduate Diploma in Biotechnology is also a new program at the Markham campus. The hiring plan will be determined based on the course offering for the Biotechnology Management and Graduate Diploma programs and enrollment projections.

3. The Master's in Biotechnology Management and Graduate Diploma in Biotechnology at York University at Markham Campus are a new programs at a new campus. Prospective faculty members will have a strong background in pharmaceutical related biotechnology methods with a focus on pharmaceutical, diagnostic, and therapeutic strategies. We will also pay close attention to mentorship, effective teaching, and curricula skills of hires to ensure the faculty complement has the depth and breadth necessary to deliver an innovative and effective program in Biotechnology.

4. The schedule includes two lecture hours per week, and one problemsolving period.

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 technologically to mediated forms of delivery please identify how the integrity learning of evaluation will be maintained. (e.g. will "onsite" examinations be required, etc.)

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 you distinauish that between required and suggested readings. А statement is required from bibliographer the 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 he included. If no additional readings are to be required, rationale а should be supplied.

LIBRARY SUPPORT STATEMENT MUST BE INCLUDED. In keeping with principles of universal course design (flexible, accessible, enabling students to make choices and be more involved in the learning process), the final grade for the course will be based on the following:

10% Attendance in Tutorials (to earn the full 10%, students are expected to attend at least 80% of tutorials)

30% Case Studies/ Problem Sets (Best 3 out 4, completed during tutorial, 10% each)

30% Statistics problem-solving project

30% Project on biotechnology product development and commercialization

There are several textbooks that will serve as reference books throughout this course:

- 6) Roy, A. (2012). Applied Computational Biology and Statistics in Biotechnology and Bioinformatics. NIPA.
- Xia, A. (2018). Bioinformatics and the Cell: Modern Computational Approaches in Genomics, Proteomics and Transcriptomics (2nd ed). Springer.
- 8) Warner, Mark (2019). Industrial Biotechnology Commercialization Handbook:

Students will be consulting a wide range of online resources, such as software manuals for R (which are free and open access). Links to relevant resources will be posted in the e-Class.

Supplemental reading materials will vary based on the latest developments in the data analysis in biotechnology. In general, the existing electronic journal subscription should be sufficient for the course.

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. At the new Markham campus, brand new purpose-built facilities and equipment will be ready for opening day. All facilities for teaching and learning have been planned.

This course will require a lecture hall, with space for approximately 24 students , internet and audiovisual equipment is required.

This course will also require access to a computer laboratory with the appropriate statistical programs available on the computers.

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.

This is a required course in the Master's in Biotechnology Management and Graduate Diploma in Biotechnology programs. It provides training on software tools for biotechnology data analysis, and training in biotechnology product development and commercialization. It is specifically designed for the Master's in Biotechnology Management and Graduate Diploma in Biotechnology programs, as a course preparing students to understand, analyze and evaluate statistical data, and aid them in their paid internships in Biotechnology management and/or careers in biotechnology. Additionally, this is the only statistics course in the program.

This course maps to the following program learning outcomes (M. Biotech proposal or associated learning outcomes in Graduate Diploma in Biotechnology proposal):

PLO 1. Describe the fundamental role of biotechnology in science within a management context, while analyzing how alternative practices, industry developments, and trends may have limitations, and/or ethical, political, or social implications.

PLO 2. Analyze the Canadian biotechnology drug and development process, standard operating procedures, regulations, clinical trials, packaging and labeling, regulatory compliance, good manufacturing practice and clinical research.

PLO 6. Complete practical statistics and data analysis using R to biotechnology data sets.

PLO 8. Communicate clearly and effectively through written articles, reports, oral presentations, business documents, online platforms, and interviews with varied audiences.

PLO 11. Demonstrate academic integrity, ethical practice, personal responsibility, limitations of one's knowledge, and accountability in biotechnology management.

Expected course enrolment is 24 students.

Faculty and Department Approval for Cross- listings:	Dept: Signature (Authorizing cross-listing)	Department	Date
If the course is to be cross-listed with another department, this section needs to	Dept:	Department	Data
be signed by all parties. In some cases there may be more than two signatures	Dept:	Department	Dale
required (i.e. Mathematics, Women's Studies). In the majority of the	Signature (Authorizing cross-listing)	Department	Date
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.			

Accessible format can be provided upon request.

Science Communication and Writing

New Course Proposal Form | committee on academic standards, curriculum and pedagogy template

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science				
Department: Indicate department and course prefix (e.g. Languages, GER)	Markham	Date of Su	ıbmission:		
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	BIOT 5020	Var:	Academic Indicate b MTCU wei academic FEE=8, M	Credit Weight: oth the fee, and ght if different from weight (e.g. AC=6, ET=6	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Science Communication and Writing				
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters	Science Communication and Writin	g			

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 Description:

Maximum characters

(approximately 300 words including spaces and punctuation).

Course

2000

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and corequisites, 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...")

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. This course is designed to give students the opportunity to develop their science communication and writing. Students learn to write articles and reports for science audiences and general audiences, deliver effective oral presentations and communicate science using online platforms.

One of the objectives of the course is to prepare students to successfully interview, secure and complete their paid internships or careers in biotechnology.

Prerequisites: Must be enrolled in the Master's in Biotechnology Management program or Graduate Diploma in Biotechnology program. Must have completed BIOT 5010 Introduction to Biotechnology Processes Practices

Expanded Description:

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

Course

This course is designed to give students the opportunity to develop their science communication and writing. Students learn to write articles and reports for science audiences and general audiences, deliver effective oral presentations and communicate science using online platforms.

One of the objectives of the course is to prepare students to successfully interview, secure and complete their paid internships in biotechnology and/or secure careers in biotechnology.

Potential topics to be covered:

- Writing techniques for articles and reports in Science for targeted and general audiences.
- Communicating science orally in presentations/meetings.
- Communication techniques for science using online platforms.
- Strategies for gathering, reviewing, evaluating and interpreting science information (in reviews, primary sources, and mass media articles)
- Ethical implications when communicating scientific information.

Learning Objectives:

Upon successful completion of this course, students are expected to be able to:

- Identify four different techniques used in science communication for targeted audiences.
- Describe the usefulness and limitations of two different sciencebased journalistic or literacy techniques from reviewing newspaper radio or online stories.
- Compare and contrast two techniques used in science communication in online platforms.
- Prepare at least one science-based newspaper story or press release (on a topic such as nature, technology, health, space...) for general audiences using appropriate science communication techniques.
- Prepare an oral presentation in science.
- Communicate and critique the features of at least one interview on science from newspaper and/or radio.
- Review and analyze different platforms for dissemination of information
- Integrate the use of scientific journals/ databases in at least one of the newspaper and/or radio stories prepared.
- Discuss ethical implications involved in reporting scientific information.

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-toinstructor communication play, and how is it encouraged?

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

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial oncampus attendance. Currently, we plan on mounting this course as hybrid with 1 hour of "face to face" scheduled online contact and 2 hours of workshop time in person per week.

Please note that this course could also be mounted as fully online or fully-in person course.

Delivery modes: LECT, BLEN, ONCA, ONLN

Class time can be used to discuss, review, investigate and practice scientific communication and writing skills through writing exercises, communication exercises, role playing, problem-solving and cases studies in science communication techniques. In-class exercises and case studies will also offer a means to integrate and make connections among material taught elsewhere in the program as a means of reinforcement and deepening of learning.

In class activities will also offer students the opportunity to engage with their peers in small and large group discussions, e.g. Think, Pair, Share activities. Engagement with the course material and their peers supports the achievement of the courses' learning objectives by offering multiple means to review, discuss, and apply key course concepts.

Technology-Enhanced Learning:

Students will have access to a variety of technological tools designed to support their science communication development, including tools for document creating, editing, reviewing and sharing, reference management, collaboration, and/or information dissemination tools.

The learning management system (eClass) will be used to build a forum for the students to engage together online. The eClass course will be the space where students submit their science-based reviews, newspaper pieces, radio pieces, in-class exercises, ask questions, and engage with their fellow students.

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 detailed hours а breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.

1. The course is planned to be offered once a year at Markham campus.

2. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. The Graduate Diploma in Biotechnology is also a new program at the Markham campus. The hiring plan will be determined based on the course offering for the Biotechnology Management and Graduate Diploma programs and enrollment projections.

3. The Master's in Biotechnology Management and Graduate Diploma in Biotechnology at York University at Markham Campus are a new programs at a new campus. Prospective faculty members will have a strong background in pharmaceutical related biotechnology methods with a focus on pharmaceutical, diagnostic, and therapeutic strategies. We will also pay close attention to mentorship, effective teaching, and curricula skills of hires to ensure the faculty complement has the depth and breadth necessary to deliver an innovative and effective program in Biotechnology.

4. The schedule includes three lecture hours a week.

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 technologically to mediated forms of delivery please identify how the integrity of learning evaluation will be maintained. (e.g. will "onsite" examinations be required, etc.)

In keeping with principles of universal course design (flexible, accessible, enabling students to make choices and be more involved in the learning process), the final grade for the course will be based on the following:

• One of two best submissions of science-based newspaper, radio or online article, review including identifying techniques used in science communication as well as identifying usefulness and limitations of at least two techniques (25%).

• One of two best submissions of student created science-based newspaper story or press-release for general audiences (35%)

Presentation on biotechnology (30%)

• Completion of Case Studies/ In-class exercises (such as interview critiques) (Completion of at least 8 of 10) (10%)

Note: no formal final exams are suggested for this course. However, if the CD deems that having a formal final exam is an appropriate option for students who miss a high percentage of the evaluations or in class activities that could not be made up in another way, then that option could be exercised.

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. А statement is required from bibliographer the 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. There are several textbooks/books that will serve as reference books throughout this course:

- 1. Alda, A. (2017). If I understood you, would I have this look on my face? My adventures in the art and science of relating and communicating. Random House
- 2. Aines, R, & Aines, A. (2019). Championing Science: Communicating Your Ideas to Decision Makers. University of California Press.
- 3. Baron, N. (2010). Escape from the Ivory Tower: A Guide to Making Your Science Matter. Island Press.
- 4. Bowater, L.& Yeoman, K. (2012). Science Communication: A Practical Guide for Scientists. Wiley-Blackwell.

LIBRARY SUPPORT STATEMENT MUST BE INCLUDED.

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. At the new Markham campus, brand new purpose-built facilities and equipment will be ready for opening day. All facilities for teaching and learning have been planned.

This course will require a classroom with large writing spaces (such as tables) and chairs that are movable, with space for approximately 24 students, internet and audiovisual equipment is required.

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.

This is a required course in the Master's in Biotechnology Management degree or Graduate Diploma in Biotechnology and is unique to these programs. It provides training to develop our graduates' science communication and writing skills. It is specifically designed for the Master's in Biotechnology Management and Graduate Diploma in Biotechnology students to help them successfully interview, secure, and complete their paid internships in biotechnology and/or secure careers in biotechnology.

This course maps to the following program learning outcomes (M. Biotech proposal numbers or associated learning outcomes in Graduate Diploma in Biotechnology proposal):

PLO 1. Describe the fundamental role of biotechnology in science within a management context, while analyzing how alternative practices, industry developments, and trends may have limitations, and/or ethical, political, or social implications.

PLO 8. Communicate clearly and effectively through written articles, reports, oral presentations, business documents, online platforms, and interviews with varied audiences.

PLO 11. Demonstrate academic integrity, ethical practice, personal responsibility, limitations of one's knowledge, and accountability in biotechnology management.

Expected course enrolment is 24.

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

Accessible format can be provided upon request.

Capstone Experience in Biotechnology Management

New Course Proposal Form | committee on academic standards, curriculum and pedagogy template

Faculty: Indicate all relevant Faculty(ies)	Faculty of Science				
Department: Indicate department and course prefix (e.g. Languages, GER)	Markham	Date of Su	bmission:		
Course Number: Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")	BIOT 5000	Var:	Academic Indicate b MTCU wei academic FEE=8, M	Credit Weight: oth the fee, and ght if different from weight (e.g. AC=6, ET=6	3.00
Course Title: The official name of the course as it will appear in the Undergraduate Calendar and on the Repository	Capstone Experience in Biotechnolc	gy Manag	ement		
Short Title: Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters	Capstone Experience in Biotechnol	ogy Mana	gement		

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 Description:

Maximum characters

(approximately 300 words including spaces and punctuation).

Course

2000

The course description should be carefully written to convey what the course is about. It should be followed by a statement of prerequisites and corequisites, 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...")

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. This course represents the capstone course in the Master's in Biotechnology Management program. Students will look back, reflect, and apply their academic learning throughout the Master's in Biotechnology Management program to future contexts.

Students will form communities of learning to investigate real issues affecting the success of biotechnology organizations through case study management. Students will face complex business situations in biotechnology, draw upon their understanding of the functional areas of business, general management, and biotechnology to identify and assess alternatives, and provide recommendations to management in a consultative capacity.

Prerequisites: Must be enrolled in the Master's in Biotechnology Management program in good standing. Must have completed all required coursework in the Master's in Biotechnology Management, except for Paid Internship B.

Expanded Description:

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

Course

This course allows students to re-visit and draw upon content from the other courses and experiences in the Master's in Biotechnology Management program as they work to solve complex management problems in biotechnology. This course integrates management competencies within the biotechnology industry through an experiential learning environment. Emphasizing a holistic view of biotechnology organizations, students are exposed to a variety of management challenges through both written and live case exercises, on current issues in the biotechnology industry. Ethical issues are also considered from the perspective of practicing managers and their advisors.

This course is designed around a series of case exercises to introduce specific topics in biotechnology management. Exact course topics may vary depending on current issues facing the Biotechnology industry.

Learning Objectives:

Upon successful completion of this course, students are expected to be able to:

- Reflect on personal learning experience in the Master's in Biotechnology Management program
- Plan and execute a management consulting project in biotechnology.
- Assess a biotechnology organization's circumstance, including its capabilities and industry environments.
- Design and conduct relevant market and organizational research.
- Identify and evaluate alternative strategies and articulate rudimentary implementation plans.
- Appreciate the ethical challenges managers and advisors face in the normal course of business.
- Explain biotechnology topics in a variety of mediums (orally and written) effectively to a variety of audiences.
- Identify limitations in ones' knowledge and understanding in practices related to biotechnology and entrepreneurship.

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-toinstructor communication play, and how is it encouraged?

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

Alternatively, explain how the course design encourages student engagement and supports student learning in the absence of substantial oncampus attendance. Any student who is enrolled in the Master's in Biotechnology Management program will be required to be enrolled in BIOT 5000 Capstone Experience in their final academic term. The Capstone Experience is a "finishing" experience to consolidate academic learning, paid internships and prepare students for after graduation.

The course design encourages students to re-visit and draw upon content from the other courses in the Master's in Biotechnology program as they work to solve complex management problems in Biotechnology through face-to-face handson classroom experience three hours a week. The course relies on student engagement with instructor, peers, and learning materials.

If demands warrants, this course could be mounted as a remote online learning course, with three hours a week of "face-to-face" synchronous learning using an online platform such as Zoom.

Delivery modes: LECT, BLEN

Experiential Education:

This course is heavily experiential in nature. Students will work through a variety of management case exercises in biotechnology with real-time problems of actual organizations and engage with these organizations directly.

Students will learn how to investigate, interpret, and resolve some of the challenges that managers must address to succeed.

In teams, students will identify, design, and lead their own management consulting project in biotechnology based on the real-time needs of the organizations who visit the program, organizational representatives, or their paid internships. These projects will be developed in response to a topic mutually identified by the student teams, organization, and course directors.

Working in small groups, students will also experience and develop their skills in teamwork, collaborative research & writing and group presentations. These experiences and skills mirror those important for success in possible Biotechnology careers available for students after graduation.

As part of this project, students will be expected to reflect on their journey of developing their personal and interpersonal competencies and reflect on their team learning experience.

Additionally, during the classroom sessions, students will discuss classroom learning as a class and in small groups, reflect on their internship experiences, and reflect on their personal learning trajectory in the Master's in Biotechnology program. Additionally, in-class activities (such as group discussion or debates) encourage deeper understanding of the content and another approach to the course material.

Technology-Enhanced Learning:

Students will have access to a variety of technological tools designed to support their learning development, including tools for document creating, editing, reviewing and sharing, reference management tools, collaboration tools, and/or information dissemination tools.

The learning management system (eClass) will be used to build a forum for the students to engage together online. The eClass course will be the space where students submit their in-class exercises, ask questions, and engage with their fellow students.

Students will also have the option of using video or other information sharing technologies to present their management projects.

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 detailed hours a breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.

- 1. The course is planned to be offered once a year at Markham campus.
- 2. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. The hiring plan will be determined based on the course offering for the Biotechnology Management program and the enrollment projections.
- 3. The Master's in Biotechnology Management at York University at Markham Campus is a new program at a new campus. Prospective faculty members will have a strong background in Biotechnology methods with a focus on pharmaceutical, diagnostic, and therapeutic strategies. We will also pay close attention to mentorship, effective teaching, and curricula skills of hires to ensure the faculty complement has the depth and breadth necessary to deliver an innovative and effective program in Biotechnology Management.
- 4. The schedule includes three lecture hours a week.

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 "onsite" examinations be required, etc.) To follow the principles of universal course design for learning, and providing multiple means of evaluation, the expectation is that students will be evaluated on the following:

Case Study Responses: 20%

Case study responses (Best 4 out 5) on a given in-class study, including a summary of the current topic, what did they learn, how does this information contribute to their knowledge of the field, or how does the information further their understanding of the field and what more would they like to know, questions and/or issues/challenges they might have.

Management Consulting Project in Biotechnology: 60%

In groups of 3-4, students will present a management consulting project on a real-time industry biotechnology management issue, not already covered in class. [*Students will be able to choose among a variety of topics*].

- Executive summary 10%
- Group assignment presentation 40%
- Peer Assessment 10%

Individual reflective piece: 20%

Students will submit a short, written, self-reflection where they critically reflect on their experience in the Master's in Biotechnology Management program and capstone experience, outline how and what they have learned about Biotechnology Management, and themselves, critique their internship experience and describe how/why they have changed or stayed the same as result of their experience in the program.

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 you distinguish that between required and suggested readings. Α statement is required from bibliographer the responsible for the discipline indicate to 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 Given the unique nature of this capstone course, academic reading lists will vary from year to year based on current topics in biotechnology management. In general, the existing electronic journal subscriptions should be sufficient for this course. 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.

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. At the new Markham campus, brand new purpose-built facilities and equipment will be ready for opening day. All facilities for teaching and learning have been planned.

This course will require a classroom with large writing spaces (such as tables) and chairs that are movable, with space for approximately 24 students, internet and audiovisual equipment is required.

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.

This is a required course in the Master's in Biotechnology Management program.

This course will serve as culminating course in the Master's in Biotechnology Management program. It is specifically designed for the Master's in Biotechnology Management students to integrate management competencies within the biotechnology industry, reflect on learning in the program and provide further opportunity to consolidate skills to read, evaluate, present, and explain management concepts in Biotechnology. The course is an adaptation of the course DMGM 5090: Experiencing Management with a particular focus on the biotechnology industry. Members of the Graduate Diploma in Management are supportive of this course adaptation being developed for the Master's in Biotechnology Students..

Currently, there are no capstone courses at York University at the Master's level in Biotechnology. This new course proposal fills a gap in graduate education in Biotechnology.

This course maps to the following program learning outcomes:

PLO1. Describe the fundamental role of biotechnology in science within a management context, while analyzing how alternative practices, industry developments, and trends may have limitations, and/or ethical, political, or social implications.

PLO 2.Recognize major fields of management and key theories informing management decisions and apply them to advance organizational goals.

PLO 3. Analyze the Canadian biotechnology drug and development process, standard operating procedures, regulations, clinical trials, packaging and labeling, regulatory compliance, good manufacturing practice and clinical research.

PLO 4. Integrate management competencies within the biotechnology industry setting

PLO 7. Propose solutions and implementations plans.

PLO 8. Communicate clearly and effectively through written articles, reports, oral presentations, business documents, online platforms, and interviews with varied audiences.

PLO 9. Apply appropriate strategies to work independently and in diverse teams.

PLO 10. Demonstrate initiative in new working environments in Biotechnology management.

PLO 11. Demonstrate academic integrity, ethical practice, personal responsibility, limitations of one's knowledge, and accountability in biotechnology management.

Expected course enrolment is 24 students.

Faculty and Department Approval for Cross- listings:	Dept: Signature (Authorizing cross-listing)	Department	Date
If the course is to be cross-listed with another department, this section needs to	Dept:		
be signed by all parties. In some cases there may be more than two signatures	Signature (Authorizing cross-listing) Dept:	Department	Date
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	Signature (Authorizing cross-listing)	Department	Date

Accessible format can be provided upon request.

Graduate Course Change Proposal Form FACULTY OF SCIENCE

The following information is required for all course change proposals. Provide evidence of consultation, where appropriate. To facilitate the review/approval process, please use the headings below (and omit the italicized explanations below each heading).

1. Graduate Program: Physics and Astronomy

2. Responsible Unit: Physics and Astronomy

3. Subject Code (Rubric) and Course Number: PHYS 6140

4. Credit Value: 3.0

5. Long Course Title: Advanced Topics In Particle Physics

6. Type of Course Change(s) (indicate all that apply): Course description needs change.

	in course number
	in credit value
	in course title (short course titles may be a maximum of 40 characters, including punctuation and spaces)
Х	in course description (short course descriptions may be a maximum of 60 words, written in present tense)
	in learning objectives/outcomes (please append the graduate program's existing learning outcomes as a separate document)
	in integration (please provide statement of approval from relevant undergraduate coordinator or Chair)
	in cross-listing (please provide statement of approval from other program)
	in pre/co-requisite
	retire course
	other (please specify)

7. Effective Term/Calendar Year of Proposed Change(s):

Immediately, 2023 if possible.

8. Rationale:

Course director teaching this course, new course description matches the research he is teaching.

9. Proposed Course Information:

Please insert approved course information on the left, and proposed course information on the



right. Please clearly and visibly indicate how course information has been changed using strikethrough (left column), bold, underlining, colours, etc. (right column).

Existing Course Information (Change From):	Proposed Course Information (Change To):
Course Description This course is a continuation of the material in Physics 5140 3.0. Non- Abelian guage theories will be studied in some detail, namely the Weinberg- Salam model of weak interactions, quantum chromodynamics for the strong interaction and the SU(5) grand unified theory.	Course Description "A python-based survey of practical statistical methods with focus on the Bayes-theorem and practical problems: elements of probability and probability distributions; permutation tests, confidence/credibility interval estimation, curve fitting, goodness-of-fit test, hypothesis testing; background + signal problems."
Prerequisite:	Prerequisite:

10. Enrolment Notes:

Is the course limited to a specific group of students; closed to a specific group of students; and/or if there is any additional information necessary for the student to know before enrolling.

Not applicable

11. Consultation:

For changes in integrations and cross-listings, as well as changes to courses that are integrated and/or cross-listed, please provide evidence that appropriate consultation has taken place.

Not applicable



RESEARCH & AWARDS COMMITTEE ANNUAL REPORT 2022 – 23



Committee composition:

S. Morin (Chair – Fall term), H. Mialet (Chair – Winter term), A. Angelucci (Graduate Student Representative), A. Qayyum (Undergraduate Student Representative) R. Kwong, H. Zhu, A. Kumarakrishnan, and V. Saridakis (AD – Research & Partnerships, ex officio)

Mandate:

It is the mandate of the Committee to make recommendations and provide advice to Council on policy matters related to research. In addition, the Committee's functions and responsibilities include:

- 1. To adjudicate the following Faculty competitions/programs and recommend awardees/recipients to the Dean:
 - Junior Faculty Fund and Minor Research Grant
 - Specific Research Grants (leave and non-leave)
 - York Research Chair
- 2. To ratify NSERC's Undergraduate Student Research Awards (USRA) and Dean's Undergraduate Research Awards (DURA) that are adjudicated at the departmental level;
- 3. To provide advice to the Dean or individual departments on faculty research related awards, particularly prestigious awards
- 4. To liaise with the Science Librarians on matters related to Library collections and services.

All committee members are required to complete the Unconscious Bias / EDI workshops offered by the Office of the Vice-President Equity, People & Culture. Additionally, all committee members are required to complete the training modules <u>Bias in Peer Review</u>, produced by the Tri-Agencies, and one of the <u>Sex and Gender</u> training modules, produced by CIHR. When required, sub-committees can be created or additional colleagues may be invited to participate in the activities of the committee to adjudicate awards and grants should too many regular committee members find themselves in conflict of interest and quorum cannot be reached.

Committee Work:

During the past academic year, the committee met regularly to adjudicate and formulate policies surrounding adjudication of awards. Here is a summary of the committees work during the 2022 – 23 academic year:

- the committee ranked and recommended to FSc Dean candidates for the 2023 YRC competition by evaluating files submitted to the Dean's office. The nomination files recommended were that of Eric Hessels YRC tier 1 and Sapna Sharma YRC tier 2.
- the committee evaluated the FSc Early Career Research Award and, FSc Graduate Mentorship Award for 2022. The committee received one nomination file for the FSc Established Career Research Award, however, the committee deemed that the file did not meet the eligibility criteria.

The awardees are:

- o Jude Kong Early Career Researcher Award
- Neal Madras Graduate Mentorship Award
- Applications were adjudicated and funds were dispersed from the Junior Faculty Fund and YUFA Minor Research Grant.
- The Summer 2023 USRA / ENURA applications were ratified as adjudicated and recommended by our science departments.

S. Morin & H. Mialet Joint Chairs - Research & Awards Committee July 26, 2023

2022-23 SRC Tenure & Promotion Committee Annual Report



science

August 16, 2023

1. In the 2022-2023 academic year, the FSc Senate Review Committee (SRC) reviewed six files.

- Two files for tenure and promotion to Associate Professor
- Four files for promotion to Full Professor, also included
- Seven files for Advancement to Candidacy 1

2. Two files were unable to be adjudicated due to a Senator's absence.

2.1 File #1 Application for tenure and promotion to Full Professor

We were unable to reach quorum, so the file will be backdated upon successful adjudication in September.

2.2 File #2 – Application for tenure and promotion to Full Professor

We were unable to reach quorum, so the file will be backdated upon successful adjudication in September.

3. Brief comment on the Review Committee's Correspondence with Adjudicating Committees and File Preparation Committees

The SRC processed most of these files without any major concerns. However, this year members noted the out of the normal cancellation of *two* meetings due to Senator absences which did not allow for the committee to reach quorum and adjudicate files. We hope this issue will not persist in the upcoming academic year and there will be better attendance and communication.

UNIT STANDARDS				
Department	Last reviewed by SRC T&P	Last reviewed by Senate	Status	
Biology	January 28, 2020	2019	In Accord	
Chemistry	January 27, 2023	2014	Pending Senate Approval	
Mathematics & Statistics	November 26, 2019	2019	In Accord	
Physics & Astronomy	June 23, 2020	2014	In Accord	
Department of Science, Technology and Society	September 27, 2022	2010	Pending Senate Approval	

Thank you.