TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

MEETING OF FACULTY COUNCIL OF THE FACULTY OF MEDICINE

A meeting of Faculty Council will be held on **Monday, April 26, 2021**, from 4:00 p.m. to 6:00 p.m. via **Zoom Virtual Meeting**.

AGENDA

1	**Call to Order**		Speaker
2	**Minutes of the previous meeting of Faculty Council – February 8, 2021**		Speaker
	2.1	Business Arising	
3	**Report from the Speaker**		Speaker
	3.1	Faculty Appointments Advisory Committee Manual	
4	**Reports from the Dean's Office**		
	4.1	Report from the Dean's Office	T. Young
	4.2	Vice Dean, Strategy and Operations	L. Robinson
	4.3	Vice Dean, Research and Innovation and GLSE	R. Reithmeier
	4.4	Vice-Dean, Clinical and Faculty Affairs	L. Wilson
	4.5	Vice-Dean, Medical Education	P. Houston
5	**Items for Approval**		
	5.1	**The Education Committee of Faculty Council recommends the approval of the following motions:**	
		"THAT the Major Program Modifications to the MSc and PhD Programs in Biochemistry be approved as submitted."	A. Palazzo K. Maxwell
6	**Standing Committee Annual Reports**		
		Postgraduate Medical Education Board of Examiners	J. Pirie
		Education Committee	B. Mori
		Research Committee	M. Ostrowski
7	**Faculty Council Forum**		L. De Nil
		Preparing for a Return to Campus	A. Balakrishna S. Spadafora

As the University and the Temerty Faculty of Medicine get ready to open up in September, it is anticipated that this will be a gradual opening with opportunities but also limitations and restrictions regarding what can and will happen in person, and what will remain online (or in hybrid format) for the time being. Issues around vaccination, who has been vaccinated (1 or 2 shots?) and who has not (for a multitude of reasons) also will need to be considered when we bring people together in person. Decisions around each of these issues require an equity, diversity and inclusion perspective. Our speakers will provide current perspectives and engage in a dialogue with Faculty Council members.

8 **Adjournment** Speaker

NEXT MEETING: TBD, Fall 2021

TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

FACULTY COUNCIL
FACULTY OF MEDICINE

Meeting Materials – April 26, 2021

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TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

Faculty Council of the Temerty Faculty of Medicine
Minutes of the February 8, 2021 meeting
4:00 p.m.
Via Zoom Videoconference

Members Present: Boris Steipe (Speaker), Todd Coomber, Alis Xu, Lynn Wilson, Luc De Nil, Nicolas Santi, Jonathan Pirie, Martin Beaulieu, Peeter Poldre, Margarete Akens, Trevor Young, Nick Reed, Tao Chan, Sara Mirali, Gina John, Sarah Crome, Brenda Mori, Glen Bandiera, Modupe Tunde-Byass, Jack Barkin, Paul Cantarutti, Juan-Carlos Zúñiga-Pflücker, Mario Ostrowski, Reinhart Reithmeier, Meg Connell, Pascal van Lieshout, Suzan Schneeweiss, Paolo Campisi, Helen Yang, Sarah Rauth, Hosanna Au, Beverley Orser, Blake Papsin, Jennifer Kao, James Rutka, Bob Bleakney, Lisa Robinson, Rabina Parhar, Calandra Li, George Elzawy, Rita Kandel, Patricia Houston, Christina MacMillan, Nadiya Khosravi, Karl Zabjek, Sean Kidd, Wusun Paek, Alex Mihailidis, Ewa Szumacher, James Rutka, Sachin Kumar, Nadiya Khosravi, Veronica Wadey

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1 Call to Order

2 Minutes of the previous meeting of Faculty Council – October 19, 2020

The minutes of the meeting of October 19, 2021 had been previously circulated. They were approved on a motion from G. Bandiera and seconded by B. Mori. There was no business arising.

3 Report from the Speaker

Dr. Boris Steipe indicated that when he was a medical student in Germany he was a member of International Physicians for the Prevention of Nuclear War. The premise of the organization was that the doctor's responsibility was for the care for human health and extends to social circumstances, especially those circumstances that threaten the very existence of human life. This argument extends to two other, current existential scale threats: climate change and the current COVID pandemic or future pandemics.

It is only one year and four days after the Director-General of the World Health Organization implored Member States to take decisive action and emphasizing the, then current, window of opportunity. As we remain socially distanced, Dr. Steipe takes constellation by observing the excellent leadership, for example, at our University where facts based passionate and compassionate professionalism has allowed important work to carry on.

4 Reports from the Dean's Office

3.1 Dean's Report

Dean Young thanked the members of Faculty Council for all of their amazing work in keeping the Faculty running during these unique times. Because of this work, educational and research programs continue to operate and research continues to be done as seamlessly as possible. This is a very trying time. Clinical learners are increasingly feeling worried about the lack of in person experiences and how they're going to be able to meet the demands of the workplace. Research students in the lab are feeling isolated and more stress than they have at any other time in their lives. Meeting deadlines is harder. Committee work is being slowed down despite the best efforts of everybody. Despite this, the Faculty carries on and hasn't had to close things down. Dean Young thanked the members for their part in making this happen. This

work is being done at dining room tables and in spare bedrooms and has been a real challenge for everyone, but it is worthwhile and there is light at the end of the tunnel. The tunnel is an uncertain length still, but it is looking brighter. The case numbers look better in all regards and in Ontario and in the country, and we are poised to receive vaccines at some point and the Faculty will be ready to assist as best we can. For now, however, we just have to carry on.

3.2 Vice Dean, Strategy and Operations

Dr. Lisa Robinson noted that there's been some restructuring to the Strategy and Operations portfolio so she will be providing an update about the portfolio. The portfolio is made up of three main areas: academic affairs; the academic strategic plan; and the equity, diversity and inclusion work through the Office of Inclusion and Diversity.

In the academic affairs portfolio, there is a very strong tradition of ongoing appraisal and quality improvement across all academic units. This focus on quality assurance and accountability is a good tool for strategic planning and thinking about where we are and where we want to go. Between the 2011-2012 academic year and now there have been 72 reviews and 45 searches that have been done.

The academic strategic plan not only addresses where we are, but also thinking about the next phase of the plan. The current academic strategic plan runs from 2018 to 2023. The Termerty gift has aided in making a lot of progress on implementing the phase one goals, but also allowed the opportunity for reflection about where are we, and where do we want to be. This is especially important given many things that have gone on in the last year or so. This has been an opportunity to reassess our priorities.

The Diversity and Inclusion portfolio coordinates a broad Faculty Diversity Advisory Council within the Faculty and the affiliate TAHSN hospitals and the broader university. This office provides advice, consultation, and guidance on matters of diversity and human rights issues. This office receives about 15 to 20 requests for consultations per week and, essentially, never say no to anybody. The Office launched a diversity mentorship program initially for first year medical students but has expended to all medical students and first year residents.

3.3 Vice Dean, Research and Innovation and GLSE

Dr. Reinhart Reithmeier noted that the research office has done a tremendous job managing the research restart following the COVID shutdown with labs now at 50% capacity. Campus based research lines up well with the hospital partners and very strict health and safety measures are in place. There is also continuous monitoring and strict scheduling to maintain a safe environment. Even though COVID has really impacted research, the Federal Government through its Canada research continuity emergency fund has provided significant financial relief. The Temerty gift has also assisted with funding that the Faculty is in the process of procuring a new 200 kilovolt cryo-electron microscope. The Temerty gift also allows for the West Wing Project which will require the relocation of a number of areas with Heather Taylor's office working to make sure that research is not impacted negatively. This project will also see the creation of a new level three laboratory which will be part of EPIC - the emerging and pandemic infections consortium.

Dr. Reithmeier thanked Dr. Alan Kaplan who has finished his term as Vice Dean, GLSE. GLSE has created a harmonized graduate student stipend as well as increasing the funding to graduate students by 10%. The students had asked for 8% but the department Chairs and GLSE gave them 10% to recognize the kind of the challenges they have had. Graduate student wellness is also a part of the GLSE portfolio with money being given to graduate students groups to do inventive programming focused on student wellness. There is also a leave of absence fund with almost 50 being given out thus far allowing students to take a paid leave of absence.

Dr. Reithmeier thanked the staff of GLSE who continue to work remotely while being busy balancing the challenges that come with that.

3.4 Vice-Dean, Clinical and Faculty Affairs

Dr. Lynn Wilson indicated that planning is underway to establish a COVID vaccine clinic on all three campuses in conjunction with the Faculty's health partners. Current planning is looking at the short term as clinical learners and faculty are part of the current prioritized groups if they're actively working with patients. There are 7000 health professions learners in the Faculty with about 45% of them are out in the Community at any time. The Faculty is working to ensure these learners are vaccinated to they can get back into the hospitals and are safe in the workplace. Having vaccinated learners also makes sure that the patients and healthcare workers they come in contact with are safe as well. The Faculty has used some of the COVID fund to purchase of ultra low temperature freezers for vaccine storage. Toronto Public Health will give final approval to any plans for a vaccination clinic on campus.

With respect to vaccine education, Dr. Wilson noted that when learners were removed from clinical environments last spring, they had a COVID curriculum that was developed by their educational leaders to get them ready to get back into their clinical environments. The same group is now working on a student centered vaccine curriculum with the hope that our learners will be vaccine ambassadors amongst their own colleagues, family, and friends to combat vaccine hesitancy.

3.5 Vice-Dean, Medical Education

Dr. Patricia Houston introduced reminded members that her new portfolio includes the MD Program, PGME programs, the CPD Program. Over the course of the last six month, the primary focus has been on the accreditation of the PGME and MD programs and the impact of the pandemic. An operations group has been developed to help oversee this larger portfolio This group will be looking at planning for a strategic plan that aligns with the Faculty strategic plan. This will include areas of finance, professional development, and communications.

A number of new positions are being created across the portfolio. The Chair in Learner Wellness will work very closely with the Director of Faculty Wellness. With the introduction of competency by design into PGME and with the introduction of EPA and workplace based assessment in the MD Program, the new Chair in Student Assessment and Program Evaluation will have a huge opportunity to do novel work around how to better evaluate the changes that have been made to see what the intended and unintended consequences are. Reena Pattani has been appointed Director, Learner Experience and will look at how the Faculty can make the learning environment better for all learners and how mistreatment and the negative aspects of the learning environment can be addressed. In addition, the Black Health Lead and Indigenous Health Lead roles have been expanded a new Lead for social justice anti-oppression and advocacy will also be overseeing programs for all learners.

Accreditation has now been completed the results will be shared shortly once the final reports have gone through a few more stages of review. Dr. Houston noted that these accreditation reports will be an incredibly success and congratulated Dr. Glen Bandiera on the PGME accreditation.

Dr. Houston noted that there have been over 4300 applicants for next year's MD admissions so the pandemic has not influenced people to not apply to medicine. Currently years one and two remain virtual, which is very difficult for many students but the MD program will be introducing some in person clinical skills for years one and two. Years three and four seem to be flourishing.

5 Items for Approval

4.1 Education Committee

THAT the proposal to establish a combined MD-MBA degree program be approved as submitted.

Moved: B. Mori, Seconded: J. Barkin

Dr. Patricia Houston and Mr. Paul Tonin indicated that the MD Program is a formative opportunity to blend the highest-quality technical knowledge with the values and empathy needed to care for patients, as well as gain the leadership and management skills needed to deliver care effectively and drive positive change.

As evidenced by the COVID-19 pandemic, effective leadership and management within the health-care system is necessary to plan for and respond to health-care crises. Just as importantly, that leadership and management skillset is necessary to address issues that exist independent of such unprecedented crises, such as increased patient complexity, system fragmentation, long wait times and limited access to care, rising costs, and burnout and mental illness among health-care providers. Overall, increasing demand combined with fiscal constraints and greater complexity in the sector is creating a heightened need for highly capable health sector leaders who can effectively navigate through what promises to be a lengthy period of strategic change and innovation ahead.

A Combined Degree Program (CDP) is a program category that allows a student to be registered in two approved degree programs at the same time and complete the requirements of both in a manner that provides a benefit to the student beyond what would result from completing the two degree programs separately. The proposed MD/MBA combined degree program is intended for a small number of medical students who have an interest in becoming those leaders. These roles require deep leadership and management competencies that go beyond the MD Program's core curriculum. Graduates of the program will be well positioned to act as the health care executives of tomorrow, in both the public and private sectors, as the MBA coursework, combined with their MD curriculum, will prepare them for significant leadership opportunities throughout their career. The official name will be Combined Degree Program: Doctor of Medicine / Management, Full-Time Option, Master of Business Administration.

The proposed MD/MBA combined degree program is a collaborative education initiative intended to build upon and amplify the impact of two globally recognized programs. As such, the proposed combined program is consistent with the Faculty of Medicine Academic Strategic Plan 2018-2023, which identifies the following three strategic domains: Ecosystem of Collaboration; Groundbreaking Imagination; and Excellence through Equity.

Academic synergies exist between the MD and the MBA programs with respect to several competency areas in the MD curriculum, namely: The Leader Role, which includes manager/management key and enabling competencies; Collaborator Role, which includes a focus on communication among team members, Health Advocate Role; and the Professional Role, which includes a focus on ethics.

The MBA degree includes and builds on these competencies, providing the MD student with an opportunity to develop these roles beyond what they would learn in the MD program. The MBA program recognizes the MD student would have achieved a sub-set of some learning objectives during the MD program in these areas that will cover 1.34 full-course equivalents (FCEs) of MBA course content. Given this, CDP students will be exempt from 1.34 FCEs of MBA requirements and will complete 9.96 instead of 11.3 FCEs of the MBA requirements. This means that students will complete the two programs in a shorter time than enrolling in the degrees sequentially.

The proposed CDP includes the Full-Time MBA offering only, as it is the only MBA offering that allows the MD student to complete the requirements in the time available before the MD Residency begins, and for which the MD student would meet the entry requirements. The MD student would not have the relevant work and management experience for the Rotman Executive MBA or Global Executive MBA for Healthcare and the Life Sciences programs.

This proposed program is unique. Only a handful of students are expected to apply - likely those with previous business, entrepreneurial and volunteer experience. There are two similar programs in Canada, one at University of Alberta, and the other at the University of Calgary, and each has approximately 2 to 5 students in their combined MD/MBA program with a similar number expected here. The existing offerings reduce the graduate MBA requirements in the MD / MBA combinations.

The proposed combined program is distinct from other degrees that teach leadership and innovation at U of T in that the MBA provides a broader and deeper dive into business and management capabilities.

The proposed combined degree program is not competition for the Global Executive MBA for Healthcare and the Life Sciences, Rotman's MBA customized for the health sector, as the GEMBA-HLS program is for senior leaders from across the health sector, with a range of clinical and administrative backgrounds (not only physicians) as well as a minimum of 3 years of management experience.

The motion passed.

6 Standing Committee Annual Reports

6.1 Appeals Committee

Dr. Blake Papsin has been Chair of the Appeals Committee since July 1, 2020. In that time, there have been no appeal hearings so the past Chair, Dr. Doug Templeton, was invited to present a report from the Appeals Committee.

Dr. Templeton indicated that he and Dr. Papsin had a detailed conversation about the Committee and he believed it is very good hands going forward. Dr. Templeton reminded the members that a year ago, he presented a report with information on four appeals, which has been about the recent average in annual appeals. This year, there are two, unique cases to report on that took place between the February 2020 report and the end of his term on June 30, 2020.

The first case didn't actually result in a hearing as it was an applicant in the Assessment Verification Period prior to admission into a PGME residency. This was a person who had trained in another jurisdiction with the Program Committee of their specialty deciding to deny them a residency position. The Trainee had appealed within the Program and was unsuccessful and wanted another opportunity to appeal. After reviewing all the appropriate policies and consulting with legal counsel, it was determined that the AVP is part of the admissions process and admissions decision are not appealable. The Appeals Committee hears appeals of students and trainees against decisions of the Boards of Examiners, which also was not present in this case as only residents and fellows have their cases heard by the Board of Examiners.

The second appeal was also unique in for a number of reasons. During the appeal hearing, there was information raised that had clearly not been available to the Board of Examiners at the time of their decision. The Committee believed that the most appropriate course of action would be to refer the case back to the BOE to allow an opportunity to consider this new information. The Committee ruled that they would resume their hearing on the case in the event that the BOE declined to amend its decision after reviewing the new information. The BOE declined to amend the decision and the Appeals Committee resumed the hearing eventually denying the appeal. Another unique twist to this case was that the resident had withdrawn from the program between the two hearings despite successfully completing his remediation and acknowledging that it had been helpful. He has now initiated an appeal at the University level.

Dr. Templeton has served on the Appeals Committee in various capacities for 26 consecutive years and notes that it has been a significant part of his academic development at the University and a great opportunity to meet a number of clinicians and other health professionals around the Faculty that he otherwise would not have met. Dr. Templeton has been continually impressed with the tremendous fairness and diligence with which the members review appeals material and then engage in sometimes lively discussion at the hearings to reach a fair outcome.

Dr. Papsin thanked Dr. Templeton for the report and noted that he gained a lot of insight from their conversation, not just about how the Committee works, but also about Dr. Templeton's philosophy and approach to students. He noted the approach is mature and thoughtful and he will carry on in that manner.

The Speaker noted that, as a past member of the Appeals Committee, he can attest to the importance of this role both to the Faculty and the individuals who take it on and encourages any interested members to pursue any available vacancies.

Dr. Patricia Houston thanked Dr. Templeton for his service and noted that her experience with the Appeals Committee always left her in awe of the patience, integrity, thoughtfulness, and kindness with which he Chaired of the Committee despite dealing with some very difficult narratives and some very complex and complicated decisions. Dr. Templeton did an absolutely stellar job of making sure that whether it was a distressed learner or an anxious learner or an anxious faculty member that he gave them all the time and the consideration that they needed and he supported the members of the Committee to come to wise and fair decisions.

6.2 Undergraduate Medical Education Board of Examiners

Dr. Bob Bleakney introduced himself as the new Chair of the UME Board of Examiners having begun his term on October 1, 2020. Dr. Bleakney served on the BOE for 9 years prior to becoming Chair with the last three years as Vice Chair. As the 2020 report was missed with the spring 2020 Council meeting being cancelled due to COVID, this report will cover two years.

Dr. Bleakney noted that one of the big changes he's noticed in his time on the Board is the change from Preclerkship to Foundations and how the integrated curriculum promotes learning and context. Foundations also has multiple lower stakes mastery exercises rather than the large high stakes exams that are associated with clerkship. These mastery exercises, combined with feedback and individualized coaching has helped bring down the number of learners that have been brought forward to the Board of Examiners in their first and second years. Foundations also has a Student Progress Committee that organizes focused learning plans and can organize remediation which minimizes the number of students that are referred from the Student Progress Committee to the BOE. Though the number of students from Foundations is a lot less than it used to be, the number of students referred to the Board out of Clerkship are very similar to previous years. Clerkship is very challenging this hasn't changed. The BOE referrals from Clerkship have remained fairly consistent throughout the years. One number that has changed compared to the year before is the number of students that went into extended clerkship. These are students that don't match through the CaRMS process during 2018-2019, there were only three students that required extended clerkship compared to the year before where 13 students required extended clerkship.

Dr. Bleakney noted that there was one withdrawal last year with one withdrawal typically occurring every five years or so. Students do, on occasion, need to repeat a year with 2019-202 being a quiet year for repeats. There were also no leaves of absence in 2019-2020 but some of these numbers can be attributed to the COVID-19 disruptions. The Board of Examiners had a busy start in Fall 2020 as the disruptions created a bit of a double cohort like influx having the students that were starting clerkship and, at the same time, some year three students that were finishing clerkship.

Dr. Bleakney noted that the BOE consists of very engaged, thoughtful faculty. In addition, there are students on the Board who are not meant to be advocates for students (Dr. Bleakney noted that all members advocate for the students) bit to give the student perspective. An ongoing issue for the Board is that the student whose case is being presented, as is permitted, will occasionally request that the student members not be included in the discussion of their case. This is disappointing both because the student members are very professional in their role on the Board and because their absence removes the valuable insight they provide. The Board tried to mitigate this by anonymizing the students being presented by using student numbers but the number of instances was not reduced and institutional memory of the students that had been presented to the board previously was lost.

Dr. Bleakney concluded by pointing out that, given the numbers presented, it may appear that there are a lot of students in academic difficulty, but that the number should be taken in context with the total amount of students and so the number coming to the BOE is a small subset that require extra attention.

7 Faculty Council Forum

Dr. Patricia Houston led a panel discussion on the online assessment of practical clinical skills necessitated by the ongoing COVID-19 pandemic.

8 Adjournment

The meeting was adjourned at 5:55pm

Temerty Medicine

Temerty Faculty of Medicine

OPERATIONS MANUAL of the Faculty Appointments Advisory Committee (FAAC)

Presented to All Chairs, March 10th, 2021
Approved by Dean Trevor Young April 8th, 2021
Presented to Faculty Council, April 26th, 2021

TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

April 2021

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FACULTY APPOINTMENTS ADVISORY COMMITTEE
TEMERTY FACULTY OF MEDICINE

The Faculty Appointments Advisory Committee (FAAC) advises the Dean on:
(1) Initial appointments at professorial ranks for full-time clinical (MD) and status-only faculty where a University approved search has not been conducted, and
(2) Full-time clinical (MD) faculty promotions from lecturer to assistant professor.

The FAAC reviews applications from the three sectors of the Temerty Faculty of Medicine:

- Basic Sciences
- Clinical
- Rehabilitation Sciences

This document describes the FAAC and relevant resources in four sections:

- **Section A:** FAAC terms of reference
- **Section B:** Procedures and key processes related to the FAAC, including application requirements and standards for rank
- **Section C:** Appendix A, Formal Search and Hiring Procedures
  Appendix B, Components of a Teaching Dossier
- **Section D**: FAQs

FAAC is administered by Human Resources, Temerty Faculty of Medicine, University of Toronto.

SECTION A: TERMS OF REFERENCE

Purpose of the FAAC

The FAAC advises the Dean on:

1. Appointments of full-time clinical (MD) faculty and status-only faculty to professorial ranks where a formal search[1] was not conducted as constituted under University of Toronto and the Temerty Faculty of Medicine policies and guidelines *(Note Appendix A: Formal Search and Hiring procedures)*. Applications must clearly indicate whether or not a formal search took place.
2. Academic rank of candidate for appointment;
3. Promotion of full-time clinical (MD) faculty from lecturer to assistant professor;
4. Status-Only appointments at professorial rank;
5. Academic appointment and promotion processes and standards;
6. Appointments and promotions referred to FAAC by the Dean or Dean's designate where the FAAC opinion is requested;
7. Category change at professorial rank from part-time or adjunct clinical (MD), to full-time clinical (MD)[2].

Appointments Not Reviewed by FAAC

All other clinical (MD) appointment applications (i.e., following a search; at lecturer rank; and/or part-time clinical academic and adjunct clinical academic appointments) are submitted to the Dean or Dean's designate directly for review and approval, without being submitted to the FAAC for review.

Promotions not reviewed by FAAC

All part-time and adjunct clinical (MD) faculty applications for promotion from lecturer to assistant professor are submitted to the Dean or Dean's designate directly for review and approval, without being submitted to the FAAC for review.

Authority

Clinical (MD) academic appointments are governed by the *Policy for Clinical Faculty and Procedures Manual*, available at: http://medicine.utoronto.ca/faculty-staff/clinical-affairs

Status-only academic appointments are governed by the Provostial Guidelines, available at: https://wp.provost.utoronto.ca/provost/wp-content/uploads/sites/155/2018/09/Provostial-Guidelines-Appointment-of-Status-Only-Adjunct-Visiting-Professors.pdf

[1] See Appendix A.
[2] Will be reviewed and recommended by Clinical Affairs and reported in the FAAC meeting minutes.

Duties and Responsibilities

The FAAC performs a review of each application submitted by the department chair or applicable academic head, applying faculty and sector-specific contexts to judge fairly and consistently the merits of the application. Members of FAAC do not simply approve applications that meet a set of minimum standards; they must draw on their knowledge and experience to evaluate meritorious scholarship, consistent with principles expressed in this manual and other documents related to academic appointments and promotions. Decisions to accept or reject applications, achieved by consensus or vote, are recommended to the Dean. If the FAAC requires additional information, the application is deferred and a request for new information is made to the department chair. A deferred application will be kept open for a maximum of two months, after which the file is closed unless there are extraordinary circumstances communicated to Human Resources. After the file has been closed, the department chair may submit a new application with updated information, for full review by the FAAC.

Each FAAC member should declare any conflict so that Committee members understand the relationships. Members who have published or received or written grants in the previous five years, or had a supervisory and/or mentorship relationship at any time with the candidate should not participate in the FAAC deliberation or decision concerning that application. A FAAC member who believes that they have conflict for other reasons should withdraw from participation when the file is discussed.

Appointment Review - Appeals

The department chair or applicable academic head may submit an appeal to the Dean on the FAAC's recommendation on an application. A full-time clinical (MD) appointee may appeal a rejection of promotion from Lecturer to Assistant Professor, according to the procedures set out in the Temerty Faculty of Medicine *Promotions Manual* and *Procedures Manual for Policy for Clinical Faculty*. This must be done within two months of the FAAC's recommendation to the Dean.

Members

The Dean appoints seven (7) senior faculty members at the rank of associate or full professor to the FAAC, including a Chair, with representation from each of the three sectors (Basic Sciences, Clinical and Rehabilitation Sciences).

An additional two ad hoc voting members may be appointed by the Dean to ensure that the FAAC includes representation of racialized persons/persons of colour, women, Indigenous/Aboriginal People of North America, persons with disabilities, and LGBTQ2S+ persons.

Each committee member normally serves a three-year term, with appointments staggered to ensure consistency and continuity over time. The Chair of the FAAC is appointed by the Dean. The Temerty Faculty of Medicine Human Resources and Clinical Affairs offices provide support to the FAAC.

Meetings

The FAAC meets approximately once per month, usually in person. Electronic deliberation online may be used instead, as warranted. The Chair and the FAAC members determine meeting dates and agenda items for discussion in consultation with Human Resources.

Human Resources staff in the Temerty Faculty of Medicine set the deadlines for submission of material from the departments for each FAAC meeting. When urgent unforeseen circumstances arise, FAAC will review an appointment application off cycle on a case-by case-basis at the discretion of the FAAC Chair.

All documents, deliberations, and decisions of FAAC are strictly confidential. Anyone seeking information on FAAC may consult Human Resources or the FAAC chair.

Review of Terms and Procedures

The FAAC reviews the FAAC Terms of Reference and Procedures normally every three years, and revises where necessary, in consultation with the All Chairs and Clinical Relations Committees as appropriate. The Dean approves revisions, which are reported to Faculty Council for information.

Reporting

1. Following each FAAC meeting, recommendations on each request for appointment or promotion are reported to the Dean.
2. Annual aggregate reports of appointment approvals/deferrals are reported to the Clinical Relations Committee, All Chairs Committee, Faculty Council, and Toronto Academic Health Sciences Network (TAHSN) Medical Affairs Subcommittee.
3. An initial Status-Only appointment at the rank of full professor that is recommended by FAAC and approved by the Dean must be reported to the Provost for approval.

SECTION B: PROCEDURES, APPLICATION REQUIREMENTS AND STANDARDS FOR RANK

1. Clinical (MD) Appointments and Promotions

Clinical (MD) faculty appointments: definition and categories

Clinical (MD) faculty refers to an individual (or individuals) licensed to practice medicine in Ontario, who holds a medical staff appointment in a Hospital or other clinical site affiliated with the University; or, less often, in a community clinic, industry or private practice; and holds a University appointment in a clinical department in the Temerty Faculty of Medicine. The categories of clinical (MD) faculty appointment are:

- Full-time clinical – participates in a practice plan or equivalent arrangement; engages in academic activities[3] for at least 80% of professional time; holds an active medical staff or equivalent appointment at an affiliated site.
- Part-time clinical – engages in academic activities for at least 20% but less than 80%, of professional time; holds a medical staff appointment at an affiliated site.
- Adjunct clinical – engaged in academic activities for less than 20% of professional time; or does not hold a medical staff appointment at an affiliated site.
- Visiting – a physician from another university or research institute who holds a continuing appointment at his/her home institution.

Note: Clinical (MD) faculty appointed in the full-time clinical academic and part-time clinical academic appointment categories must have an academic position description.

Initial Appointment at the Rank of Assistant Professor

An initial appointment at the rank of Assistant Professor requires the successful completion of a recognized graduate program or an advanced training experience deemed to be equivalent to a Master's level program in a field related to current academic work. In some cases, one to two years of fellowship training, including secondary level resident training will be considered the equivalent to an advanced degree. Normally, the degree program must have been completed as documented by a successful defense of a thesis and awarding of the degree prior to the submission of the request for appointment. Normally, the thesis results in at least one first authored scholarly publication in a high quality peer reviewed journal. In cases where the candidate is enrolled in graduate studies on a part-time basis, the FAAC may consider an exception to the requirement for completion of the degree program, if the Department

[3] Academic activities: teaching (including provision of clinical care that may involve supervision of trainees), research, creative professional activity, and academic administration or work that supports directly academic work by other clinical faculty [Procedures Manual for Policy for Clinical Faculty, 2013].

Chair includes a justification for special consideration as part of the application.[4] ***see FAQ***

It is expected that the candidate will have at least one or two published (or accepted) first authored peer-reviewed publications in well regarded journals in their field at the time of request for appointment (excluding case reports, editorials, letters to editor, book reviews) ***see FAQ**, OR* documentation clearly demonstrating educational and/or creative professional accomplishments that includes convincing evidence of one or more of the following:

1) Sustained teaching excellence (i.e., a summary of a strong teaching dossier that includes: i) analysis of student/trainee evaluations with comparisons against peer teachers; ii) numbers and types of trainees and evidence that the candidate has taught in a variety of teaching environments; and iii) teaching awards).
2) Design and development of curricula, educational offerings and/or educational materials.
3) Creative Professional Activity (CPA) (such as the setting of practice standards). Evidence and impact of CPA must be provided.

Impact of scholarship at local or regional levels should be demonstrated.

Generally, advanced training and publications should be sufficiently recent and related to current academic work, to show some continuity of academic accomplishment to the present. Other evidence of academic achievements, such as research funding, academic positions, patents and invited lectures are considered.

In situations where the applicant has completed fellowship training deemed to be equivalent to a Master's level program, and is enrolled currently in a graduate studies program, the appointment normally will be as lecturer until completion of that degree program, though the FAAC may grant an exception as described above.

Enrolment in full-time graduate studies normally precludes initiation of a full-time clinical academic appointment, irrespective of rank.

The applicant's academic position description will be reviewed for appropriateness and to ensure sign-off by the department chair, hospital chief, and applicant. As a statement of expectation rather than past achievement, generally the academic position description does not influence the standard for academic rank (e.g. the standard for assistant professor is equivalent for a clinician scientist and a clinician teacher).

[4] E.g. the FAAC may approve an applicant at the rank of assistant professor if the person has previously completed Master's or equivalent, and sufficient scholarly achievement, to have met the assistant professor standard without completion of further graduate study.

Lateral Transfer of Assistant Professor Rank

Applications from candidates who hold an appointment at the rank of assistant professor at another university, and whose recruitment to the University of Toronto did not involve a formal search will be reviewed by FAAC to ensure that they meet Temerty Faculty of Medicine standards for appointment at the rank of assistant professor. If the candidate does not meet the required standards, appointment will be made at the rank of lecturer.

Initial Appointment or Lateral Transfer at Rank of Associate or Full Professor

Applications from candidates who hold appointments at the rank of associate or full professor at other universities, or appointments at universities that use different ranking systems, where a formal search did not occur, will be reviewed by the FAAC to ensure that they meet the Temerty Faculty of Medicine standards for the requested rank. An outline of the criteria can be found in the Temerty Faculty of Medicine's *Manual for Promotion*, available at:
http://medicine.utoronto.ca/sites/default/files/ManualforAcademicPromotion2015.pdf

Promotion at Time of Initial Appointment

At initial appointment, the FAAC will not approve a request for promotion in rank above an applicant's highest rank held currently or previously at another university or the University of Toronto. Applications for promotion at the time of initial appointment must be directed by the Department Chair to the Dean on the recommendation of the Department Promotions Committee. If the applicant comes from a university that uses terminology to identify rank that differs from the University of Toronto, the application should be directed to the FAAC. ***see FAQ***

Resumption of Former Rank

On resumption or re-institution of a faculty appointment, the applicant's rank will not be lower than the rank held at the time it had ended.

Promotion from Lecturer to Assistant Professor

The FAAC reviews applications for promotion to assistant professor for full-time clinical faculty (for part-time and adjunct clinical faculty promotions, see Section A, above).

Clinical (MD) faculty members who hold an appointment as lecturer may be considered for promotion at any time that they meet the requirements as set out above for an initial appointment at the rank of assistant professor. Promotion on the basis of sustained contribution to the academic mission may occur in the absence of meeting the requirements for initial appointment at assistant professor. There is no set timeline, but generally, for the criterion of sustained contribution to the academic mission, the application should demonstrate sustained contributions and scholarship in the Temerty Faculty of Medicine for at least three years.

Documents Required for Application for Initial Clinical (MD) Appointment

Initial requests for a full-time clinical (MD) appointment require the following documents to be submitted to the FAAC:

- application for clinical (MD) academic appointment form signed by the department chair
- updated curriculum vitae[5]
- teaching dossier if appropriate (see Appendix B)
- academic position description
- Certificate of Professional Conduct from the College of Physician and Surgeons of Ontario
- draft letter of offer
- letter of support from the university department chair:
    - with explanatory excerpt from DAC meeting minutes (including evaluation of teaching dossier and the rationale to justify request for rank which must be stated clearly and explicitly rather than assumed)
- letter of support from Physician-in-Chief which must include primary hospital appointment category and expected location(s) of clinical and academic work
- letters of reference (2-3 intra departmental, 2-3 extra departmental)***see FAQ***
- In some cases, only intra-departmental letters may be available, then 3-4 letters will be required (extra-departmental letters are those from departments other than the university department where the candidate holds the appointment)

Documents Required for Application for Promotion of a Current Full-Time Clinical (MD) Faculty Member from Lecturer to Assistant Professor:

- lecturer to assistant professor promotion application form
- updated curriculum vitae **see footnote 3*
- updated teaching dossier including teaching scores and evaluations (see Appendix B) ***see FAQ***
- academic position description
- copy of the initial offer of academic appointment letter
- letter of support from the department chair/if applicable letter of support from cross appointed chair

[5] Preferably in the Temerty Faculty of Medicine standard CV format available at: http://medicine.utoronto.ca/faculty-staff/faculty-appointments-and-promotions.CV must be in chronological order. Education section must distinguish accurately Royal College or equivalent residency from fellowship training. All claims that grants or articles are "peer-review" must be accurate. CV, Department Chair letter or DAC Chair letter must explain teaching award significance e.g. size of competition pool, and explain journal article significance, such as journal impact factor, citations.

- letter of support from the chair of the Department Appointments Committee or Department Promotions Committee, or excerpt from minutes of meeting (including evaluation of the teaching dossier)
- intra-departmental or extra-departmental letters of reference (2) ***see FAQ***

2. Status-Only Appointments

Definition

Status-only University appointees are employed outside of the University, usually by an academic/research institution and normally receive no remuneration from the University of Toronto (http://www.aapm.utoronto.ca/status-only-adjunct-and-visiting-professors). Such appointments are made to allow an individual to participate more fully in a university department's teaching or research program. Status-only appointments do not fall under the Temerty Faculty of Medicine*'s Policy for Clinical Faculty*. Individuals being considered for a status-only appointment normally hold full-time employment arrangements with another institution with a job description that is primarily academic (research and/or teaching).

- The appointment is for independent scientists (i.e. research associates are not eligible for Status-Only academic appointments to the Temerty Faculty of Medicine). ***see FAQ***

- Those who have regular and on-going involvement in the teaching and evaluation of learners.

Generally, for those in hospitals and research institutes, status-only appointees hold qualifications and fulfill academic responsibilities similar to those of salaried professorial faculty at the University.

FAAC considers the type of appointment at the institution, the type of employment arrangement with the institution and where relevant, the availability of independent space and resources to carry out research.

Appointment at the Rank of Instructor/Lecturer

Initial status-only appointments at the rank of Instructor/Lecturer are unique to the Temerty Faculty of Medicine and are not subject to review by the FAAC; instead, they are submitted to the Dean for approval. A status-only faculty member appointed at the rank of Lecturer cannot be considered for promotion. Instead, should a department chair determine that an individual has become qualified for appointment at the rank of Assistant Professor, the department must submit a new application to the FAAC.

Appointment at the Rank of Assistant Professor

An initial status-only appointment at the rank of Assistant Professor requires the successful completion of a doctoral program or other scholarly or professional work deemed to be equivalent.

Applicants with a PhD must show evidence of scholarly productivity. Scholarship would often include a post-doctoral fellowship and should include first-authored peer-reviewed publications***see FAQ***. In addition, national speaking engagements, invited lectures, and sustained excellent contributions to a teaching program, including curriculum development will be considered.

Individuals in health care settings[6] who have completed a Master's level program will be considered for an appointment at the rank of Assistant Professor where there is clear documented evidence of a strong record of scholarly achievement and/or creative professional activity in line with departmental norms such as:

- a history of relevant experience involving graduate level teaching;
- coordination of a significant component of a curriculum including any of the following; classroom lectures, presentations, small group facilitation, supervision of graduate research projects, and involvement in the organization or planning of the evaluation components of the curriculum;
- positive evaluations from students;
- published work including monographs, reports, articles and reviews in which the candidate has contributed to the advancement of knowledge as a result of his/her work;
- contributed innovations (with documentation) in techniques or concepts that have an important influence on the discipline's practice including teaching;
- presentation of peer reviewed scholarly papers or posters at professional and/or scientific meetings or participating as a panel member at such meetings;
- principal or co-investigator/co-supervisor for a research project;
- involvement in the planning of major research initiatives – e.g. planning or coordinating research symposia;
- collaborative research with faculty members;
- evidence of instructional innovation and/or creative excellence;
- registrant in good standing of a provincial/national regulatory body.

[6] This would include individuals working in the rehabilitation sector and those performing teaching and research in specific Master of Science Programs, for example, Genetic Counseling. It does not include physicians covered under the Policy for Clinical Faculty.

Lateral Transfers

Applications from candidates who hold an appointment at the rank of Assistant Professor at another university will be reviewed by FAAC to ensure that they meet the Faculty's standards. For status-only appointments, the rank of individuals transferring from another university is generally accepted by the FAAC ***see FAQ.***

Initial Appointment at Rank of Associate or Full Professor

Applications from candidates who hold an appointment at the rank of Associate or Full Professor at another university will be reviewed by FAAC to ensure that they meet the Faculty's standards for the requested rank. An outline of the criteria can be found in the Temerty Faculty of Medicine's *Manual for Promotion*, available at: http://medicine.utoronto.ca/sites/default/files/ManualforAcademicPromotion2015.pdf

Promotion on Appointment from another University

Requests for promotion at the time of initial status-only appointment must be directed by the Department Chair or applicable academic head to the Dean on the recommendation of the Department Promotions Committee. The Dean will consult with the Chair of the Decanal Promotions Committee who will review the application with selected members of the decanal committee. This is done to ensure equity in promotion between existing and new faculty. This review takes place electronically.

Application Requirements

Initial requests for a Status-Only appointment require:

- application for Status-Only (non-MD) Academic Appointment Form signed by the Department Chair
- updated Curriculum Vitae – preferably in the Temerty Faculty of Medicine standard CV format available at: http://medicine.utoronto.ca/faculty-staff/faculty-appointments-and-promotions
- statement of research or teaching, if available
- draft offer of status-only University appointment letter (unsigned)
- letter of support from the department Chair, which must include deliberations of the Department Appointments Committee, as well as clear rationale for the appointment and the rank requested, supported by documentary evidence, such as teaching dossier (if appropriate, see Appendix B)
- intra-departmental letters of reference (2-3), where applicable
- extra-departmental letters of reference (2-3) where applicable, in some cases only intra-departmental letters may be available, then 3-4 letters will be required (extra-departmental letters are those from departments other than the university department where the candidate holds the appointment) ***see FAQ***
- letter from employing institution permitting status-only academic appointment at the University of Toronto.

- If the candidate has PhD Scientist designation[7], or equivalent, this letter must come from the appropriate individual at the hospital or research institution where the scientist is employed, confirming that the hospital or research institution will provide salary and lab facilities for the duration of the faculty appointment. The letter needs to clearly indicate the candidate's scientific independence to perform work related to the Status-Only appointment.
- If the candidate's eligibility rests on their role teaching and evaluating learners, the letter must include a statement of a strong record of scholarly achievement and/or creative professional activity related to their role at the employing institution.
- if the request for an initial appointment is at the rank of associate or full professor, extra-departmental referee letters (3) assessing the candidate's national and international scholarly impact must be submitted

SECTION C

Appendix A, Formal Search and Hiring Procedures
Appendix B, Components of a Teaching Dossier

APPENDIX A: Formal Search and Hiring Procedures

This is for information purposes only as appointments with a formal search are sent by Human Resources directly to the Dean and are not reviewed by the FAAC.

Definition of a Formal Search for Clinical (MD) and Status-Only Faculty

Applications for an appointment at the rank of full-time clinical (MD) assistant professor or above, or a status-only appointment at the rank of assistant professor and above, do not require review by FAAC where there is a formal search that includes University representation (for example, U of T department chair). To ensure the recruitment of the highest quality faculty, a fair and transparent formal search process is best practice.

The Chair is required to provide details of the formal search process in the appointment documentation. A formal search includes a **search committee** with at least one University of Toronto representative at a professorial rank, **broad advertising** to reach potential applicants and effective **interviewing and evaluating** techniques as outlined in the Academic Appointments Procedures Manual:
http://www.aapm.utoronto.ca/recruitment#_Toc309136693

[7] PhD Scientist is a specific type of status-only appointment designed to identify status-only faculty who hold a PhD (or equivalent) and are employed in a research/scientist role on a full-time basis at an affiliated hospital or research institute.

Applications that involve a formal search are sent directly to the Dean of the Temerty Faculty of Medicine for approval. Applications at the rank of full professor (Status-Only) also require provostial approval.

SEARCH PROCESS

Search Committee

The creation of the search committee for full-time clinical (MD) academic appointments should be a joint effort between the affiliated hospital and the relevant University of Toronto academic unit.

The composition of the search committee is extremely important because it sets the tone for the search and the success of the recruitment process. It also presents the face of the University department, and hospital. The search committee should strive for diversity in membership. Members should be knowledgeable about the future direction of the department; have a proven track record of good judgment about people; and be representative of the breadth and depth of the discipline.

When initiating the search process, the search committee must determine the general scope of the position and identify the skills, experience, qualifications, knowledge and attributes a candidate will need to successfully perform in the position. The search committee should determine the criteria that prospective candidates need to meet in order to be considered for the shortlist, the interview, and the position.

Advertising

The purpose of the advertisement is to reach the largest possible pool of qualified applicants and fulfill the requirement by Employment and Social Development Canada (ESDC) that academic positions be advertised in such a way that qualified Canadians and permanent residents have the opportunity to learn of the vacancy. The Temerty Faculty of Medicine HR Office reviews and approves all positions posted on the University's career site *which includes an automatic posting in Inside Higher Ed*. Additional advertising mediums include national and international disciplinary journals and corresponding medical schools in other Canadian universities. It is also good practice to use personal and professional networks, contacts, and recommendations to seek leads to candidates from designated groups (racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ2S+ persons, and others who may contribute to the further diversification of ideas); and encourage all members of the department to make recruitment part of their activities at conferences and national and international meetings.

When drafting the advertisement, the search committee should use inclusive language, advertise for excellent scholarship, identify a range of disciplines or inter-discipline areas and include emerging areas of scholarship. Details should include position, rank, responsibilities and summary of essential duties, degrees required or preferred, experience or qualifications required or preferred, date of appointment, location of

work, licensure requirements, application materials, closing date (at least one month after publication), and contact details.

The posting should include a description of the University of Toronto department and hospital; a hyperlink should be included. It is important to advertise broadly within the applicable specialty area. Ideally, the search process should not be closed until a candidate pool of sufficient diversity has been attained.

Foreign Physicians Recruitment

The hospital is responsible for handling all immigration details in the recruitment process and should seek advice from the appropriate source (i.e. hospital human resources department or immigration lawyer) when advertising a clinical job to ensure the recruitment efforts align with Employment and Social Development Canada (ESDC) requirements. In the event that a foreign worker is the successful candidate to fill a clinical position, a Labour Market Impact Assessment (LMIA) may be required to show that no Canadian worker or permanent resident is available to do the job. The U of T Clinical job advertisement format may not meet ESDC requirements.

All advertisements must include the three following statements (The University's applicant tracking system "Success Factors" automatically populates these statements):

1. **CANADIANS FIRST**

All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

2. **DIVERSITY STATEMENT**

The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ2S+ persons, and others who may contribute to the further diversification of ideas.

3. **ACCESSIBILITY**

The University strives to be an equitable and inclusive community, and proactively seeks to increase diversity among its community members. Our values regarding equity and diversity are linked with our unwavering commitment to excellence in the pursuit of our academic mission.

The University is committed to the principles of the Accessibility for Ontarians with Disabilities Act (AODA). As such, we strive to make our recruitment, assessment and selection processes as accessible as possible and provide accommodations as required for applicants with disabilities.

If you require any accommodations at any point during the application and hiring process, please contact uoft.careers@utoronto.ca.

Advertisements on the U of T faculty job board must be posted for a minimum of 35 days and no longer than one year.

Temerty Faculty of Medicine department academic coordinators may refer to the MedHR SharePoint site for a sample full-time clinical academic appointment advertisement.

Interviewing and Evaluating

It is important to remember that the interview visit has a dual purpose: the candidate is being assessed by the search committee; and, the candidate is assessing the university/hospital. Once the department begins to receive applications for the position, a record of potential candidates should be prepared and reviewed to create a short-list of applicants to be invited for an interview and campus/hospital visit. In preparation for the interview, the search committee should organize a set of questions that assesses the applicants against the selection criteria. Prior to the interview, the chair of the search committee should decide on the order of questions and allocate specific questions to each committee member. At the beginning of the interview, the search committee chair should introduce the applicant to each of the members and take the time to explain the purpose and structure of the interview. The search committee chair is responsible for ensuring that candidates are not asked questions that could be considered discriminatory (for example, those relating to the individual's marital or family status, gender, nationality, religion, health or physical ability), and that sufficient information is obtained from the candidates for an accurate decision to be made. Before concluding the interview, the candidate should be allowed to ask questions and/or provide information that may not have emerged in response to the core questions. After the interview, committee members should be encouraged to complete their assessment on the candidate.

If a candidate is currently not eligible to work in Canada, the hospital or research institute is responsible for handling all immigration matters.

College of Physicians and Surgeons of Ontario [CPSO] Documentation for International Medical Graduates Requiring a Certificate of Academic Registration.

In order to practice medicine in Ontario, international medical graduates who obtain a clinical (MD) academic appointment require a certificate of academic registration with the College of Physicians and Surgeons of Ontario (CPSO). The university academic department works closely with the faculty HR office and Clinical Affairs to complete the required documentation. The CPSO website should be consulted for the Registration Committee application timelines - it is recommended that hospitals factor in a minimum of **6 months** processing time for immigration and licensure requirements.

ADDITIONAL SUPPORTING DOCUMENTATION

The Chair's letter to the Dean should contain the following information on the search:

- clear statement that a formal search has occurred

- list of all members of the search committee and the identity, rank and department of the University of Toronto representative
- list of the advertising sites/locations and at least one copy of a broad reaching advertisement
- the number of candidates (do not include names) that were interviewed and a brief summary of the rationale for the selection of the successful candidate. Any known demographic information of the candidates (i.e. number of Canadians, number of men and women, etc.) should also be included in the Chair's letter

APPENDIX B: Components of a Teaching Dossier

The preparation and submission of Teaching Dossier is required when applying for promotion of academic rank in the Temerty Faculty of Medicine. In some cases, it is also appropriate and contributes to a stronger application for an initial academic appointment requiring FAAC review.

For candidates applying for initial academic appointment as a Clinician Teacher and/or on the basis of teaching contribution and excellence, a Teaching Dossier is strongly recommended.

A Teaching Dossier is prepared as part of or in addition to the individual's *curriculum vitae*, as appropriate. It summarizes the candidate's educational and teaching activities and demonstrates the candidate's teaching effectiveness and contributions to the field of teaching and education.

In the Temerty Faculty of Medicine, teachers and educators can include contributions at one or more of the following levels:

a. Undergraduate medical education
b. Graduate education
c. Postgraduate medical education
d. Post-doctoral training
e. Continuing education and faculty development
f. Patient/public education

Contents

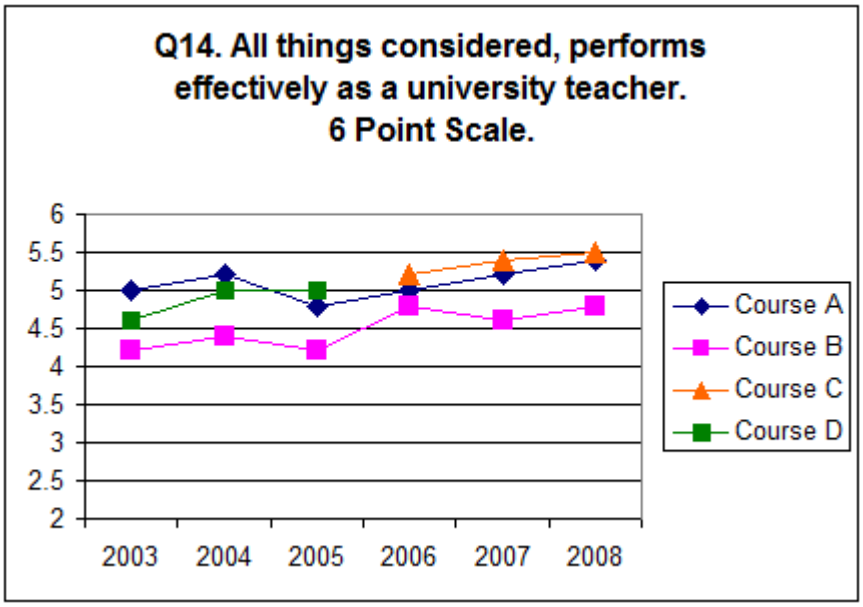
The Dossier should include components that the candidate feels best displays their teaching effectiveness and contributions to the field of teaching and education. Below are a few examples of what can be included in the Dossier. **Note that not all components will be relevant for all candidates but it is strongly encouraged that the candidate includes the bolded components**:

- **A statement of the candidate's approach to teaching, including an assessment of the impact of teaching activities**
- **A listing of all teaching and assessment activities, with number of hours and audience numbers involved**

- **Supporting documentation related to the assessment of teaching. Summaries of all evaluations, results of peer assessments of teaching effectiveness, solicited and unsolicited letters from colleagues and students, letters from senior members of the Temerty Faculty of Medicine who have made personal observations at national meetings, continuing education courses and/or seminars and symposia**
- Supporting documentation related to teaching and education. Photocopies of all course and lecture outlines, bibliographies, and letters of invitation to teach at other centres
- A listing of all activities related to the administration, organizational and developmental aspects of education (organized by level) with a description of the nature and extent of the candidate's involvement and level of responsibility
- Documentation of participation in educational research activities (for example, publications, abstracts, presentations and/or grants) as well as scholarly writing relating to education
- Documentation of participation in national and international organizations whose activities relate to education research and development
- Documentation of participation at national and international conferences and workshops relating to education research and development
- Documentation of external consultancies relating to education research and development
- Documentation of effectiveness in mentoring or advising in education and teaching
- A listing of honours and awards related to teaching and education

A Tip for Reporting Teacher and Course Evaluations

Reams of teaching and course evaluation materials can be difficult to read and the 'important' question varies in the different formats used across different evaluations. In order to simplify matters, it is recommended that a summary plot is provided that identifies the overall evaluative question, provides details of scale and gives a summary of a candidate's scores over time. The Centre for Teaching Support & Innovation can assist in the preparation of summary charts. An example is provided below.



Sources

- *Manual for Academic Promotion to Associate and Full Professor* (July 2020)
- *Guidelines for the Assessment of Effectiveness of Teaching in Promotion and Tenure Decisions in the* Temerty *Faculty of Medicine*
- *Policy and Procedures on Academic Appointments* (June 26, 2015)
- *Academic Administrative Procedures Manual: Reviews*

SECTION D: FREQUENTLY ASKED QUESTIONS- FAQs

(1) Where a formal search with the required University representation has occurred, who reviews and approves the application for initial appointment at professorial rank?

When an appointment is requested following a formal search process, the Dean or designate will review the dossier and search documents. The Dean or designate then reports any approvals to the FAAC.

(2) What is the approval process when a promotion in rank is requested at the time of initial appointment?

Requests for promotion at the time of initial appointment must be directed by the Department Chair or applicable academic head to the Dean on the recommendation of the Department Promotions Committee. The Dean will consult with the Chair of the Decanal Promotions Committee who will review the application with selected members of the decanal committee. This review takes place electronically. If an applicant comes from a higher-education institution

that uses terminology for describing academic rank different from U of T, the application should be directed to the FAAC for consideration.

(3) Are faculty transferring from institutions outside the University of Toronto automatically eligible for the same academic rank at U of T as the rank they held at their prior University?

For clinical (MD) faculty, academic rank at the time of the appointment to U of T is assessed by the Departmental Appointments Committees and the FAAC to ensure that the applicant meets U of T's criteria for academic rank, as outlined in the FAAC manual. It is important for departments to advise applicants from other academic institutions of the review process as early as possible in the recruitment process. For status only appointments, the rank of individuals transferring from another university is generally accepted by the FAAC.

(4) When is a first author, peer-reviewed publication considered relevant to an appointment and/or junior promotion?

Normally, to be relevant to the current appointment, a candidate's first author peer reviewed publication will be considered on the grounds of:

- Recentness of publication;
- Impact factor;
- Its relevance in content to their current academic work.

(5) For clinical (MD) appointments and/or junior promotions, what type of advanced medical training experience is deemed to be equivalent to a Master's Degree?

One to two years of fellowship training, including secondary level resident training, will be considered to be equivalent to an advanced degree. Secondary level resident training refers to trainees who have satisfactorily completed a full residency program and received certification in their specialty, and embarked on further clinical and/or research training, including sub-specialty training.

(6) When are teaching scores required?

A teaching dossier, which includes teaching scores, is strongly recommended for all candidates applying for initial academic appointment or junior promotion as a Clinician Teacher and/or on the basis of teaching contribution and excellence. Please see Appendix B for recommendation on presentation of these scores

(7) Do changes in category of appointment from clinical adjunct or part time to clinical full time need to go to FAAC?

Yes for appointments at the professorial rank, and no for appointments at lecturer. Please review the Step-by-Step Guide to Applying for an Academic Appointment for the documentation required for such category changes, regardless of whether reviewed by FAAC or the Dean or designate.

(8) Can the reference letters provided at the time of initial clinical (MD) appointment be re-used for junior promotion, if the request for promotion is within a reasonable amount of time from the initial appointment?

Yes, if the reference letters were received within twelve months prior to the junior promotion. The Chair's letter must include a statement that the reference letters are the same as those used at the time of appointment.

(9) What is the difference between an intra-departmental letter of reference and an extra-departmental letter of reference?

Intra-departmental letters of reference are those provided by members of the candidate's U of T primary department (or academic departments where there is a cross appointment requested).

Extra-departmental letters of reference are those provided by members of other U of T departments, other universities and, where appropriate, other healthcare and/or academic institutions.

(10) What constitutes scientific independence?

Scientific independence is demonstrated by having the academic freedom to pursue independent scholarly activity.
Within this context, independent scientists will have the capacity to develop independent lines of scientific inquiry and an independent program of research. This scientific independence may be evidenced by the following indicators:

- appointment title i.e. Scientist, Adjunct Scientist, Affiliate Scientist, or equivalent;
- duration of appointment (minimum 3-year term);
- protected time for research;
- direct report to most senior leader of research in the institution;
- independent access to research infrastructure (office, laboratory, computer network);
- capacity for independent supervision of trainees and staff.

The letter from the employing institution permitting the candidate to hold a status-only academic appointment at professorial rank should provide clear evidence that the candidate's employment is that of an independent scientist.

UNIVERSITY OF TORONTO

University of Toronto
Major Modification Proposal:
Significant Modifications to Existing Graduate and Undergraduate Programs

This template should be used to bring forward all proposals for major modifications to existing graduate and undergraduate programs for governance approval under the University of Toronto's Quality Assurance Process.

Program being modified:	MSc and PhD program in Biochemistry
Proposed major modification:	A series of changes to ensure graduate students have foundational skills and knowledge and increasing the number of elective to improve breadth of training
Department/unit (if applicable):	Biochemistry
Faculty/academic division:	Medicine/Division 4
Dean's Office contact:	Allan Kaplan, Vice Dean, Graduate and Academic Affairs Rachel Zulla, Graduate Affairs Officer
Proponent:	Justin Nodwell, Chair, Department of Biochemistry Alex Palazzo, Graduate Coordinator, Department of Biochemistry Karen Maxwell, Associate Graduate Coordinator, Department of Biochemistry
Version date:	December 17, 2020

Contents

1 Summary

Please provide a brief summary of the change(s) being proposed as it relates to the current structure of the program.

This proposal is a result of a currciulum review of the MSc and PhD programs in Biochemistry and also realigns this revised curriculum to meet SGS General and Degree Requirements.

The new currciulum establishes a new foundational course that all MSc and PhD students must take (BCH2101H, Scientific Skills for Biochemists, 0.25 FCE), changes the structure of the program to recognize 0.25 FCE courses, and where indicated, increases the number of electives. The MSc and PhD program learning outcomes are not changing as a result of the program requirement changes.

The changes are intended to provide students with foundational skills and knowledge to better prepare them for their thesis and, in the case of PhD students, better prepare them for their qualifying exam. Furthermore, the increase in the number of electives creates the opportuntity improve a student's breadth of knowledge.

This proposal is the next step to the minor modification seen at the GLSE Graduate Currciulum Committee (December 5, 2019, course closures) and approved by FOM Education Committee (December 12, 2019).

2 Effective Date

September 1, 2021 (Fall 2021)

3 Academic Rationale

What are the academic reasons for the change proposed, and how do they fit with the unit's and division's academic plans?

The Temerty Faculty of Medicine's Academic Strategic Plan has specific goals to be obtained in three domains:

- Ecosystem of collaboration
- Groundbreaking Imagination
- Excellence through Equity

There are four components to this modification:

a) the realignment of the various program curriculums to meet SGS General and Degree Requirements

In its current format, the calendar entry for these two programs does not adequately outline the academic pathways for MSc students who decide to transfer to the PhD program or direct entry PhD students. This proposal outlines all four academic pathways (MSc, MSc transfer to PhD, PhD and direct entry PhD) for better transparancy for incoming and prospective students.

b) a new required foundational course that all MSc and PhD students must take (Scientific Skills for Biochemists, BCH2101H)

BCH2101H will fullfil all of the goals listed in the Temerty Faculty of Medicine's Academic Strategic Plan. The course will provide skills that ultimately help to ***foster collaboration and the exchange of knowledge (goal #1)***. This will be accomplished though student-centered group activities where students learn to improve their oral and written communication skills and engage in peer-review. Since all incoming students will take the same class, this will foster a sense of community within the cohort. The course will have classes on career development to ***create successful career pathways*** (a stated objective in the strategic plan outlined in ***goal #2)***. Additional classes on conflict resolution and student wellness will further ***promote equity, diversity and inclusiveness (goal #3)***.

This course focuses on developing core competencies and skills in scientific methodology among first year MSc and PhD students. As students enter our program with varying degrees of research experience, it is important that we provide a set of core skills that enable students to perform, assess and communicate their scientific work. Explicit instruction in data literacy and scientific communication will improve the quality of experimental design, seminar presentations, and scholarship applications, as well as assist in the timely completion of the program.

BCH2101H will be established as a new course and a new program requirements effective September 2021. This will impact program requirements as outlined in Appendix A: Current Curriculum vs. Revised Curriculum.

c) The closing of BCH2024H and converting modules into 0.25 FCE

The closure of BCH2024H for all incoming Fall 2021 students and launch of 0.25FCE courses (under the course code series 2100, for MSc and 2200 for PhD) will help promote further transparency of the courses' objectives and evaluations. Previously, BCH2024H was used as an umbrella course to facilitate the use of what we called modules; students completed two modules to fulfil the program requirement of BCH2024H which had a course weight of 0.5FCE. Grades assigned to this course were an average based on the 2 modules taken. Information about these modules (e.g. module title/description) only appeared on the departmental website and was therefore not included on the students' transcripts.

Similar to major modifications in Laboratory Medicine and Pathiobiology and the Institute of Medical Science and Medical Biophysics, Biochemistry is proposing to eliminate, BCH2024H for incoming MSc and PhD students starting Fall 2021. Instead, these MSc and PhD student will complete a series of 0.25 FCE courses to fulfill their program requirements (i.e., please refer to Appendix C: Current Curriculum vs. Proposed Curriculum). Each of these 0.25 FCE courses will be assigned a letter grade.

This program restructuring will serve to improve the breadth of courses available to our students in two ways. First, it will facilitate access to other 0.25 FCE courses in other departments (e.g., LMP, IMS) that can be used to complete the course requirements of our program. This will promote diversity in educational opportunities (***goal #1***), while expanding their knowledge base (***goal #2***). Secondly, by launching new courses beyond what was available through our modules, we will further expand the course offerings (**goal #2**) available to our graduate students. As part of the major modification, a total of fourty-eight 0.25 FCE courses will be created.

For existing students (i.e., students admitted prior to Fall 2021), BCH 2024H will remain. A parallel system to track modules taken under BCH 2024H will be established, similar to other graduate units that have converted their modules into official 0.25 FCE courses. Once all exisitng students graduate, then BCH 2024H can close. Biochemistry will monitor this and inform GLSE when the most appropriate date will be to close BCH 2024H.

Note that the existing 0.5 FCE courses (JTB 2020H *Applied Bioinformatics*, JBB 2025H Protein Crystallography; and JBB 2026H Protein Structure, Folding, and Design) will still be offered as elective courses. Current and future graduate students will be able to take these courses to fullfill the elective component of their program requirements.

d) Renaming BCH2020Y, Master's Seminar Course in Biochemistry and BCH 2022Y, PhD Seminar Course in Biochemistry

This proposal requests to change the course title for 2 courses:

- BCH 2020Y from Master's Seminar Course in Biochemistry to Seminar Course in Biochemistry Level 1;
- BCH 2022Y from PhD Seminar Course in Biochemistry to Seminar Course in Biochemistry Level 2.

4 Description of the Proposed Major Modification(s)

Please describe in detail what changes are being proposed. Major modifications include changes to the program requirements that will significantly change what students will know and be able to do when they complete the program.

Other major modifications that may be included are significant changes to admissions requirements, significant changes to faculty engaged in program and a change to mode of delivery, change to the language of the program and offering the program at another location or institution.

Please be explicit about how the learning outcomes have changed and include both previous and proposed learning outcomes or one version of the current learning outcomes with the new learning outcome in track changes. You may wish to use Appendices A and B.

Describe how the modification reflects universal design principles and/or how the potential need to provide mental or physical health accommodations has been considered in the development of this modification.

Please provide calendar copy, either in track changes or as two separate documents in appendices C and D as applicable.

For both the MSc and PhD programs, 48 new 0.25 FCE courses will be established to improve the breadth of knowledge of our students. In addition to taking the foundational course,

BCH2101H (Scientific Skills for Biochemists), research-stream graduate students will be required to take the following number of electives:

- MSc students will be required to complete 0.25 FCE;
- PhD students will be required to complete 0.75 FCE;
- MSc students transferring to the PhD program will be required to take 1.25 FCE;
- Direct Entry PhD students will be required to take 1.25 FCE.

Further details are outlined in Appendix C: Current Curriculum vs. Revised Curriculum and Appendix D: Proposed Calendar Entry.

BCH 2101H, Scientific Skills for Biochemists, is a new 0.25 FCE course that serves as both an orientation about important components of graduate studies in Biochemistry (i.e., how to write an effective scholarship application, how to give a 30-minute talk) and allows students to develop their own individualized development plan (IDP). Students will be engaged in collaborative tasks and peer-evaluation activities. Classes will also include information on student wellness and conflict resolution. Students are evaluated based on a series of assignments and presentations (Appendix F: Minor Modifications, New Course, BCH 2101H).

The final component of this proposal is to convert existing modules into formal 0.25 FCE courses. Similar to the MSc and PhD program in Laboratory Medicine and Pathobiology, these offerings will allow students to focus on topics that are most relevant to their educational needs, thereby promoting a more student-centred approach to their graduate program. In this proposal, 48 0.25 FCE courses are being established. Biochemistry plans to introduce more in the future.

This change in program structure also aligns with the plans of other FOM graduate departments that are formalizing their modules into 0.25 FCE (i.e., Medical Biophysics, Laboratory Medicine and Pathobiology, Institute of Medical Science). Ultimately, this provides students with the flexibility to find and take 0.25 FCE courses across different departments in the Faculty, therefore improving their breadth of knowledge and exposing them to opportunities for cross-collaboration. Students will continue to be advised to complete all course work within 18 months of registration for M.Sc. students (in order to meet reclassification and permission to write deadlines), and within 2 years of registration for Ph.D. students.

Finally, the proposal requests to change the course titles for BCH 2020YMaster's Seminar Course in Biochemistry and BCH 2022Y, PhD Seminar Course in Biochemistry. Renaming BCH 2022Y to Seminar Course in Biochemistry Level 2 avoids confusion for direct-entry PhD students. Currently, these students are required to take BCH 2020Y, Master's Seminar Course in Biochemistry. Its reference to a master's may confuse direct-entry students who are admitted into the PhD program. To avoid this confusion, BCH 2020Y will be renamed Seminar Course in Biochemistry Level 1 and BCH 2022Y will be renamed Seminar Course in Biochemistry Level 2. These will be the same course titles used for the stand-alone MSc program, MSc to PhD transfer and stand-alone PhD program. Students in the M.Sc. program will complete BCH 2020Y. Students who are admitted to the M.Sc. program and reclassify into the Ph.D. program will be enrolled in BCH 2020Y for their first 24 months of study. Following successful completion of their student seminar and transfer to the Ph.D. program, they will then be enrolled in BCH 2022Y. Students admitted to the Direct Entry Ph.D. program will be enrolled in BCH 2020Y and will be automatically enrolled in BCH 2022Y, following the completion of the BCH 2020Y and qualification exam.

5 Impact of the Change on Students

Outline the expected impact on continuing students, if any, and how they will be accommodated.
Please detail any consultation with students.

The proposed new curriculum would take effect for the incoming class of Fall 2021.

Students admitted prior to Fall 2021 will complete the program requirements, as outlined in the SGS Calendar in the year they were admitted.

Students admitted prior to Fall 2021 (i.e., existing students) will complete BCH 2024H as outlined in the program requirements in the year they were admitted. Such students are welcome to take any of the 0.25 FCE courses as extra courses once their program requirements are completed; students cannot retake modules for credit. A parallel system to track modules taken by existing students will be in place. Similar methods have been adopted by Medical Biophysics, Laboratory Medicine and Pathobiology and the Institute of Medical Science.

6 Consultation

Describe the impact of the major modification on other programs and any consultation undertaken with the Dean and chair/director of relevant academic units.

Extensive consultation was done at the departmental level. Proposed changes were initially discussed at meetings of the Advisory Committee to the Chair (October 2019, November 2019) and the Graduate Committee (September 2019, January 2020). The proposed changes were also presented to the Biochemistry Graduate Student Union (October 2019) by the Graduate Coordinator who solicited feedback. A penultimate draft of this proposal was presented to the department's Graduate Curriculum Committee on October 30, 2020 and to the Biochemistry Graduate Student Union on November 4, 2020.

The Office of the Vice Dean, Graduate and Life Sciences and the Office of the Vice-Provost, Academic Programs were also consulted, and feedback is incorporated into this proposal.

7 Resources

Describe any resource implications of the change(s) including, but not limited to, faculty complement, space, libraries and enrolment/admissions.
Please be specific where this may impact significant enrolment agreements with the Faculty/Provost's Office.
Indicate if the major modification will affect any existing agreements with other institutions or will require the creation of a new agreement to facilitate the major modification (e.g., Memorandum of Understanding, Memorandum of Agreement, etc.). Please consult with the Provost's office (vp.academicprograms@utoronto.ca) regarding any implications to existing or new agreements.

No additional resources will be required.

8 UTQAP Process

The UTQAP pathway is summarized in the table below.

Steps	Approvals
Development/consultation within unit	October 30, 2020
Consultation with Dean's Office (and VPAP)	December 17, 2020
Unit-level approval as appropriate	Pending
Faculty/divisional council	April 26, 2021
Submission to Provost's Office	pending
Reported to the Provost and included in annual report to AP&P	May 2021
Ontario Quality Council — reported annually	July 2021

Appendix A: Current Curriculum vs. Revised Curriculum

	MSc	PhD	PhD (MSc Transfer to PhD)	PhD (Direct Entry)
Current Curriculum	**Total FCEs: 1.5** Coursework: 0.5 FCE Seminar: 1.0 FCE Thesis: 0.0 FCE BCH2024H^0 (0.5FCE) Focused Topics in Biochemistry; OR JTB2020H (0.5 FCE) Applied Bioinformatics (0.5 FCE); *or* JBB2025H (0.5 FCE) Protein Crystallography — Lectures (0.5 FCE) *or* JBB2026H (0.5 FCE) Protein Structure, Folding, and Design BCH2020Y^0 (1.0 FCE, CR/NCR) Master's Seminar Course in Biochemistry	**Total FCEs: 2.5** Coursework: 1.5 FCEs Seminar: 1.0 FCE Thesis: 0.0 FCE BCH2024H^0 (0.5FCE) Focused Topics in Biochemistry; OR JTB2020H (0.5 FCE) Applied Bioinformatics (0.5 FCE); *or* JBB2025H (0.5 FCE) Protein Crystallography — Lectures (0.5 FCE) *or* JBB2026H (0.5 FCE) Protein Structure, Folding, and Design BCH2022Y^0 (1.0 FCE, CR/NCR) Doctoral Seminar Course in Biochemistry	**Total FCEs: 2.5** Coursework: 1.5 FCEs Seminar: 1.0 FCE Thesis: 0.0 FCE BCH2024H^0 (0.5 FCE) Focused Topics in Biochemistry; OR JTB2020H (0.5 FCE) Applied Bioinformatics (0.5 FCE); *or* JBB2025H (0.5 FCE) Protein Crystallography — Lectures (0.5 FCE) *or* JBB2026H (0.5 FCE) Protein Structure, Folding, and Design BCH2022Y^0 (1.0 FCE, CR/NCR) Doctoral Seminar Course in Biochemistry	**Total FCEs: 2.5** Coursework: 1.5 FCEs Seminar: 1.0 FCE Thesis: 0.0 FCE BCH2024H^0 (0.5FCE) Focused Topics in Biochemistry; OR JTB2020H (0.5 FCE) Applied Bioinformatics (0.5 FCE); *or* JBB2025H (0.5 FCE) Protein Crystallography — Lectures (0.5 FCE) *or* JBB2026H (0.5 FCE) Protein Structure, Folding, and Design BCH2022Y^0 (1.0 FCE, CR/NCR) Doctoral Seminar Course in Biochemistry RST9999Y (0.0 FCE, CR/NCR) Research Thesis

	MSc	PhD	PhD (MSc Transfer to PhD)	PhD (Direct Entry)
	RST9999Y (0.0 FCE, CR/NCR) Research Thesis	RST9999Y (0.0 FCE, CR/NCR) Research Thesis	RST9999Y (0.0 FCE, CR/NCR) Research Thesis Criteria to write transfer exam: Complete 0.5 FCE of one of the required courses; must be in good standing; Must be written in the first 18 to 20	

	MSc	PhD	Transfer (MSc to PhD)	Direct Entry PhD
New Program	**Total program FCEs: 1.5** Coursework: 0.5 FCE (0.25 required FCE [BCH2101H] + 0.25 elective FCE) Seminar: 1.0 FCE Thesis: 0.0 FCE BCH2101H (0.25 FCE) Scientific Skills for Biochemists Completion of at least 0.25 elective FCE	**Total program FCEs: 2.0** Coursework: 1.0 FCE (0.25 required FCE [BCH2101H] + 0.75 elective FCE) Seminar: 1.0 FCE Thesis: 0.0 FCE Before qualifying: BCH2101H (0.25 FCE) Scientific Skills for Biochemists; if previously taken, student must take a substitute course	**Total program FCEs: 3.5** Coursework: 1.5 FCE (0.25 required FCE [BCH2101H] + 1.25 elective FCEs) Seminar: 2.0 FCEs Thesis: 0.0 FCE Before transfer: BCH2101H (0.25 FCE) Scientific Skills for Biochemists BCH2020Y^0 (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 1	**Total program FCEs: 3.5** Coursework: 1.5 FCEs (0.25 required FCE (BCH2101H) + 1.25 elective FCEs) Seminar: 2.0 FCEs Thesis: 0.0 FCE Before qualifying: BCH2101H (0.25 FCE) Scientific Skills for Biochemists BCH2020Y^0 (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 1

	BCH2020Y^0 (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 1 RST9999Y (0.0 FCE, CR/NCR) Research Thesis	(worth at least 0.25 FCE) with the approval of the Graduate Coordinator BCH2022Y^0 (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 2 At least 0.25 elective FCE Required to complete a qualifying exam. Eligible criteria include: Exam must be taken within 18 to 24 months of starting the program complete BCH2101H; concurrently registered in BCH2022Y^0 complete at least 0.25 elective FCE After a successful qualifying exam, students must complete:	At least 0.25E elective FCE Required to complete a transfer exam. Eligible criteria include: Enrolled in the MSc in Biochemistry Exam must be taken within 18 to 24 months of starting the program Completion of BCH2101H Concurrently registered in BCH2020Y^0 Completion of at least 0.25 elective FCE Permission from Advisory Committee After a successful transfer exam, students must complete: BCH2022Y^0 (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 2	At least 0.25 elective FCE Required to complete a qualifying exam. Eligible criteria include: Exam must be taken within 18 to 24 months of starting the program Completion of BCH2101H; Concurrently registered in BCH2022Y^0 Completion at least 0.25 elective FCE After a successful qualifying exam, students must complete: BCH2022Y^0 (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 2 Remaining electives for a total of 1.25 FCEs RST9999Y Research Thesis (0.0 FCE, CR/NCR)

		BCH 2022Y^{0} (1.0 FCE, CR/NCR) Seminar Course in Biochemistry Level 2 Remaining electives, for a total of 0.75 elective FCE RST9999Y Research Thesis (0.0 FCE, CR/NCR)	Remaining electives for a total of 1.25 FCEs RST9999Y Research Thesis (0.0 FCE, CR/NCR)	

Appendix B: Current Calendar Copy

Biochemistry

Faculty Affiliation
Medicine

Degrees Offered
Biochemistry
MSc
PhD

Contact & Address
Web: http://biochemistry.utoronto.ca
Email: carrie.harber@utoronto.ca
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Fax: (416) 946-8228

Department of Biochemistry
University of Toronto
Room 5207, Medical Sciences Building
Toronto, Ontario M5S 1A8
Canada

Master of Science
Minimum Admission Requirements

- Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Biochemistry's additional admission requirements stated below.
- Normally, a minimum B+ average in the last two years of study in an honours/specialist BSc program in biochemistry/molecular biology. Applicants with strong academic credentials in honours/specialist programs in disciplines related to biochemistry/molecular biology are also considered.
- Applicants arrange for personal reference forms from three individuals familiar with their academic performance.

- Applicants who obtained a degree outside Canada are generally required to have an MSc degree in biochemistry or in a closely related subject area and must arrange for general Graduate Record Examination (GRE) results to be sent to the department.
- Applicants from outside Canada whose primary language is not English and who graduated from a university where the language of instruction was not English must provide TOEFL (Test of English as a Foreign Language) and TWE (Test of Written English) scores:
    - paper-based TOEFL: minimum 580 score and 5 on the TWE
    - Internet-based TOEFL: minimum 93/120 score and 22/30 on the writing and speaking sections.

  In the absence of TOEFL results, an IELTS (International English Language Testing System) score of at least 7 is also acceptable.

Program Requirements

- Complete any courses that were a condition of acceptance.
- Complete a 0.5 full-course equivalent (FCE) from the following list:
    - BCH 2024H[0] *Focused Topics in Biochemistry*;
    - JTB 2020H *Applied Bioinformatics*;
    - JBB 2025H *Protein Crystallography*; or
    - JBB 2026H *Protein Structure, Folding, and Design*.
- Participate in BCH 2020Y[0] *Master's Seminar Course in Biochemistry*.
- Thesis and successful completion of an oral examination on his or her research and related aspects of biochemistry.
- Normally, MSc students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

6 sessions full-time (typical registration sequence: F/W/S/F/W/S)**

Time Limit

3 years full-time

[0] Course that may continue over a program. The course is graded when completed.

*** Students may begin the program in the Fall or Winter.*

Doctor of Philosophy

Students are accepted into the PhD program via one of three routes: 1) following completion of an MSc degree in biochemistry or a cognate discipline; 2) transfer (reclassification) from the University of Toronto MSc program; or 3) following completion of a BSc degree (direct entry) if, in the opinion of the Biochemistry Graduate Committee, the student has an outstanding academic record.

PhD Program

Minimum Admission Requirements

- Applicants to the four-year and transfer options are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Biochemistry's additional admission requirements stated below.
- Applicants must arrange for personal reference forms from three individuals familiar with their academic performance.
- Applicants who obtained a degree outside Canada are generally required to have an MSc degree in biochemistry or in a closely related subject area with high academic standing and must arrange for General Record Examination (GRE) results to be sent to the department.
- Applicants from outside Canada whose primary language is not English and who graduated from a university where the language of instruction was not English must provide TOEFL (Test of English as a Foreign Language) and TWE (Essay Writing) scores:
    - paper-based TOEFL: minimum 580 score and 5 on the TWE
    - Internet-based TOEFL: minimum 93/120 score and 22/30 on the writing and speaking sections.
- In the absence of TOEFL results, an IELTS (International English Language Testing System) score of at least 7 is also acceptable.

Program Requirements

- Students who have completed an MSc degree must successfully complete of a **qualifying examination** within the first 18 months of the program.
- Complete any **courses** that were a condition of acceptance.
- Complete **1.5 full-course equivalents (FCEs)** from Biochemistry or cognate departments in graduate-level courses; at least 0.5 FCE must be from the following list:
    - BCH 2024H^0 *Focused Topics in Biochemistry;*
    - JTB 2020H *Applied Bioinformatics*;
    - JBB 2025H *Protein Crystallography*; or
    - JBB 2026H *Protein Structure, Folding, and Design*.

  Students may fulfil the 1.5-FCE course requirement entirely from this list.

- Participate in **BCH 2022Y**[0] *Doctoral Seminar Course in Biochemistry*.
- Submit a **thesis** and defend it at the Doctoral Final Oral Examination.
- Normally, PhD students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

4 years full-time; 5 years transfer-from-master's

Time Limit

6 years full-time; 7 years transfer-from-master's

[0] Course that may continue over a program. The course is graded when completed.

PhD Program (Direct-Entry)

Minimum Admission Requirements

- Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Biochemistry's additional admission requirements stated below.
- Applicants must arrange for personal reference forms from three individuals familiar with their academic performance.
- Applicants who obtained a degree outside Canada are generally required to have an MSc degree in biochemistry or in a closely related subject area with high academic standing and must arrange for General Record Examination (GRE) results to be sent to the department.
- Applicants from outside Canada whose primary language is not English and who graduated from a university where the language of instruction was not English must provide TOEFL (Test of English as a Foreign Language) and TWE (Essay Writing) scores:
    - paper-based TOEFL: minimum 580 score and 5 on the TWE
    - Internet-based TOEFL: minimum 93/120 score and 22/30 on the writing and speaking sections.
- In the absence of TOEFL results, an IELTS (International English Language Testing System) score of at least 7 is also acceptable.
- The latter two categories require the student to successfully complete a qualifying examination within the first 18 months.

Program Requirements

- Students must successfully complete a **qualifying examination** within the first 18 months of the program.

- Complete any **courses** that were a condition of acceptance.
- Complete **1.5 full-course equivalents (FCEs)** from Biochemistry or cognate departments in graduate-level courses at least 0.5 FCE must be from the following list:
    - BCH 2024H[0] *Focused Topics in Biochemistry;*
    - JTB 2020H *Applied Bioinformatics*;
    - JBB 2025H *Protein Crystallography*; or
    - JBB 2026H *Protein Structure, Folding, and Design*.

  Students may fulfil the 1.5-FCE course requirement entirely from this list.
- Participate in **BCH 2022Y**[0] *Doctoral Seminar Course in Biochemistry*.
- Submit a **thesis** and defend it at the Doctoral Final Oral Examination.
- Normally, PhD students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

5 years

Time Limit

7 years

[0] Course that may continue over a program. The course is graded when completed.

Appendix C: Proposed Calendar Copy with changes tracked

Biochemistry

Faculty Affiliation
Medicine

Degrees Offered
Biochemistry
MSc
PhD

Contact and Address
Web: http://biochemistry.utoronto.ca
Email: carrie.harber@utoronto.ca
Telephone: (416) 978-2702
Fax: (416) 946-8228

Department of Biochemistry
University of Toronto
Room 5207, Medical Sciences Building
Toronto, Ontario M5S 1A8
Canada

Master of Science

Minimum Admission Requirements

Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Biochemistry's additional admission requirements stated below.
Normally, a minimum B+ average in the last two years of study in an honours/specialist BSc program in biochemistry/molecular biology. Applicants with strong academic credentials in honours/specialist programs in disciplines related to biochemistry/molecular biology are also considered.

- Applicants arrange for personal reference forms from three individuals familiar with their academic performance.
- Applicants who obtained a degree outside of Canada or the United States are generally required to have an MSc degree in biochemistry or in a closely related subject area.
- Applicants who obtained a degree outside of Canada must arrange for general Graduate Record Examination (GRE) results to be sent to the department.
- Applicants whose primary language is not English and who graduated from a non-Canadian university where the language of instruction was not English must provide TOEFL (Test of English as a Foreign Language) and TWE (Test of Written English) scores:
    - paper-based TOEFL: minimum 580 score and 5 on the TWE
    - Internet-based TOEFL: minimum 93/120 score and 22/30 on the writing and speaking sections.

  In the absence of TOEFL results, an IELTS (International English Language Testing System) score of at least 7 is also acceptable.

Program Requirements

Students must complete any courses that were a condition of acceptance.

- **Coursework.** Students must successfully complete a total of **1.5 full-course equivalents (FCEs)** as follows:
- BCH2020Y[0] *Seminar Course in Biochemistry Level 1* (1.0 FCE)
- BCH2101H *Scientific Skills for Biochemists* (0.25 FCE)
- At least 0.25 elective FCE.
- Submit a **thesis** (RST9999Y; Credit/No Credit) and successfully complete an **oral examination** on his or her research and related aspects of biochemistry.

Normally, MSc students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

6 sessions full-time (typical registration sequence: F/W/S/F/W/S)**

Time Limit

3 years full-time

[0] Course that may continue over a program. The course is graded when completed.

*** Students may begin the program in the Fall or Winter.*

Doctor of Philosophy

Students are accepted into the PhD program via one of three routes: 1) following completion of an MSc degree in biochemistry or a cognate discipline; 2) transfer (reclassification) from the University of Toronto MSc program; or 3) following completion of a BSc degree (direct entry) if, in the opinion of the Biochemistry Graduate Committee, the student has an outstanding academic record.

PhD Program

Minimum Admission Requirements

- Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Biochemistry's additional admission requirements stated below.
- Applicants must arrange for personal reference forms from three individuals familiar with their academic performance.
- Applicants are generally required to have an MSc degree in biochemistry or in a closely related subject area with high academic standing.
- Applicants who obtained a degree outside of Canada must arrange for General Record Examination (GRE) results to be sent to the department.
- Applicants whose primary language is not English and who graduated from a non-Canadian university where the language of instruction was not English must provide TOEFL (Test of English as a Foreign Language) and TWE (Test of Written English) scores:
- paper-based TOEFL: minimum 580 score and 5 on the TWE
- Internet-based TOEFL: minimum 93/120 score and 22/30 on the writing and speaking sections. In the absence of TOEFL results, an IELTS (International English Language Testing System) score of at least 7 is also acceptable.

Program Requirements

Complete any courses that were a condition of acceptance.

Coursework. Students must successfully complete a total of **2.0 full-course equivalents (2.0 FCEs)** as follows:

- BCH2022Y^0 *Seminar Course in Biochemistry Level 2* (1.0 FCE)

BCH2101H *Scientific Skills for Biochemists* (0.25 FCE). If previously taken, student must take a substitute 0.25 FCE course that is approved by the Graduate Coordinator.

- 0.75 elective FCE.

Students must successfully complete a **qualifying examination** within the first 24 months (ideally 18 months) of the program. To be eligible to write this qualifying examination, students must:

- complete BCH2101H *Scientific Skills for Biochemists* (0.25 FCE)
- be concurrently registered in BCH2022Y[0] *Seminar Course in Biochemistry Level 2* (1.0 FCE)
- complete 0.25 elective FCE; after completing the qualifying exam, students must complete the remaining electives for a total of 0.75 elective FCEs
- Submit a **thesis** (RST9999Y; Credit/No Credit) and defend it at the **Doctoral Final Oral Examination**.
- Normally, PhD students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

4 years full-time

Time Limit

6 years full-time

[0] *Course that may continue over a program. The course is graded when completed.*

PhD Program (Transfer)

Minimum Admission Requirements

Transfer applicants must be enrolled in the MSc program in Biochemistry. Excellent students with high academic standing, who have clearly demonstrated the ability to do research at the doctoral level, may be considered for transfer to the PhD program. Recommendation by the student's supervisory committee is required.

Transfer applicants must successfully complete a **reclassification (transfer) examination** within 18 to 24 months of starting the program.

Candidates must complete BCH2101H (0.25 FCE) and be concurrently registered in BCH2020Y[0] (1.0 FCE) at the time of writing the reclassification examination.

Program Requirements

- **Coursework.** Students must successfully complete a total of **3.5 full-time course equivalents** (3.5 FCEs) as follows:
  - BCH2020Y[0] *Seminar Course in Biochemistry Level 1* (1.0 FCE)
  - BCH2022Y[0] *Seminar Course in Biochemistry Level 2* (1.0 FCE)
  - BCH2101H *Scientific Skills for Biochemists* (0.25 FCE)
  - 1.25 elective FCEs

To be eligible to write the **reclassification examination**, students must:

- complete BCH2101H *Scientific Skills for Biochemists* (0.25 FCE)
- be concurrently registered in BCH2020Y[0] *Seminar Course in Biochemistry Level 1* (1.0 FCE)
- complete at least 0.25 elective FCE; after completing the qualifying exam, students must complete the remaining electives for a total of 1.25 elective FCEs
- Submit a **thesis** (RST9999Y; Credit/No Credit) and defend it at the **Doctoral Final Oral Examination**.
- Normally, PhD students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

5 years

Time Limit

7 years

[0] *Course that may continue over a program. The course is graded when completed.*

PhD Program (Direct-Entry)
Minimum Admission Requirements

Direct entry is available to highly qualified BSc graduates having complete the Biochemistry Specialist program or an appropriate undergraduate program in the life sciences from a recognized university with a minimum A average in the final two years and relevant research experience.

Applicants are admitted under the General Regulations of the School of Graduate Studies. Applicants must also satisfy the Department of Biochemistry's additional admission requirements stated below.
Applicants must arrange for personal reference forms from three individuals familiar with their academic performance.
Applicants who obtained a degree outside Canada or the United States are generally required to have an MSc degree in biochemistry or in a closely related subject area with high academic standing and must arrange for General Record Examination (GRE) results to be sent to the department.
Applicants whose primary language is not English and who graduated from a non-Canadian university where the language of instruction was not English must provide TOEFL (Test of English as a Foreign Language) and TWE (Essay Writing) scores:

- paper-based TOEFL: minimum 580 score and 5 on the TWE
- Internet-based TOEFL: minimum 93/120 score and 22/30 on the writing and speaking sections.

In the absence of TOEFL results, an IELTS (International English Language Testing System) score of at least 7 is also acceptable.

Program Requirements

- **Coursework.** Students must successfully complete a total of **3.5 full-time course equivalents (3.5 FCEs)** as follows:
  - BCH2020Y^0 *Seminar Course in Biochemistry Level 1* (1.0 FCE)
  - BCH2022Y^0 *Seminar Course in Biochemistry Level 2* (1.0 FCE)
  - BCH2101H *Scientific Skills for Biochemists* (0.25 FCE)
  - 1.25 elective FCEs.
- Students must successfully complete a **qualifying examination** within 18 to 24 months of the program. To be eligible to write this qualifying examination, students must:
  - complete BCH2101H *Scientific Skills for Biochemists* (0.25 FCE)
  - be concurrently registered in BCH2020Y^0 *Seminar Course in Biochemistry Level 1* (1.0 FCE)
  - complete at least 0.25 elective FCEs; after completing the qualifying exam, students must complete the remaining electives for a total of 1.25 elective FCEs.

Submit a **thesis** (RST9999Y; Credit/No Credit) and defend it at the **Doctoral Final Oral Examination**.

Normally, PhD students are expected to participate as full-time students and to maintain full-time status in their laboratories until thesis completion and final defence.

Program Length

5 years

Time Limit

7 years

[0] *Course that may continue over a program. The course is graded when completed.*

Appendix D: Minor Modifications, New Course, BCH 2101H

University of Toronto Minor Modification Proposal: New Graduate Courses or Changes to Existing Graduate Courses

This template should be used to: create a new graduate course; reactivate a closed/deactivated course; rename an existing course; renumber an existing course; etc. If you have questions while you are filling out this document, please contact your Dean's Office.

Graduate Department/Unit/Centre/Institute	Biochemistry
Faculty/academic division	Medicine/Division 4
Dean's Office contact	Rachel Zulla, Graduate Affairs Officer

Part 1: ROSI

Please complete this section. The data will be used to complete the ROSI record.

New Course (fill out all fields)	
Course designator and number (e.g., HIS 5XXXH)	BCH 2101H
FCE weight (e.g., 0.5, 1.0)	0.25FCE
Full course title for transcript (max 60 characters)	Scientific Skills for Biochemists
Abbreviated title (max 30 characters)	Scientific Skills for Biochemists
Available via Student Web Services (yes or no)	Yes
Course type (regular, modular, continuous or extended)	Modular
Evaluate* function in ROSI used by unit (yes or no) *university's online course evaluation system	No
Online course (yes or no)	No
Required course (yes or no)	Yes
Grading scale (letter grades or CR/NCR)	Letter Grades
Course prerequisites; if yes, please list (e.g., HIS 5XXXH)	No
Course credit exclusions; if yes, please list (e.g., HIS 5XXXH)	No

Effective Date

Required Field—Effective date must be September 1, January 1 or May 1 and not retroactive.

September 1, 2021 (Fall 2021)

Part 2: Other Changes to Existing Courses

Optional Field—This section may be used to describe other types of changes to existing courses your Faculty/Division tracks.

n/a

Part 3: New Course Documentation

For Faculty/Divisional approval of new courses, please append the approved course documentation, or complete the template below.

Course Description

Please refer to attached course syllabus

Academic Rationale

Please refer to attached course syllabus

Learning Outcomes (if applicable)

Please refer to attached course syllabus

Similarity/Overlap with Other Courses & Consultation

Please refer to attached course syllabus

Resource Requirements (if required)

None.

Governance Approval

Unit Sign-Off (Committee name and meeting date)	Biochemistry Graduate Committee (October 30, 2020)
Faculty/Division Council (or delegated body) approval, if applicable (name and date)	GLSE Graduate Curriculum Committee (January 6, 2021, pending) FOM Education Committee (March 4, 2021, pending)

BCH 2101H, Scientific Skills for Biochemists

Instructor: TBD
When: Fall 2021

Introduction
This is a required course (0.25 FCE) for MSc and PhD students in Biochemistry. It covers the fundamental aspects of how to design experiments, manage their projects, mature into effective science communicators and help students to form a coherent peer group. The course is structured primarily around student-centered learning activities and with an emphasis on peer review. All classes are two hours.

Course Objectives
Students who complete this course will learn:

- how to think about and design a project
- how to think about and design an experiment
- how to effectively communicate (oral and written)
- how to work in a group environment
- how to make the most of graduate education

Class 1 - How to make the most out of graduate school.
Outline of the course.
General items – fellowships, committee, upcoming dates.
Students are given their written assignment **due Class 3**
Students are emailed proposals for discussion in **Class 2**
Senior grad students welcome

Class 2 – How to write an effective scholarship application
Brief talk on effective writing.
Students organize into groups of 4 and discuss the four mock proposals.
Each proposal is presented by one student (brief summary, what they like and what they did not like) and the next student in line is the "scientific officer" and takes down notes (1 form per proposal, per group)
3 min exposition by the presenter
3 min discussion — scientific officer takes down notes
Additional instructions are given for their assignment **due Class 3**

Class 3 – Peer review of student proposals.
Students organize in groups of 4 and critique each others' proposals.
5 min to read one proposal, mark it up, write peer reviewer's name, give to student

5 min of discussion
Students collect their peer-reviewed proposals and use this to produce a **final proposal due Class 4**.
Students are given their oral assignment **— 5 min presentation (5 slides) for Class 9**.
iBiology "Planning Your Scientific Journey" videos to watch: 2.5, 2.6, 2.7, 3.1-3.6 (0.4-2.4 are recommended depending in your needs).
Read "How to write a hypothesis" https://www.wikihow.com/Write-a-Hypothesis and fill out "My Research Plan" to discuss with peers next class.

Class 4 — Planning Your Scientific Journey
Hour One: Group breakout discussion on your research plans and your individual development plan (IDP)
Students submit "My Research Plan Questions and IDPs"
Hour Two: Purpose Compass Exercise – submit trios and peers brainstorm over the week
For next week: Read stats papers.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3321166/
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4317225/
View Videos: iBiology's "Let's Experiment" 1 to 9 are optional, recommended if you find them informative. 10 to 22 highly recommended.

Class 5 — Let's Experiment Part I
Hour 1: Discussion of statistics papers in breakout rooms.
Hour 2: Bring in a picture of your lab notes from 6 months ago for an experiment. Read over what you have written. If you had to redo that day's experiment using only what is written in your lab notebook, could you? Are there things you wish you had included? What would you change about your recordkeeping now that you have thought about it? Peer Discussion and Feedback in breakout rooms.
For next class, watch "Let's Experiment" videos 23 to 32. Complete your experimental plan and submit into Dropbox folder as pdfs before the next class.

Class 6 — Let's Experiment Part II
Peer feedback of experimental design questions into breakout rooms of 3 to 4 students.
Read Scientific American article for next week. "How Diversity Works"
https://www.scientificamerican.com/index.cfm/_api/render/file/?method=inline&fileID=9F4FCDB9-A5B3-40AB-A9A525FDC71156AB
Submit in your Experimental Plans by next class.

Class 7 — Conflict Management, EDI and Wellness
Wise practices of setting up expectations with your supervisor, mentors and mentees.
Conflict management.
Wellness and Equity, Diversity and Inclusion.
Go over "How to give a talk" lecture PowerPoint (How to Give a Talk)

Class 8 — How to Give an Effective Talk

Group discussion on what makes a good talk – write them all in the chat. Alex and Nana adds to the chat after the students.

Discuss the rubric for the 5 min talks.

Example talks will be presented.

1 hr: 3 to 4 breakout rooms and practice speaking impromptu (one minute about the reasons why their favorite scientific talk by someone else was a good one) with facilitators from PCT. Student will receive constructive feedback on how they present over the video.

Class 9 — Five Minute Oral Presentations — Concurrent Breakout Rooms

Each student gives a 5 min talk with 4 to 5 PowerPoint slides of their own research

This is followed by 4 min of questions.

4 min feedback by the instructors and students.

View Videos 4.1 and 4.2 “Clouds A, B and C”

Class 10 — Community-Building, Next Steps

Hour One: Real research stories from senior graduate students “When I was in cloud C – what happened?”

Hour Two: Open Discussion about Grad Life Going Forward with Breakout Rooms facilitated by senior graduate students with question prompts

Grading Scheme

Peer review 5%

Proposal 20%

5min talk 20%

Research Plan and IDP 15%

Experimental Plan 15%

Class Participation 25%

Appendix E: Minor Modifications, Converting Modules into 0.25 FCE Courses

University of Toronto Minor Modification Proposal: New Graduate Courses or Changes to Existing Graduate Courses

This template should be used to: create a new graduate course; reactivate a closed/deactivated course; rename an existing course; renumber an existing course; etc. If you have questions while you are filling out this document, please contact your Dean's Office.

Graduate Department/Unit/Centre/Institute	Biochemistry
Faculty/academic division	Medicine/Division 4
Dean's Office contact	Rachel Zulla, Graduate Affairs Officer

Part 1: ROSI

Please complete this section. The data will be used to complete the ROSI record.

New Course (fill out all fields)	
Course designator and number (e.g., HIS 5XXXH)	BCH2102H – BCH2140H
FCE weight (e.g., 0.5, 1.0)	0.25 FCE
Full course title for transcript (max 60 characters)	Please refer to accompanying list
Abbreviated title (max 30 characters)	Please refer to accompanying list
Available via Student Web Services (yes or no)	Yes
Course type (regular, modular, continuous or extended)	Modular
Evaluate* function in ROSI used by unit (yes or no) *university's online course evaluation system	No
Online course (yes or no)	No
Required course (yes or no)	No
Grading scale (letter grades or CR/NCR)	Letter Grades
Course prerequisites; if yes, please list (e.g., HIS 5XXXH)	None. Open to MSc and PhD students
Course credit exclusions; if yes, please list (e.g., HIS 5XXXH)	No

Effective Date

Required Field—Effective date must be September 1, January 1 or May 1 and not retroactive.

September 1, 2021 (Fall 2021)

Part 2: Other Changes to Existing Courses

Optional Field—This section may be used to describe other types of changes to existing courses your Faculty/Division tracks.

Part 3: New Course Documentation

For Faculty/Divisional approval of new courses, please append the approved course documentation, or complete the template below.

Course Description

Please refer to attached list.

Academic Rationale

Please refer to attached course syllabus

Learning Outcomes (if applicable)

Please refer to attached list.

Similarity/Overlap with Other Courses & Consultation

Please refer to attached list.

Resource Requirements (if required)

None

Governance Approval

Unit Sign-Off (Committee name and meeting date)	Biochemistry Graduate Committee (October 30, 2020)
Faculty/Division Council (or delegated body) approval, if applicable (name and date)	GLSE Graduate Curriculum Committee (January 6, 2021, pending) FOM Education Committee (March 4, 2021, pending)

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
BCH2102H	Biomolecular Dynamics and Function	6 x 2 hr	Course will describe some of the experimental methods to study biomolecular dynamics and present examples of functional motions from a variety of systems.	90% — oral presentation. 10% — student participation.	Lewis Kay
BCH2103H	Current Topics in Prion Biology	6 x 2 hr	The content of this course will focus on emerging topics of interest in prion biology. Topics that will be covered will include: 1) prion function; 2) prion structure; 3) prion detection; 4) prion disease therapeutics; and 5) prion-like propagation of protein aggregates in other neurodegenerative diseases. Each class (2 hr) will consist of a brief introductory lecture on the day's topic and then 2–3 students will present a paper to the class, which will be followed by a discussion session.	40% oral presentation. 40% written report. 20% participation. Each student will be required to give one journal club-style presentation of an assigned paper (40%). At the end of the course, students will prepare a short research proposal that follows on from the results in the assigned paper (40%)	Joel Watts
BCH2104H	The Biochemistry of Translational Medicine	6 x 2 hr	This course will focus on reviewing scientific articles that use biochemistry and/or cell biology to help better understand human diseases. Emphasis will be on	Journal club presentation (70%). Participation in other students' presentations (20%). Lay abstract (10%).	Mathieu Lemaire / Aleixo Muise

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			scholarly work that provides examples of translational medicine or "bench-to-bedside" approach, which aims to expedite the discovery of new diagnostics and treatments.		
BCH2105H	Cystic Fibrosis: The Cause, The Treatment	6 x 2 hr sessions	This module will examine molecular and cellular aspects of the causes and the treatment for cystic fibrosis (CF) disease. The first three two-hour sessions of the course will consist of lectures by Dr. Charles Deber and Dr. Christine Bear, while the latter three two-hour sessions will consist of oral presentations by the students.	Each student will select a journal article from a list of recent papers relating to the above topics and present the paper in oral and written form. Grading will be based 50% on the student's oral presentation of the selected paper, including a critical review/assessment of its key findings; and 50% on a subsequent written version of his/her critique (maximum 5 pages double-spaced) that will be due after the last class.	Charles Deber / Christine Bear
BCH2106H	Membrane Proteomics in Biomedical Research	6 x 2 hr sessions	This course will cover the fundamentals of membrane proteomics from a structural, biochemical and genetic standpoint. Among these will be cryo-EM, crystallography, NMR, and EPR methods as well as mammalian	Student presentation 50%. Assignment 25%. Participation in class 25%.	Oliver Ernst / Igor Stagljar

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			membrane two-hybrid screening and mass-spectrometry based methods. A number of in vivo approaches to the discovery of drugs that modulate biological systems will also be covered. Finally, the techniques used for the development of antibodies against membrane proteins with therapeutic potential will be introduced.		
BCH2107H	Introduction to Biomolecular Simulations	4 x 3 hr sessions	Over the past 40 years, computer simulations have become a useful tool for the study of biomolecular systems in a broad range of topics, including protein folding and binding equilibria and the study of enzymes, ion channels, and disordered proteins. By connecting the structure and energy of atoms and molecules, simulations mimic the dynamics of molecular systems across time scales over which many interesting biomolecular events occur. These molecular cartoons provide information difficult to access	The students will be evaluated based on a report written as a mini paper describing the methodology, results, and discussion of their findings. Evaluations in this module are designed to provide students with the opportunity to discuss their progress on an ongoing basis. As such, the following general breakdown will be used: 20% informal presentation and discussion of preliminary results. 30% presentation of analysis.	Regis Pomes

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			experimentally with full atomistic detail. This course is designed as a workshop with short introductory lectures and hands-on applications. The students will set up, conduct and analyze molecular dynamics simulations on a topic chosen by the coordinator. Students will have the opportunity to contribute to a research project in collaboration with graduate students from the Pomès lab. At the end of this course, the students will have the skills to perform simulations on a protein of their choice.	20% participation in class discussions of results and analysis. 30% final report.	
BCH2108H	Molecular and Cellular Biology of Lipids	6 x 2 hr sessions	Course description: This module will provide an overview of major lipid biosynthetic pathways and the role of lipids in cell physiology. Lipids as a class of molecules display wide diversity in structure with >100,000 species identified. A primary function of lipids is to form the membrane	Attendance and Participation in class discussions (20%). Grant proposal (40%). In class presentation/peer teaching (40%).	Greg Fairn

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			bilayer barrier of cells and organelles. However, it is now abundantly clear that lipids influence nearly every aspect of cell physiology.		
BCH 2109H	Engineering vaccines: development to deployment	6 x 2 hr sessions	To prevent and eradicate infectious diseases, vaccination is amongst the most impactful medical interventions. Thanks to breakthroughs in genomics, proteomics, expression libraries and delivery systems, vaccines can now be designed rationally, and soon may even be individually customized. Anchored in historical examples of vaccine successes, this course will explore key concepts in the vaccine R&D pipeline, including 1) identification of antigens; 2) development of formulations; 3) adjuvant mode of action (MoA); and 4) pre-clinical/clinical development. Topics for evaluation will focus on the emergence of new infectious diseases, and promising technologies for vaccines of the future. You will	40%: Written assignment — 5-page review on selected topic 30%: Oral presentation — 5-slide TED Talk on selected topic 30%: Participation and Team Exercise	Jean-Philippe Julien

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			acquire an understanding of vaccines from their development to deployment, and critically evaluate innovations that are required to overcome limitations of current technologies to pave the way for next-generation vaccines of global importance.		
BCH 2110H	Eukaryotic Signaling	6 x 2 hr sessions	Each lecture date is split into two halves. In the first hour, an invited PI will give a one-hour lecture on a specific topic of eukaryotic signaling. This will be followed by student presentations in the second hour.	60% for a written critique of a published paper chosen by the course coordinators. 30% for an oral presentation performed in teams of two students (15-minute presentation + 5 minute question period). 10% participation and attendance. (If you miss a lecture, you lose the 10%. If you miss two lectures, you should withdraw from the course.)	Frank Sicheri / Daniela Rotin
BCH2111H	Post-transcriptional Control of Gene Expression	30 min organizational meeting	This course will cover topics related to the mechanisms underlying post-transcriptional control of gene expression in eukaryotes. Students will be organized into 6 groups. Each	20% In-class participation. 20% Paper reading evaluation. 20% Paper presentation. 40% Introductory lecture. Broken down as follows:	Craig Smibert

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
		6 x 2 hr sessions	group will be assigned a topic, develop a 45-min PowerPoint-assisted lecture that would be suitable to teach this topic to a class of first year graduate students, and present the lecture to the class. These presentations will be followed the discussion of a relevant paper where non-lecturers from that week will present figures from the paper.	Slide and presentation organization/quality — 10%. Ability to answer questions — 10%. Content — 20%.	
BCH2112H	From Chaperones to CRISPR-Cas: the Incredible Genius of Phages.	6 x 2 hr sessions	This course will cover both classical and contemporary studies involving phages that have led to major technological breakthroughs. Your grade will be based on participation, presentation of a journal article and a written assignment (Cell Preview or Nature News & Views style paper).	Attendance/participation — 20%. Presentation — 30%. Written assignment — 50%.	Karen Maxwell / Alan Davidson
BCH2113H	Advances in Precision Medicine	6 x 2 hr sessions	This module will provide an overview of cutting-edge research in the area of Precision Medicine. Precision	Students will be expected to present a research article (40% of the total grade), to participate in discussions	Shana Kelley / Stephane Angers

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			Medicine seeks to develop next-generation therapeutics and diagnostic approaches that target specific disease states and molecular-level alterations that occur in subsets of patients. The convergence of biology, chemistry and engineering in this area will be highlighted. Next-generation systems for drug discovery, new target identification, and diagnostic development will be some of the topics reviewed. This course is literature focused and will survey recent advances in the field.	(20% of the total grade) and write a short (5 page) review article on one of the assigned topics related to the course content (40% of the total grade).	
BCH2114H	Frontiers in Drug Discovery	2 x 3 hr sessions. 3 x 2 hr sessions.	The discovery of a new medicine typically takes over a decade and costs more than $1 billion. This course will provide an overview of the key steps involved in small molecule drug discovery and give an appreciation for the challenges that arise along the way. Topics include: 1) target based vs. phenotypic screening; 2) considerations for performing a high	20%: Participation. 40%: Oral presentation of a journal article. 40%: Written assignment — design an HTS project based on your own research (5 pages).	Melnyk / Wybenga-Groot

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			throughput screen (i.e., assay development; chemical library selection; natural products vs. drug-like compounds, etc.); 3) approaches to triaging hits from a screen to identify leads; and 4) strategies to optimize the structure of leads to increase potency and selectivity for in vivo studies (i.e., medicinal chemistry, structure-based drug design). In addition to in-class instruction, there will be two hours of live demos and experiments at the Drug Discovery facility at (SPARC BioCentre).		
BCH2115H	Applying Modern Evolutionary Thinking to Biochemistry, Cell & Molecular Biology	8 x 1.5 hr sessions	In this course we will review the literature on modern evolutionary theory and discuss how this applies to biochemistry, cell and molecular biology. Topics will include: The Nearly Neutral Theory of Evolution Genetic and Mutational Load	40% Class participation. 20% One-page draft proposal. 40% Final two-page proposal.	Palazzo

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			Pluralism in Evolutionary Thinking Junk DNA Ascribing Function to Biological Systems Constructive Neutral Evolution Applying Nearly Neutral Theory to Biochemistry, Cell & Molecular Biology		
BCH2116H	Electron Paramagnetic Resonance Spectroscopy in Modern Life Sciences	6 x 2 hr sessions	This course introduces the students to general aspects of Electron Paramagnetic Resonance (EPR) spectroscopy and its applications in modern life sciences as related to medicine, biochemistry, structural biology, biophysics, nutritional sciences and many more. The students will acquire the capability for self-teaching complex topics with help of the coordinators. They will be organized in five groups of two students each and get assigned to a specific subject. After two hours of an introductory lecture that provides students with some necessary basic	60% evaluation of the lecture 20% participation in group discussions 20% review/paper presentations	Ernst

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			information, each group will provide a 45 min power point presentation in the following five courses. If applicable, some supplementary information can be given to the audience by the coordinators in the first 15 minutes prior to their lecture. In the second hour of the course the group introduces the audience to a recent publication that highlights important advances in the respective field. The sophistication of topics increases a bit over time and the course ends with a 30 min lecture of the coordinator that highlights most recent developments and oddities in this field.		
BCH2117H	Current topics in proteostasis: Synthesis, folding and degradation of proteins	6 x 2 hr sessions	In landmark review articles published in Science (Science 2008 319:916) and Annual Reviews in Biochemistry (Annu Rev Biochem 2009 78:959), a group of important leaders in protein folding and misfolding mapped out the idea of proteostasis, conceptualizing ways	Introductory material will be available online prior to the start of the course. During the first session the coordinator will provide background and context for various topics — a "Cole's notes" overview.	Glover

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			in which maintenance of a healthy proteome could be manipulated to slow aging or cure disease. They conceived of a so-called “proteostasis boundary”, a theoretical edge that envelopes all the proteins in a healthy, unstressed cell based on three dimensions— their stability, rate of folding, and rate of misfolding. The position of the proteostasis boundary within this three-dimensional space, is defined by regulators of protein translation, protein folding factors such as molecular chaperones, antioxidant enzymes, and protein degradation machinery including the ubiquitin/proteasome system and autophagy pathways. Responses to proteotoxic stress act to expand the proteostasis boundary while aging and various disease states act to contract the boundary or move certain proteins outside the boundary	For subsequent sessions, students will work in groups, with guidance by the coordinator, to analyze papers, present a synopsis of the main findings and lead a discussion on the significance of the work. Students will be asked to present more than once during the course. Non-presenting students will be required to read the papers and submit a short, 500-word, critical reflection paper* prior to class. Grading scheme: 50% based on presentations. 50% based on reaction/reflection papers.	

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			resulting in degenerative disease. This is a powerful idea that has seen a strong growth in the scientific literature over the last decade (1 paper in 2007 to about 450 papers in 2017). In this course we will address topics derived from recent literature and explore both basic and applied aspects of proteostasis research.		
BCH2118H	The Ubiquitin-Proteasome System	6 x 2 hr sessions	In 2004 the Nobel Prize was awarded for discovery of the ubiquitin-proteosome system. In this class we will focus on the following topics: Proteasome Structure — Activators and Inhibitors Proteasome Biogenesis • Recognition of Proteasomal Substrates — Ub receptors and DUBs • Substrate Entry and Translocation • Peptide Splicing and Immunoproteasome	Students will be organized into 6 groups. Every group will be assigned a topic, develop a 40 min power point-assisted lecture that would be suitable to teach this topic to a class of first year graduate students, and present the lecture to the class. The group then leads a class discussion on a paper related to their topic and published in the last 5 years. 25% Participation in group discussions. 25% Paper presentations (figure presentation).	Enenkel

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			• Regulation of Proteasome Function in Disease Proteasome Dynamics	40% Evaluation of the lecture. - Half based on peer evaluation, half based on instructor evaluation. 10% Outline of the class.	
BCH2119H	Advances in Epigenetics	6 x 2 hr sessions	This course will cover general aspects of epigenetics, including histone structure, DNA methylation and key histone modifications, with a general discussion of readers, writers and erasers. The biological significance of these epigenetic marks will also be discussed. Didactic lectures will be followed by student presentations and class discussion. There will be a final assignment and final quiz.	Class participation: 20% Presentation: 30% Written assignment: 30% Quiz: 20%	Schuurmans
BCH2120H	Studies of Tissue Barriers: Regulation of Phenotype and Transport Across the Epithelium and Endothelium	8 x 1.5 hr sessions	• This course will discuss the mechanisms of barrier function, which is constituted by specialized cells known as the endothelium in blood vessels and the epithelium at the interface with the external environment. Their proper regulation is critical for tissue	Attendance and participation 20%. Grant proposal 40%. Journal article presentation 40%.	Kapus / W. Lee

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			integrity and normal physiology.		
BCH2121H	Lipid Metabolism in Health and Disease: Mechanisms of Diabetic Dyslipidemia in Obesity and Type 2 Diabetes	6 x 2 hr sessions	This module will provide an intensive review of the metabolic pathways involved in lipid and lipoprotein homeostasis. The focus will be on molecular mechanisms involved in regulation of lipid biosynthesis (cholesterol, fatty acids, and triglyceride) in the liver, adipose tissue, and intestine. Metabolic pathways involved in lipid mobilization and lipoprotein biosynthesis will be reviewed including nutritional and hormonal regulatory networks. Finally, mechanisms leading to dysregulation of lipid and lipoprotein metabolism in obesity, metabolic syndrome, and diabetes will be discussed highlighting the critical role of lipid dysregulation in the current epidemic of human obesity, insulin resistance, and type 2 diabetes.	Written exam 65%. Critical article review 20%. Participation 15%.	K. Adeli

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
BCH2122H	The Use of High Content Screening in Biomolecular Medicine	2 x 2 hr introduction sessions. 3 x 4 hr lab sessions.	Students will learn how to design cell-based screen assays using fluorescent cell markers/gene targets, perform a screen and acquire data using a robotic-enabled high content microscope. Material to be covered includes the philosophy and design of high content screens and the use of automated image analysis algorithms to analyze high content data sets.	Participation 50%. Final data presentation 50%.	Andrews / Screaton
BCH2123H	Protein Structure Prediction and Homology Modelling	6 x 2 hr sessions	Powerful methods exist to extract the maximal amount of information from a protein sequence. Students will pick a topic from the list below (or suggest a topic) and present the state of the art to the class. Presentations should be based on 3–5 recent papers and should not be closely linked to methods being used in the student's thesis project. Subject choices will be discussed with the instructor prior to approval. Sequence alignments;	40% Oral presentation on the selected topic. 40% Written 5-page mini-review on the selected topic. 20% Participation in group discussions.	G. Prive

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			Co-evolution; Phylogenies; Prediction of secondary structure and disorder; Ab initio methods; CASP; Quaternary structure prediction; Membrane proteins.		
BCH2124H	Molecular Chaperones and Cellular Protein Homeostasis	6 x 2 hr sessions	In this course, different molecular chaperone families (Hsp90, Hsp70/40, Hsp60/10 and small heatshock proteins) will be discussed in detail. The structure and mechanism of function of these chaperones will be described and their cellular functions will be examined.	Written report 50%. Student presentation 40%. Participation 10%.	Houry
BCH2125H	Structure and Dynamics of Biomacromolecules Using Solid State NMR Spectroscopy	6 x 2hr sessions	Solid state NMR spectroscopy is a powerful tool for addressing many questions at the cutting edge of structural biology, allowing elucidation of structure and dynamics for macromolecular assemblies that are often inaccessible to other structural tools. These include, but	Journal article presentation: 40% Selected topics lecture: 40% Participation in discussions: 20%	Sharpe

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			are not limited to, membrane proteins in lipid membranes, amyloid fibrils, extracellular matrix proteins, and viral capsids. This course will provide a primer for key elements of the theory and practical aspects of acquisition and analysis of solid state NMR data, and through student-driven discussions will explore current applications of this technique to diverse biological systems.		
BCH2126H	Subcellular Social Networks: Inter-Organelle Contact sites	6 x 2 hr sessions	Eukaryotic organelles are known to be in close contact with one-another. These contact sites allow the organelles to communicate and exchange small molecules, such as lipids. In this course, we will explore current literature on the mechanisms of Membrane Contact Sites (MCS) formation, the nature of small	In the first half of the course, the students will present a research article. During the week break the student will be able to select a topic in MCS and present it to class in a lecture style presentation. A 4–5-page write-up of their selective topic will be required. 25% Journal presentation. 25% Class Participation.	Kim / Trimble

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			molecule exchange between organelles, and its contribution to cell homeostasis and viability. We will also examine how some pathogens can commandeer MCS for their own propagation. Limitations of current approaches and novel methodologies to address MCS function will also be addressed.	25% Lecture by student. 25% Short review (based on lecture topic).	
BCH2127H	Advances in Optical Microscopy: From Single Molecules to Four-Dimensional Imaging	6 x 2 hr sessions	Contemporary optical microscopy plays a central role in modern cell biology and biophysics. A variety of techniques have been developed to visualize and track organelles and even single molecules in live cells and organisms, and dedicated algorithms enable sophisticated analysis of the localization, shape, motion and other properties of defined structures. Recent developments have improved the resolution of optical microscopy below the diffraction limit that hampered fluorescence microscopy for decades. Moreover, allied	Presentation of assignments using PowerPoint: 80%. Participation during the lectures and discussions: 20%.	Grinstein / Freeman

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			techniques now enable the assessment of molecular diffusion, proximity, rotational motion, force etc. The course will describe and discuss topics including single-molecule tracking, several modes of super-resolution microscopy, photobleaching and photoactivation, fluorescence lifetime imaging, energy transfer, optical tweezers, multiphoton intravital microscopy, etc.		
BCH2128H	Scientific thinking and practise	6 x 2 hr sessions	Why do some things matter more than others? The purpose of this guided discussion/seminar course is to identify and understand what scientific thinking is and how it is applied to the discovery of new knowledge. We will explore two key paradigms in the modern and classical understanding of scientific thinking and analyze four under-recognized	40% class participation. 60% in-class paper presentation.	Nodwell

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			papers that represent the highest execution of that thinking. In turn, we will discuss the "reproducibility crisis" in modern science and try to understand the social and psychological factors that contribute to it. Finally, through open discussion, we will try to understand how we can best conduct ourselves within this framework. What is it that scientists should aspire to?		
BCH2129H	Genome Instability: Basic Science to Human Disease	6 x 2 hr sessions	Genome instability in the form of mutations, deletions, chromosome rearrangement, and chromosome loss is a key contributor to human disease, particularly cancer. We will explore cellular pathways that maintain the integrity of the genome, with a focus on molecular insights gained in model systems and on genome-scale approaches to understanding genome instability.	20% In-class participation. 20% Paper reading evaluation. 20% Paper presentation. 40% Introductory lecture. Broken down as follows: Slide and presentation organization/quality — 10%. Ability to answer questions — 10%. Content — 20%.	Brown

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			Course format will entail presentation and discussion of research papers by the class, preceded by introductory presentations on the given topic by students either individually or in groups.		
BCH2130H	Cancer Biology	6 x 2 hr sessions	In seminal work, Hanahan and Weinberg outlined the hallmarks of cancer, which have been fundamental in our understanding of cancer's common traits and in rational drug design. This course will cover both classical and contemporary studies that have contributed to our understanding of these hallmarks. Topics covered in class will revolve around the 10 hallmarks of cancer, including sustained proliferative signals, evasion of growth suppressors, cellular immortalization, genome instability and mutation, avoiding immune destruction, resisting cell death, promoting tumor inflammation, metastasis,	40% evaluation of the lecture: • 20% based on instructor evaluation; • 20% based on peer evaluation. 20% paper presentation. 20% attendance and in-class participation: I expect students to attend all classes and to participate in all aspects of each class. This includes asking questions of the lecturer's and participating in the evaluation and discussion of the journal article. 20% completion of peer-based evaluation for each lecture.	Wyatt

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			angiogenesis, and metabolic stress. The first lecture will cover one hallmark of cancer and be given by Prof. Wyatt. Students will then be organized into five groups. Each group will select a hallmark of cancer, develop a 45 min power point-assisted lecture that would be suitable to teach this topic to a class of first year graduate students, and present the lecture to the class. The lecture must incorporate classical and contemporary research that has shaped the field's understanding of that hallmark. The group then leads a class discussion on a paper related to their topic and published in the last 5 years.		
BCH2131H	Genomics of Infectious Disease	6 x 2 hr sessions	The emergence of affordable next generation 'omics technologies is transforming our understanding of how pathogens are able to infect and cause disease. The challenge is how best to exploit these technologies and	Punctual attendance 10%. Participation in journal discussions 10%. Journal presentation 40% Assignment 40%.	Parkinson

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			interpret the data that results. In this course we will examine state of the art 'omics technologies including next generation sequencing, single cell genomics, proteomics, population genomics and systems modelling and their application of infectious diseases. The course will feature a mixture of lectures and student-led journal presentations. A course assignment will focus on a dry-lab tutorial that takes the students through the process of analyzing a next generation sequence dataset generated from complex microbial communities. Course Objectives: • Learn about 'omics technologies and their application to infectious disease. • Develop critical thinking skills. concerning evaluating journal articles		

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			Gain practical experience in the processing and analysis of large sequence datasets.		
BCH2132H	Modelling Human Diseases from Cells to Organoids.	6 x 2 hr sessions	This course will discuss a variety of stem cell derived 2D and 3D cell and tissue models and their applications for studying human diseases and for pre-clinical drug development. Students will select a model to focus on for their presentations and report which may include one that is not currently in use in their own research but could be so applied in the future.	50% presentations 20% participation (attendance and contributions to discussion sessions) 30% short assignment based on presentations	Attisano
BCH2133H	Tyrosine Kinase Signaling	6 x 2 hr sessions	This course will cover all aspects of tyrosine kinase signaling and its importance in human biology. Topics will include: 1) Signaling pathways regulated by tyrosine kinase signaling, 2) Functional outputs of signaling pathways, 3) Mechanisms regulating phosphorylation, 4) Phase separation of signaling systems, and 5) Disease and treatment.	50% Presentation. 30% Participation. 20% Written review.	Ditlev

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			In class sessions will include a short lecture by the professor followed by presentations by students on selected literature that pertains to the topic being covered. Students will be split into 6 groups, with each group presenting literature once during the semester. Classes will involve student discussion of presented lecture material and literature. Students will also write a short 1- to 2-page review of the material that their group presents during class.		
BCH2134H	Cytoskeletal Dynamics	6 x 2 hr sessions	The course will discuss recent advances in cytoskeletal dynamics. Discussion will include, but not be limited to, cell division (prokaryotic and eukaryotic), cell migration, ciliogenesis and more. Emphasis will be on investigating how cytoskeletal dynamics is regulated using in vitro and in vivo systems.	40% experimental proposal. 40% presentation. 20% participation.	Andrew Wilde

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
BCH2135H	Mitochondria and Metabolism in Human Health and Disease	30 min organizational meeting. 6 x 2 hr sessions.	This course will cover topics related to mitochondrial biology, including mitochondrial organelle dynamics, mitochondrial morphology, metabolism, role in apoptosis, and how mitochondrial dysfunction leads to disease.	30% In-class participation — We expect all students to participate in all aspects of each class. This includes asking questions of the lecturers and participating in the evaluation and discussion of the methods, data and conclusions, as well as the significance of the results for the field. 20% Paper presentation — Presentation of paper figures — I will ask for volunteers from the non-lecturers to present various figures from the primary research paper assigned that week. If there are no volunteers, I will select the presenters. 50% Introductory lecture. Broken down as follows: Slide and presentation organization/quality 10%. Ability to answer questions 10%. Content 30%.	McQuibban

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
BCH2136H	Biological Condensates	6 x 2 hr sessions	The course will provide an overview of biomolecular condensates in biology. Discussion topics will include biophysical/biochemical principles that drive phase separation of various molecules (protein, nucleic acid, sugar, lipid), predictive methods for phase separation, theoretical perspectives, experimental approaches, biological function, regulation, use in biomaterials, and disease implications. The format will be a combination of lecture and discussion, with primary literature and review articles assigned as background reading. In addition to discussion and presentation, the students will be evaluated on a mini-review writing assignment on topics that are approved by the coordinators in advance.	50% mini-review. 25% presentation. 25% participation.	K. Lee / Forman-Kay
BCH2137H	Bug v. Host	6 x 2 hr sessions	In this course students will learn about the host-pathogen interface from two perspectives: that of the	20% participation. 30% topic presentation. 30% paper critique.	Ensminger

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			host, and that of the pathogen ("bug"). How host processes combat infection and how these processes are molecularly co-opted to cause disease. Each session will consist of a student-led intro presentation on the topic and one paper presentation. Emphasis will be on contemporary work, including the evaluation of pre-print manuscripts.	20% one-page write-up critique of the presented paper.	
BCH2138H	Advanced Electron Microscopy	6 x 2 hr sessions	In this course students will learn about the theory and application of cryo-electron microscopy, tomography and other related techniques.	50% Presentation. 30% Participation. 20% Written review.	Rubinstein
BCH2139H	Islet Biology I: Gene to Cell to Organ to Disease	9 x 1.5 hr sessions	This graduate-level course will focus on a wide range of topics focused on the pancreatic islet. Each lecture will cover fundamental concepts in biochemistry with an emphasis on islet biology. These will include the impact of genetic variation on islet cells, the development of islet cell subpopulations, transcriptional	Quizzes 5% each- 30% total Presentations 25% each – 50% total Assignment – 20%	Robert Screaton

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			networks and cell identity, biotechnological approaches, as well as communication between islet cells and the local environment, including components of the immune system, and how these interact to affect islet loss and dysfunction. A more integrated understanding of these processes will be facilitated in a discussion of islet-hormone regulated metabolic pathways and integrative physiology.		
BCH2140H	Islet Biology II: Beyond Glucose Control: Molecular Targets, Diagnostics and Cutting-edge Technologies	6 x 2 hr sessions	This graduate-level course is an extension of Islet Biology I and will focus on expanding the fundamental aspects of pancreatic islet biology in an effort to prepare students to deliver more and better diagnostics and therapies. This clinical insight and exposure will provide a broad biochemical interpretation to an assortment of endocrinological and metabolic diseases. We will evaluate molecular targets and cell	Quizzes 5% each — 30% total. Presentations 25% each — 50% total. Assignment — 20%.	Robert Screaton

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			dysfunction in disease. Discussion of state-of-the-art research techniques and technologies (cell imaging, gene targeting, RNAi/CRISPR, drug targeting/screening) will also be woven into the lectures at appropriate points. Additionally, disease heterogeneity and clinical progression and treatment targets will be covered.		
BCH2141H	Advanced Methods in Biomolecular Interactions	6 x 2 hr sessions	This graduate-level course will focus on methods and analysis for measuring affinities between biomolecules. Methods including, biolayer interferometry, surface plasmon resonance, microscale thermophoresis, isothermal titration calorimetry and novel methods together with kinetic modelling analysis will be discussed.	40% Presentations. 20% Assignments. 20% Participation. 20% Written review.	Trevor Moraes

Appendix F: Minor Modifications, Converting Modules to 0.25 FCE Courses, PhD Level

University of Toronto Minor Modification Proposal: New Graduate Courses or Changes to Existing Graduate Courses

This template should be used to: create a new graduate course; reactivate a closed/deactivated course; rename an existing course; renumber an existing course; etc. If you have questions while you are filling out this document, please contact your Dean's Office.

Graduate Department/Unit/Centre/Institute	Biochemistry
Faculty/academic division	Medicine/Division 4
Dean's Office contact	Rachel Zulla, Graduate Affairs Officer

Part 1: ROSI

Please complete this section. The data will be used to complete the ROSI record.

New Course (fill out all fields)	
Course designator and number (e.g., HIS 5XXXH)	BCH 2200H – BCH2205H
FCE weight (e.g., 0.5, 1.0)	0.25FCE
Full course title for transcript (max 60 characters)	Please refer to accompanying list
Abbreviated title (max 30 characters)	Please refer to accompanying list
Available via Student Web Services (yes or no)	Yes
Course type (regular, modular, continuous or extended)	Modular
Evaluate* function in ROSI used by unit (yes or no) (*university's online course evaluation system)	No
Online course (yes or no)	No
Required course (yes or no)	No
Grading scale (letter grades or CR/NCR)	Letter Grades
Course prerequisites; if yes, please list (e.g., HIS 5XXXH)	Must be enrolled in the PhD program
Course credit exclusions; if yes, please list (e.g., HIS 5XXXH)	No

Effective Date

Required Field—Effective date must be September 1, January 1 or May 1 and not retroactive.

September 1, 2021 (Fall 2021)

Part 2: Other Changes to Existing Courses

Optional Field—This section may be used to describe other types of changes to existing courses your Faculty/Division tracks.

n/a

Part 3: New Course Documentation

For Faculty/Divisional approval of new courses, please append the approved course documentation, or complete the template below.

Course Description

Please refer to attached list.

Academic Rationale

Please refer to attached course syllabus

Learning Outcomes (if applicable)

Please refer to attached list.

Similarity/Overlap with Other Courses & Consultation

Please refer to attached list.

Resource Requirements (if required)

None.

Governance Approval

Unit Sign-Off (Committee name and meeting date)	Biochemistry Graduate Committee (October 30, 2020)
Faculty/Division Council (or delegated body) approval, if applicable (name and date)	GLSE Graduate Curriculum Committee (January 6, 2021, pending) FOM Education Committee (March 4, 2021, pending)

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
BCH2200H	Design Thinking for Scientists	6 x 2 hr sessions	This is a graduate-level course focused on developing entrepreneurial, design thinking skills and its application to graduate research and lab productivity, and other scientific, business, education, organizational, communication or start-up pursuits in basic biomedical sciences such as biochemistry. Interactive lectures will include classroom discussions regarding design thinking, team brainstorming and ideation techniques, and methods of idea development. Students will develop entrepreneurial skills by a) Identifying problems as observers in their own research, lab, departmental, career environment or via another person while also considering feasibility and potential impact, b) narrowing the focus to one problem with a clear market analysis, and c) Ideating, prototyping, testing and pitching to facilitators. Some examples which students may choose to ideate for may be annual lab goals, lab meetings for designing experiments, skills development, course or workshop development, student group initiatives. The skills learned in this course will	30% Class Attendance and Participation. 20% Teamwork (based on teamwork assessment and check-in with instructor). 25% Pitch Presentation (15% Content, 10% Presentation). 25% Final Reflection Report (1,000–1,200 words).	Nana Lee

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			enable the student to lead meaningful engagements throughout graduate school and enhance EQ skills in self-awareness, motivation, and empathy to potentially become Canada's future scientific thought and entrepreneurial leaders.		
BCH2201H	Professional Development	6 x 2 hr sessions	This is a graduate level course focused on developing the academic and professional skills required to succeed during and beyond graduate education in basic biomedical sciences such as biochemistry. Interactive lectures will include classroom discussions regarding the practical aspects of succeeding in graduate school, mentoring, leadership, finding successful collaborations, developing strong written and oral communication skills, further training as a postdoctoral fellow, effective networking, integrating family commitments, career transitions, CVSs and resumés, career options in and out of academia, best methods of searching for and landing the job, creating the	Written assignments (45%). Oral presentations (30%). Class participation (25%).	Nana Lee

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			career pathway, maintaining career development and other core competency skills. Students will develop communication skills through writing assignments and oral presentations related to their research. Classes will include interactive assignments or an interactive panel discussion with guest speakers from various industries and careers such as those from Academia, Law, Research Ethics, Management Consulting, Science Writing, Industry, Innovation, Government, and Education. Read more about the Professional Development initiatives at the department. All students registered for GPD should start reading “Success After Graduate School” by Nana Lee and Reinhart Reithmeier, bring in a 500-700 word research summary written for the general audience, complete an updated IDP with SMART goals, a worldview and work view.		

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			The latter two documents may be obtained by contacting Dr. Nana Lee.		
BCH2202H	Intro Programming in R	12 x 1 hr sessions	In this course students will be instructed in how to program with R. Ultimately students will learn how to use R to analyze, process and visualize data. This course is designed for students with little to no experience in programming. Students taking this course will not only receive 0.25 Credits but also 18 SciNet credits (9 scientific computing; 9 data science) – after 32 SciNet credits students will obtain certificate from SciNet.	5 graded assignments, each worth 20%.	(SciNet)
BCH2203H	Intro Programming in Python	12 x 1 hr sessions	In this course students will be instructed in how to program with Python. Ultimately students will learn how to use Python to analyze, and process data. This course is designed for students with little to no experience in programming. Students taking this course will not only receive 0.25 credits but also 18 SciNet credits (9	5 graded assignments, each worth 20%.	(SciNet)

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			scientific computing; 9 data science) — after 32 SciNet credits students will obtain certificate from SciNet.		
BCH2204H	Advanced Programming in R	12 x 1 hr sessions	In this course students will be instructed in how to program with R to perform advanced data analysis. This course is designed for students with some experience in programming. Students taking this course will not only receive 0.25 Credits but also 18 SciNet credits (9 scientific computing; 9 data science) — after 32 SciNet credits students will obtain certificate from SciNet.	5 graded assignments, each worth 20%.	(SciNet)
BCH2205H	Advanced Programming in Python	12 x 1 hr sessions	In this course students will be instructed in how to program with Python to perform advanced data analysis. This course is designed for students with some experience in programming. Students taking this course will not only receive 0.25 Credits but also 18 SciNet credits (9 scientific computing; 9 data science) — after 32	5 graded assignments, each worth 20%.	(SciNet)

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			SciNet credits students will obtain certificate from SciNet.		
BCH2206H	Interdisciplinary Science	6 x 2 hr sessions	This is a graduate level course on interdisciplinary science where guest speakers will be experts in one particular area (examples are biochemistry, cell biology, pharmacology, healthcare, policy) of a selected field, which may change every year. Some field examples may be cancer, data science, neurodegenerative diseases, artificial intelligence. By the end of this course, students will gain a further understanding on big picture science and ways to create their own scientific, interdisciplinary thought leadership.	25% Class Attendance and Participation / Three assignments worth 25% each.	Nana Lee
BCH2207H	Collaborative Science: Student Centered Interdisciplinary Studies	12 x 1 hr sessions	This graduate level course is focused on developing collaborative work between interdisciplinary scientists aimed to broaden the scope of the graduate student's thinking, knowledge and research project. It highlights the importance of collaborations and communication with scientists outside of one's immediate scientific community thereby, encouraging and facilitating graduate student outreach with faculty body. It also exposes students to the grant review process, from the perspective of the applicant and reviewer. This	Presentation / Peer Teaching 30% Proposal 40% Grant Review Panel Performance 20% Attendance and Participation 10%	A. Palazzo

Course Number	Course Title	Contact Hours	Learning Objectives	Method of Evaluation	Course Coordinator(s)
			course aims to use teaching methods that will require and measure active student learning. The first lecture will include introduction of the course layout and a presentation of various historical discoveries that arose from conglomeration of interdisciplinary research. Following the first lecture, with the help of the course co-ordinator, the students are given one month to find, meet with a faculty member outside of their department that has complementary expertise. Students and their paired faculty member are to consolidate a presentation of how their project may be expanded through collaboration with their faculty partner. Students will be asked to submit a revised project proposal that incorporates methods or concepts learned in class and through working with their chosen faculty member. In the final 2 classes, the proposed projects are reviewed in a mock grant panel that is made up of their peers.		

Appendix G: Minor Modifications, Change in Course Titles

University of Toronto Minor Modification Proposal: New Graduate Courses or Changes to Existing Graduate Courses

This template should be used to: create a new graduate course; reactivate a closed/deactivated course; rename an existing course; renumber an existing course; etc. If you have questions while you are filling out this document, please contact your Dean's Office.

Graduate Department/Unit/Centre/Institute	Biochemistry
Faculty/academic division	Medicine/Division 4
Dean's Office contact	Rachel Zulla, Graduate Affairs Officer

Part 1: ROSI

Please complete this section. The data will be used to complete the ROSI record.

Changes to an Existing Course (fill out applicable fields)	
Current course designator and number (required) (e.g., HIS 5XXXH)	BCH 2022Y, PhD Seminar Course in Biochemistry
Deactivated course designator, number and weight (e.g., HIS 5XXXH)	n/a
Splitting or amalgamating courses (list course designators, numbers and weights)	n/a
New designator and number (e.g., HIS 5XXXH)	n/a
New/renamed full course title for transcript (max 60 characters)	Seminar Course in Biochemistry Level 2
New/renamed abbreviated title (max 30 characters)	Seminar Course in Biochemistry Level 2
New FCE weight of an elective course (e.g., 0.5, 1.0)	n/a
Change to grading scale (from letter grades to CR/NCR or vice versa)	n/a
Change to course type (from regular to continuous, modular, extended, etc.)	n/a

Effective Date

Required Field—Effective date must be September 1, January 1 or May 1 and not retroactive.

September 1, 2021 (Fall 2021)

Part 2: Other Changes to Existing Courses

Optional Field—This section may be used to describe other types of changes to existing courses your Faculty/Division tracks.

Renaming BCH2022Y to Seminar Course in Biochemistry Level 2 avoids confusion for direct entry PhD students. Currently, these students are required to take BCH 2020Y, Master's Seminar Course in Biochemistry. Its reference to a Master's may confuse direct entry students who are admitted into the PhD program. To avoid this confusion, BCH 2020Y will be renamed Seminar Course in Biochemistry Level 1 and BCH 2022Y will be renamed Seminar Course in Biochemistry Level 2. These will be the same course titles used for the stand-alone MSc program, MSc to PhD transfer and stand-alone PhD program.

Part 3: New Course Documentation

For Faculty/Divisional approval of new courses, please append the approved course documentation, or complete the template below.

Course Description

n/a

Academic Rationale

n/a

Learning Outcomes (if applicable)

n/a

Similarity/Overlap with Other Courses & Consultation

n/a

Resource Requirements (if required)

n/a

Governance Approval

Unit Sign-Off (Committee name and meeting date)	Biochemistry Graduate Committee (October 30, 2020)
Faculty/Division Council (or delegated body) approval, if applicable (name and date)	GLSE Graduate Curriculum Committee (January 6, 2021, pending) FOM Education Committee (March 4, 2021, pending)

University of Toronto Minor Modification Proposal: New Graduate Courses or Changes to Existing Graduate Courses

This template should be used to: create a new graduate course; reactivate a closed/deactivated course; rename an existing course; renumber an existing course; etc. If you have questions while you are filling out this document, please contact your Dean's Office.

Graduate Department/Unit/Centre/Institute	Biochemistry
Faculty/academic division	Medicine/Division 4
Dean's Office contact	Rachel Zulla, Graduate Affairs Officer

Part 1: ROSI

Please complete this section. The data will be used to complete the ROSI record.

Changes to an Existing Course (fill out applicable fields)	
Current course designator and number (required) (e.g., HIS 5XXXH)	BCH 2020Y, MSc Seminar Course in Biochemistry
Deactivated course designator, number and weight (e.g., HIS 5XXXH)	n/a
Splitting or amalgamating courses (list course designators, numbers and weights)	n/a
New designator and number (e.g., HIS 5XXXH)	n/a
New/renamed full course title for transcript (max 60 characters)	Seminar Course in Biochemistry Level 1
New/renamed abbreviated title (max 30 characters)	Seminar Course in Biochemistry Level 1
New FCE weight of an elective course (e.g., 0.5, 1.0)	n/a
Change to grading scale (from letter grades to CR/NCR or vice versa)	n/a
Change to course type (from regular to continuous, modular, extended, etc.)	n/a

Effective Date

Required Field—Effective date must be September 1, January 1 or May 1 and not retroactive.

September 1, 2021 (Fall 2021)

Part 2: Other Changes to Existing Courses

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Part 3: New Course Documentation

For Faculty/Divisional approval of new courses, please append the approved course documentation, or complete the template below.

Course Description

n/a

Academic Rationale

n/a

Learning Outcomes (if applicable)

n/a

Similarity/Overlap with Other Courses & Consultation

n/a

Resource Requirements (if required)

n/a

Governance Approval

Unit Sign-Off (Committee name and meeting date)	Biochemistry Graduate Committee (October 30, 2020)
Faculty/Division Council (or delegated body) approval, if applicable (name and date)	GLSE Graduate Curriculum Committee (January 6, 2021, pending) FOM Education Committee (March 4, 2021, pending)