UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1 Review Summary

Program(s) Reviewed:	<u>Undergraduate Programs:</u> • Cell & Molecular Biology (HBSc): Specialist, Major ▸ Foci *(available for both the Specialist and Major)*: Molecular Networks of the Cell; Plant Genomics and Biotechnology; Stem Cells and Developmental Biology • Bioinformatics and Computational Biology (HBSc): Specialist • Animal Physiology (HBSc): Major • Genome Biology (HBSc): Major <u>Graduate Programs:</u> • Cell & Systems Biology: MSc, PhD
Unit Reviewed:	Department of Cell & Systems Biology
Commissioning Officer:	Dean, Faculty of Arts & Science
Reviewers (Name, Affiliation):	• Martha S. Cyert, Dr. Nancy Chang Professor of Biology & Chair, Department of Biology, Stanford University • Anja Geitmann, Dean, Faculty of Agricultural and Environmental Sciences & Professor, Department of Plant Science, McGill University • Andrew Simmonds, Professor and Chair, Department of Cell Biology, University of Alberta
Date of Review Visit:	February 12-13, 2024
Review Report Received by VPAP:	April 15, 2024
Administrative Response(s) Received by VPAP:	September 12, 2024
Date Reported to AP&P:	October 22, 2024

Previous UTQAP Review
Date: November 5-6, 2015

Summary of Findings and Recommendations

Significant Program Strengths
- Strong modern undergraduate curriculum, which serves both CSB's students and many students from other life sciences programs
- Innovative technology-based undergraduate teaching methods and course design, including online and digital learning and use of the inverted classroom
- Undergraduate students' high satisfaction with the programs offered and their value for career development
- Well-run graduate programs that offer high quality research and preparation for both academic and alternative scientific careers
- Research programs are productive, forward-looking, and cutting edge
- CSB's status as a vigorous, healthy unit that is a clear asset to the Faculty and the University

Opportunities for Program Enhancement
- Enhancing aspects of the undergraduate curriculum, including adding statistics courses, more lab courses, and an introductory course
- Addressing graduate students' desire for a more uniform approach to Ph.D. exams and Master's theses
- Considering the gap between years of funding and average times to completion for graduate students
- Engaging in better advising and support for undergraduate students
- Taking a more strategic approach to complement planning, including improving relationships between subgroups and strengthening the "Systems" area of Cell and Systems Biology
- Investigating space and other solutions for integrating faculty currently located in two different buildings, to support programs, research and communication

Current Review: Documentation and Consultation

Documentation Provided to Reviewers

Terms of reference; Self-study & Appendices; Previous review report including the administrative response; Access to all course descriptions; Access to the curricula vitae of faculty.

Consultation Process

Vice-Dean, Academic Planning, Interim Associate Dean, Unit-Level Reviews, Faculty of Arts & Science; Department Chair; Research and administrative leadership; Educational leadership;

Technical staff; Administrative staff; undergraduate and graduate students, Faculty (Developmental Biologists, Neuro-Biologists; Plant Biologists); Junior faculty; Teaching Stream faculty; Tri-Campus graduate faculty; Project supervisors; Chairs of cognate units & divisions.

Current Review: Findings and Recommendations

1. Undergraduate Program(s)

Unless otherwise noted, all bulleted comments apply to all programs reviewed.

The reviewers observed the following **strengths:**

- Overall quality
  - ▸ Undergraduate and graduate programs appear to be in high demand, "supported by an excellent cohort of faculty ranging from those primarily focused on teaching, to research focused faculty"
- Objectives
  - ▸ Staff and students express there is strong support for the academic mission of the Department
- Curriculum and program delivery
  - ▸ The Department's research and training expertise encompasses a diverse group of disciplines including both plant and animal biology, and a relatively new program in Bioinformatics and Computational Biology
  - ▸ Reviewers acknowledge the challenge of delivering a quality lab-based experience given the number of students in the Department, and commend the unit for doing so successfully
  - ▸ Undergraduate programs benefit from "having teaching stream faculty who are dedicated to continuously improving and innovating the pedagogy, for example development of the TeamUP app to support active learning and provide learning communities for first and second year students and development of 'chat bots' to answer student questions"
- Innovation
  - ▸ Reviewers remarked on innovations in pedagogy, including "the clever use of AI tools which has led to increased student engagement"
- Student engagement, experience and program support services
  - ▸ Appears to be strong support mechanisms for students through the TeamUP app and organized learning communities
  - ▸ The Department is engaging in ongoing research to identify 'at risk' students early in their courses to develop interventions to support student success
  - ▸ The undergraduate student union provides supports for students by hosting resume writing events, research events and organizing a mentoring program
- Quality indicators – undergraduate students
  - ▸ Bioinformatics and Computational Biology students are described as "an elite group of highly skilled and motivated research-oriented students"

The reviewers identified the following **areas of concern**:

- Curriculum and program delivery
  - ▸ "The greatest challenge for the Department, which was also noted in the previous review from 2015, is to provide sufficient access to independent study and research opportunities to [undergraduate] students"
  - ▸ Reviewers were informed that the large number of prerequisites for the various undergraduate programs results in a certain degree of complexity in communicating academic changes to students
  - ▸ Some students commented that the "400-level courses in the focus program seem to vary, with some relying excessively on seminar style course delivery, which is mostly student led, sometimes with minimal faculty engagement"
  - ▸ Students in the Bioinformatics and Computational Biology specialization experience difficulty gaining access to all required courses. "Specifically, as members of an interdepartmental program, they are not given priority to enroll in these courses which are departmentally based"
- Accessibility and diversity
  - ▸ Reviewers noted that a relatively small number of undergraduate students are able to gain access to third and fourth year experiential courses; moreover, it was unclear if first generation or low-income students had sufficient support to learn and take part in these opportunities
- Student engagement, experience and program support services
  - ▸ The undergraduate student union expressed a desire for "a more suitable space than the one that is currently offered to them"

The reviewers made the following **recommendations**:

- Curriculum and program delivery
  - ▸ Develop 'how to' guides for incoming students accessible both in person and online to clarify the various pathways within CSB programs
  - ▸ Once admitted, provide students with additional program-specific information on available resources and processes
  - ▸ Encourage instructors to provide reminders on upcoming application deadlines for programs and upper-level courses, including independent study opportunities
- Accessibility and diversity
  - ▸ Assess "the ability of students with different demographics and preparation levels to access research-based independent study courses as well as the selective focus programs in CSB. If inequity is identified, the Faculty of Arts and Science might consider working with CSB to develop programming that extends support beyond the initial Arrive Ready to Study (AR) summer transition program"
- Student engagement, experience and program support services
  - ▸ Reviewers encourage developing robust methods of outreach and student communication given the large size of the undergraduate community

2.   Graduate Program(s)

Unless otherwise noted, all bulleted comments apply to all programs reviewed.

The reviewers observed the following **strengths**:

- Overall quality
  - ▸ The Department's graduate programs appear to be in high demand and are supported by excellent faculty
- Curriculum and program delivery
  - ▸ Students are appreciative of the flexibility built into the current graduate curriculum, with relatively few required courses
- Quality indicators – faculty
  - ▸ "The research faculty support a strong graduate program, spread over two buildings at the St. George campus as well as at UTM and UTSC sites"

The reviewers identified the following **areas of concern**:

- Curriculum and program delivery
  - ▸ Reviewers note that currently there is no requirement for graduate students to take a course that "supports research rigor and reproducibility, i.e. experimental design, interpretation, and data analysis. Nor are students required to take a course in research ethics and scientific integrity"
- Student engagement, experience and program support services
  - ▸ Graduate students expressed a desire for improved TA-ship training as current opportunities appear to vary and are course dependent
  - ▸ Reviewers were informed of several issues surrounding TA-ship assignments and a perceived lack of clarity on how course assignments are made
  - ▸ Graduate students "reported a lack of formalized support for career development and planning activities. Currently support varies greatly across faculty members"
  - ▸ "There do not seem to exist many opportunities for the graduate students from the three campuses or even the two St. George campus buildings to interact"
- Student funding
  - ▸ Reviewers commented on the high cost of living in Toronto; "recently increased stipend levels for graduate students do not meet the needs"

The reviewers made the following **recommendations**:

- Curriculum and program delivery
  - ▸ Consider introducing required training in best practices for scientific design and data analysis as well as training in scientific integrity and research ethics
- Student engagement, experience and program support services
  - ▸ Reviewers encourage initiating basic training to support teaching duties for graduate students and grant/fellowship writing training that could serve to build community across the three campuses

- ▸ Strengthen supports for preparation and submission of research fellowships by encouraging students to apply, organizing grant-writing workshops, and providing timely feedback following unsuccessful fellowship grants
- ▸ Introduce an annual requirement for advisors to meet with each of their trainees "to discuss career development issues"
- ▸ Increase transparency surrounding teaching assignments "and a mechanism to solicit and provide feedback addressing student concerns about assignments"

3. Faculty/Research

The reviewers observed the following **strengths**:

- Overall quality
  - ▸ "Overall, the intellectual environment of the Department seems to be stimulating, and those faculty we met with indicated they could easily find collaborators both internally and externally"
- Research
  - ▸ Tenure-track faculty spoke positively of strong research support within the department that sets new and senior tenure-track faculty up for success
  - ▸ "The internal grant review process set up by the Associate Chair Research appears to be a resounding success, evident not only from the comments by [tenure-track faculty] but also from the absolute funding success data"
  - ▸ "The fact that all [tenure-track] staff have tri-council funding is truly extraordinary and reflects not only on the quality of the researchers but also the support system."
  - ▸ The Department's core facilities are a benefit to researchers across the Faculty, as is the case with the genomic core facility that provides crucial services to many units
- Faculty
  - ▸ Pre-tenure faculty feel supported by the Department and expressed "great appreciation for the support they receive for grant writing, through the internal review process, as well as for the support they receive during the preparation of the tenure package"

The reviewers identified the following **areas of concern**:

- Research
  - ▸ With rising research costs in recent decades and minimal increases to Tri-council grants, some faculty expressed concerns over their ability to "conduct top-notch research under conditions of decreasing buying power"
  - ▸ "[Core research] facilities not easily accessible to researchers located in the other building, a situation to which there does not seem to be an easy solution"
  - ▸ Reviewers observed that many research instruments do not appear to be covered by service contracts which can lead to delays once repairs are necessary
  - ▸ "Lack of a plan for evergreening of the park of instruments is a concern"

- ▶ Perception that there isn't a great deal of central support concerning research data storage and security which poses a degree of vulnerability and potential for breaches to data security
- Faculty
  - ▶ Appears to be a lack of coherent structure in onboarding new faculty members
  - ▶ "Pre-tenure faculty expressed uncertainty about department structure and governance and did not fully understand how important policy decisions are made"
  - ▶ Wait times for lab renovations appear to be excessive, which impacts research programs; "One faculty member is still waiting for a facility that was promised to them in their hiring contract"
  - ▶ Junior faculty are challenged by the high cost of living in Toronto, particularly with concerns to housing
  - ▶ Faculty within the neurobiology discipline noted several concerns for maintaining "intellectual vibrancy within their field" due to administrative commitments amongst senior faculty and the loose neuroscience community that stretches across 16 academic units
  - ▶ Plant-microbe biologists reported challenges accessing some provincial funding streams by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) due to perceptions that "their urban campus-located research might not be relevant to agriculture"

The reviewers made the following **recommendations**:

- Research
  - ▶ Consider raising user fees for core facilities in order to cover service contracts for key instruments in the Imaging Facility
  - ▶ "To ensure evergreening of the microscopy suite of instruments in the Imaging Facility, the Department may wish to adopt an extremely systematic approach with regards to the planning of annual applications under the NSERC RTI program, and to leverage CFI funding opportunities"
  - ▶ Ensure a timely succession plan for the leadership of the Centre for the Analysis of Genome Evolution and Function, possibly by appointing an Assistant or Co-Director
  - ▶ Assess the infrastructure needs required "to provide secure and easy-to-access data storage for researchers"
- Faculty
  - ▶ Develop a consistent set of orientation materials for new tenure-stream and teaching stream faculty members and assign an official mentor
  - ▶ Schedule individual meetings between pre-tenure faculty and the Department Chair to provide consistent communication, mentoring, and discuss career progress
  - ▶ "To increase transparency and communication with pre-tenure faculty and create a mechanism to solicit their viewpoints, a pre-tenure faculty member could be appointed as a member of the executive committee for the Department"

4. Administration

Note: Issues that are addressed through specific University processes and therefore considered out of scope for UTQAP reviews (e.g., individual Human Resources issues, specific health and safety concerns) are routed to proper University offices to be addressed, and are therefore not included in the Review Summary component of the Final Assessment Report and Implementation Plan.

The reviewers observed the following **strengths**:

- Relationships
  - Positive work environment within the Department
  - Staff "feel supported by the administration" with retention rates and overall satisfaction appearing to be high
  - "There is a sense of stability and confidence in the Departmental leadership team. The overall mood is decidedly upbeat creating an enviable environment for staff and students."

The reviewers identified the following **areas of concern**:

- Relationships
  - The physical separation between the three campuses can pose a challenge to creating a sense of belonging to a common unit
  - Graduate support staff appear to have less of a connection to graduate students at UTM or UTSC since there are fewer opportunities to meet in person
  - Perception amongst some faculty members from UTM and UTSC of "being treated as 'second class citizens'… do not seem to be consulted on decisions pertaining to the graduate program and secondly, the CSB web site structure seems to make it difficult to find academics located on the other campuses as potential supervisors"
- Organizational and financial structure
  - Several concerns raised over space since the Department is spread over two buildings at St. George campus; impacts the frequency of interactions between individuals as well as logistical challenges in accessing the imaging facility
  - "The principal sore points for many members of CSB seem to be related to building infrastructure and renovation. As is typical for many Canadian universities, individual labs are renovated using CFI funding when a new incumbent comes in. However, piecemeal renovations one lab at a time do not seem to be the most cost-efficient way to execute renovations in wet lab research buildings"
  - Reviewers were informed of a perceived disconnect between users and U of T Facilities & Services, "and a perceived lack of accountability when renovation progress does not advance as planned or when errors are made"
  - "For smaller upgrades and repairs, there seems to be a lack of transparency of how to get things done"
  - "New faculty members who get promised biosafety level lab facilities find that two years after hiring these renovations are still not done"

- Long-range planning and overall assessment
  - ▸ While the undergraduate programs at UTM and UTSC appear to be growing rapidly, "it is not clear how this growth will be balanced with necessary increases to graduate student populations at these campuses to serve as TAs"

The reviewers made the following **recommendations**:

- Relationships
  - ▸ Reviewers encourage on campus events such as the annual research day to rotate across the three campuses or take place at an off-site location
  - ▸ Consider opportunities for graduate support staff to visit UTM and UTSC during the academic term to meet with graduate students in person
  - ▸ "Faculty members from UTM and UTSC need to be included in decision making pertaining to graduate studies and policies. For this purpose, regular faculty meetings should be held that include faculty from the other two campuses (once or twice a year)"
  - ▸ Review the functionality of the Department website "to ensure that researchers at UTM and UTSC are as straightforward to identify as those on the St. George campus"
- Organizational and financial structure
  - ▸ Establish processes to improve communication between department administration, users and Facilities & Services to support upgrades to infrastructure
  - ▸ Reviewers found that the Department "would benefit from enhanced support by the Dean's office related to renovation and in general. This may also apply to other elements such as HR"
  - ▸ Reviewers encourage the Dean's office to "make the tenure track hiring process more transparent by defining a clear process specifying how and when the unit can request positions, especially in situations where the incumbent is still in place, but succession planning seems critical"
- Long-range planning and overall assessment
  - ▸ "Members from all three campuses should engage with the Dean's office on long term planning to ensure that sufficient TA capacity exists to support the full complement of [undergraduate] courses"

UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

September 12, 2024

Professor Susan McCahan
Vice-Provost, Academic Programs
University of Toronto

RE: UTQAP cyclical review of the Department of Cell & Systems Biology

Dear Prof. McCahan,

I write in response to your letter of June 27, 2024, regarding the March 12-13, 2024, UTQAP cyclical review of the Department of Cell & Systems Biology and requesting our Administrative Responses. The following programs were reviewed: Cell & Molecular Biology (HBSc): Specialist, Major (Optional Foci: Molecular Networks of the Cell, Plant Genomics and Biotechnology, Stem Cells and Developmental Biology); Bioinformatics and Computational Biology (HBSc): Specialist; Animal Physiology (HBSc): Major; Genome Biology (HBSc): Major; Cell & Systems Biology: MSc; PhD.

On behalf of the Faculty of Arts & Science, we would first like to thank the reviewers, Professor Martha S. Cyert, Stanford University, Professor Anja Geitmann, McGill University, and Professor Andrew Simmonds, University of Alberta, for their very comprehensive review of the Department. We would also like to thank the department chair and department leadership, faculty, administrative staff, and all those who contributed to the preparation of the self-study. We also wish to thank the many staff, students, and faculty members who met with the external reviewers and provided thoughtful feedback. The UTQAP cyclical review process is an invaluable exercise that affords us the opportunity to take stock of our academic units and programs, to recognize achievement, and identify areas for improvement.

The review report was finalized on April 11, 2024, after which the department chair shared it widely with stakeholders in the Department. We are extremely pleased with the reviewers' positive assessment of the overall strength of the Department and its outstanding, productive faculty. The reviewers noted an excellent cohort of faculty, stimulating intellectual environment, strong demand for undergraduate and graduate programs, and strong funding success. The review report also raised several issues and challenges and identified areas for enhancement, including providing sufficient access to independent study and research opportunities and addressing complexity in communicating academic changes to undergraduate students, improving TA-ship

training for graduate students, improving graduate funding, addressing long wait times for lab renovations, and better structure in onboarding new faculty.

Each of these recommendations has been addressed in the attached Review Recommendations Table that outlines the unit's response, the Dean's response, and an Implementation Plan identifying action items and timelines for each recommendation. My Administrative Response and Implementation Plan was developed in consultation with the department chair and with the Vice-Dean, Academic Planning, and senior leadership within my office. The Implementation Plan provided identifies timeframes of immediate- (six months), medium- (one to two years), and longer- (three to five years) term actions and who (Faculty, Dean, unit) will take the lead in each area. I also identified any necessary changes in organization, policy, or governance where appropriate, as well as any resources, financial or otherwise, that will be provided, and who will provide them.

The next UTQAP cyclical review of the Department will take place no later than the 2031-32 review cycle. My office monitors progress on Implementation Plans through periodic meetings with program leadership and through the Department's five-year unit-level academic planning process, which will begin at the conclusion of the cyclical review. I also acknowledge that your office will request a brief Interim Monitoring Report midway between the March 2024 UTQAP cyclical review and the year of the next site visit in 2031-32 to report on progress made on the Implementation Plan as outlined in the accompanying Review Recommendations Table.

Thank you very much for the opportunity to respond to the review report. The reviewers' comments and recommendations will help inform the future priorities of the Department of Cell & Systems Biology and its undergraduate and graduate programs.

Sincerely,

Antoinette Handley
Acting Dean, Faculty of Arts & Science
Professor, Department of Political Science

cc.

- ° Nicholas Provart, Chair, Department of Cell & Systems Biology, Faculty of Arts & Science
- ° Gillian Hamilton, Vice-Dean, Academic Planning, Faculty of Arts & Science
- ° Caitlin Burton, Manager, Academic Change & Reviews, Office of the Dean, Faculty of Arts & Science
- ° Lachmi Singh, Director, Academic Programs, Planning & Quality Assurance, Office of the Vice-Provost, Academic Programs
- ° Andrea Benoit, Academic Planning & Review Officer, Office of the Dean, Faculty of Arts and Science

2023-24 UTQAP Review of the FAS Department of Cell and Systems Biology - Review Recommendations

Please do the following for each recommendation in the table:

- If you **intend** to act on a recommendation, please provide an **Implementation Plan** identifying actions to be taken, the time frame (short, medium, long term) for each, and who will take the lead in each area. If appropriate, please identify any necessary changes in organization, policy or governance; and any resources, financial and otherwise, that will be provided, and who will provide them.
- If you **do not** intend to act on a recommendation, please briefly explain why the actions recommended have not been prioritized.
- In accordance with the UTQAP and Ontario's Quality Assurance Framework, "it is important to note that, while the external reviewers' report may include **commentary** on issues such as faculty complement and/or space requirements when related to the quality of the program under review, **recommendations** on these or any other elements that are within the purview of the university's internal budgetary decision-making processes must be tied directly to issues of program quality or sustainability" (emphasis added)
- You may wish to refer to the sample table provided by the Office of the Vice-Provost, Academic Programs

Request Prompt *verbatim from the request*	Rec. #	Recommendations from Review Report *verbatim from the review report*	Unit Response	Dean's Response
The reviewers observed some challenges for undergraduate students, particularly with regard to navigating program requirements and pathways, and accessing research opportunities. They recommended exploring opportunities to enhance advising, supports, and resources for the department's undergraduate population.	1	"To develop some clear 'how to' guides for incoming students that can be accessed both in person and also online (i.e. videos that can be watched on demand) to clarify the different pathways through the different CSB programs and focus areas offered. Once students are admitted to one of the focus area programs, there should be some follow-up providing additional information about processes and available resources."	We will implement a "getting-ready-for-BIO130H1" hands-on training session potentially for the Fall semester 2024 (by 2025 at the latest) for incoming 1st year students. Each focus area already has regular learning community group meetings where students learn more about research and discuss potential career pathways with focus leaders and invited guest speakers. In addition, CSB students receive ongoing support and advice from peer mentors, a faculty advisor and a staff advisor through the first year and second year learning communities. CSB faculty, staff and students participate in the Program Exploration Day every year where students can learn more about program requirements, pathways, extra-curricular activities and potential careers. There are also videos available on the Program Showcase [↗] for students who cannot attend. CSB students are also encouraged to attend drop-in advising sessions and/or book advising appointments with staff throughout the year. Reminders are sent monthly through the CSB student	The Dean's office supports the Department's current activities for student advising and applauds the upcoming plans to strengthen those initiatives, especially the "getting ready for BIO130H1" sessions. The Dean's Office will connect the Department with the OFR/Student Success to explore other options, as well.

			listserv and are also posted on the CSB UG Instagram page [↗] . In addition, through the CSBSU and BCBSA, students participate in a mentorship program, network and learn more about research opportunities and potential careers through guest speakers. We will continue to work with the CSBSU and BCBSA (undergraduate student unions) to provide information sessions on degree pathways, research opportunities, and career exploration.	
	2	"It would be helpful to assess the ability of students with different demographics and preparation levels to access research-based independent study courses as well as the selective focus programs in CSB. If inequity is identified, the Faculty of Arts and Science might consider working with CSB to develop programming that extends support beyond the initial Arrive Ready to Study (AR) summer transition program that allows students to build essential study skills."	It is not clear how we would be able to identify and reach out to such students and if we would be provided with extra resources to be able to do so. If FAS would be willing to help flag such students, that would be actionable. We have experience in supporting students from equity-deserving communities students, e.g. through the Pursue STEM and Leadership by Design programs that CSB has undertaken, as mentioned in our UTQAP self-study document. In addition, we reach out to all students to encourage self-identified Black and Indigenous students to apply for the NSERC Summer Research award through which they can engage in paid research in a CSB lab. We work with our UG student unions to plan and prepare for the Research Opportunities workshops	In the immediate term, the Dean's office supports the department's initiatives such as these and will also connect CSB with the Department of Psychology, which already has a similar initiative in place. In the medium-term, the Faculty is working on developing additional related initiatives to roll out on a larger scale. The Director, EDI /Office of EDI is working with the department on EDI-related initiatives.
	3	"To encourage instructors in introductory courses to provide brief reminders/explanations in class about upcoming application deadlines for programs and upper-level courses including research-based independent study opportunities. The instructors that currently engage in these practices are highly appreciated."	We regularly provide slides to instructors for the diversity of experiential learning opportunities available to undergraduate students, such as those for work-study positions, CSB498Y courses, and summer research awards. Information sessions and experiential learning opportunities are publicized through different channels, including our CSB UG Instagram [↗], CSBSU Instagram [↗], BCBSA Instagram [↗], CSB email listserv and website [↗].	The Dean's office acknowledges that the Department has indicated that it currently offers diverse ways to effectively communicate with students, both institutional and via social media, to ensure students are informed about various departmental deadlines for course enrolment and study opportunities.

| The reviewers broadly noted opportunities to strengthen structure, training, mentorship and supports to benefit the graduate program. They suggested that some areas of focus might include TA training and course matching processes; research training and supports; career development and planning supports; and encouraging greater interaction and community building among tri-campus graduate students. | 4 | "To institute required training for first year graduate students in several areas: 1) Basic training, support, and professional development in their teaching roles 2) Best practices for scientific design and data analysis. 3) Training in scientific integrity and research ethics. A common set of requirements would also provide an opportunity for incoming graduate students to build community and get to know students from all three campuses. 4) Training in grant/fellowship writing." | We will be introducing a tailored TA mentorship program for BIO130H1/BIO230H1 TAs (more than 40 graduate students serve as TAs for these two courses). For other students, we will ensure that TAs attend the TATP sessions by instituting an attendance system.

CSB's associate chair graduate did not think it would be feasible to institute a common set of requirements given the diversity of research in CSB, although we have reached out to the Faculty of Applied Science & Engineering (FASE) to study the feasibility of introducing a Research Ethics course (FASE offers JDE1000H, a 2-hour course) and we would consider offering a common stats course. We note that governance approval would be required if graduate program requirements change. To promote community, we held an informal "Meet the Labs" after graduate orientation last year, and this could be extended to students at all 3 campuses.

Some CSB graduate courses offer training in grant/fellowship writing, but in the medium term we will look into offering support for this, similar to our successful internal NSERC/CHIR review panels for CSB faculty (although graduate students already have access to the University of Toronto's Writing Centre). We will also engage with the CSBGU to solicit ideas on an ongoing basis for improvements to CSB graduate life. | In the medium-term, the Vice-Dean, Graduate Education and portfolio staff can support the Department if it chooses to develop a major modification to its graduate requirements to incorporate a Research Ethics or a Statistics course.

For assistance with grant-writing in the immediate-term, the Department can ensure graduate students are aware of the services of the Director of Graduate Writing Support in the Faculty of Arts & Science. This office supports the academic, non-academic, and pedagogical development of graduate students in the Faculty of Arts & Science through a variety of faculty-wide and unit-specific activities. Services offered in this office include:

- **Workshops** on specific genres (e.g. grant proposals, literature reviews), style (e.g. strategies for clear scholarly writing), and process (e.g. revision strategies).
- **Roundtables**, featuring a small number of faculty and/or graduate-student panelists, discussing a given topic (e.g. "Publishing Your Work as a Graduate Student").
- **Writing Groups**, in which graduate students regularly share and offer feedback on work-in-progress.
- **Peer-review Sessions** that allow students to get feedback on pre-circulated drafts of their writing (e.g. grant proposals, post-doctoral applications, cover letters).
- **Writing Camps** offering participants 2-3 days of structured writing time. |

				In the immediate term, the Dean's office has directed departmental leadership to the Coordinator to get this work started.
	5	"To institute an annual requirement for each advisor to meet individually with each of their trainees to discuss career development issues. One way to support this activity is to use an individual development plan (IDP) form to structure advisor-trainee discussions."	We will hold discussions at our next tri-campus faculty meeting on the best way to implement this. Several faculty are already doing this with their students, but it would be good to institutionalize this across CSB. This could potentially be part of each student's annual graduate advisory committee meeting. We also note that the journal Science has a good IDP tool (https://myidp.sciencecareers.org/ [↗]).	The Dean's office supports the Department's exploration of feasible ways to facilitate career development for graduate students. To broaden this discussion, in the immediate-to long term we encourage the Chair to work with the Coordinator, Graduate Student Professional Development, under the newly formed A&S Office of Graduate Professional Development & Student Success, who can offer guidance and is available to: • **Facilitate professional skills workshops** (academic or non-academic), including tailored versions of A&S workshops (e.g., "Pathways for PhDs in Linguistics"). • **Contribute to existing unit-level activities** (e.g. offering guest presentations to professionalization courses, arranging alumni speakers for career panels). • **Advise on new or existing program offerings** (e.g. the creation of curricular or co-curricular professionalization courses). • **Assist and offer feedback** on the development of public-facing resources (e.g. alumni and career resource pages for unit websites or Quercus).
	6	"To provide more transparency to graduate students regarding their teaching assignments and a mechanism to solicit and provide feedback addressing student concerns about assignments."	Our graduate coordinator uses a ranking system for graduate students to choose their first, second and third options for TA positions. The first option is not always available. CSB in most cases aligns grad student research experience with the courses	The Dean's office supports the Department's methods for ensuring that graduate students obtain their chosen TA assignments, wherever possible, noting that a ranked system facilitates increased alignment with student research and experience.

			they are assigned. Generally, new grad students are assigned first and second year BIO courses.	
Highlighting graduate student and junior faculty concerns about the high cost of living in Toronto, the reviewers emphasized the importance of ensuring adequate supports for these groups.	7	"Junior faculty members are particularly challenged by the high cost of living in Toronto. There seems to be a housing program for faculty, but it seems to be quite limited and reserved for those moving to the city at the time of taking up the position. More support from the university for those already located in the city would be appreciated."	We have heard from the VPRO that the University is planning on building 500 units of new faculty housing at Site 1, at the northwest corner of campus (Bloor and Spadina), which will be available to eligible faculty members.	In the long-term, the Dean's office notes that the University is in the planning stages of building more faculty housing on campus.
	8	"The cost of living in Toronto is significantly higher than in most other locations in Canada. While this can safely be assumed to affect all members of the Department, graduate students and young faculty members were vocal about this. It is widely acknowledged that even the recently increased stipend levels for graduate students do not meet the needs."	NSERC just announced this year that its PhD fellowships will be increasing to $40k per year. We recognize that improving graduate student funding is an urgent priority of the University. More graduate student housing is also proposed next to the existing Graduate House, and U of T alumni have recently developed an app called SpacesShared [↗] for community members to offer shared space opportunities in the neighbourhood – this might be a cost-effective housing option for some graduate students.	The Dean's office concurs with the unit in noting that more graduate housing is currently being built on campus adjacent to the existing Graduate House, which should greatly assist graduates in seeking housing. The Dean's office also notes there are other currently existing University resources beyond Arts & Science for on and off campus housing which can assist current and incoming graduate students, including international students, to which the department can direct students.
The reviewers made a number of suggestions related to strengthening the consistency and structure of supports for pre-tenure faculty, enhancing communications with this group, and involving them more closely in departmental operations and governance.	9	"To develop a consistent set of materials to provide each faculty member (research and teaching stream) when they begin their position and assign an official mentor to each as part of this process."	We will develop a checklist and package, to be rolled out for the next CSB hire, expected in spring 2025. We have also been discussing having Biosafety Level 1 swing space ready for anyone to use, which could help new faculty with initial setup while renovations happen.	The Dean's office acknowledges the Department's plans to offer customized packages to new faculty that support setting up their lab and offer other resources, including a departmental mentor, for acclimating to the U of T environment and the Department.

	10	"To provide consistent communication/mentoring for each faculty, an individual meeting for each pre-tenure faculty member should be arranged with the Department Chair to discuss career progress and expectations for promotion."	The Vice Dean of Faculty and Academic Life recently shared a set of mentorship guidelines (July 2024), developed through extensive consultation, that will be shared will incoming faculty members and their assigned mentors in order to harmonize mentorship practices.	The A&S office of Vice-Dean, Faculty & Academic Life recently developed a New & Recent Faculty Program in partnership with Massey College. All new faculty members (teaching and tenure stream) are invited to participate in meetings where a series of different topics are addressed throughout the year (e.g., writing, PTR process, supporting students with mental health issues) as well as attend informal lunches for new hires to facilitate community-building. Regarding support for faculty mentorship, A&S Vice-Dean, Faculty & Academic Life, will work with the Department to ensure they are informed about the resources and supports available from the division.
	11	"To increase transparency and communication with pre-tenure faculty and create a mechanism to solicit their viewpoints, a pre-tenure faculty member could be appointed as a member of the executive committee for the Department."	As of June 2024, we have appointed a pre-tenure faculty member to CSB's executive committee.	The Dean's office is pleased to see that the Department has already taken this recommendation on board.
The reviewers noted faculty concerns about how the high and growing cost of research will impact their work, and made a number of suggestions related to strengthening research support systems.	12	"The Department may wish to consider raising user fees to be able to cover service contracts for key instruments in the Imaging Facility. If not already done, the unit may also wish to explore outside and corporate users for whom the user fees could be significantly higher."	We are investigating raising microscopy rates. At the same time, CSB's chair has struck a "subsidies committee" to investigate the currently somewhat inequitable distribution of subsidies for research facilities. The chair has tasked the committee with developing a more equitable model for distributing the considerable subsidies that CSB provides to researchers. It was noted in discussions about this recommendation that unless NSERC/CIHR funding increases, it is problematic to increase fees, which puts burden on researchers, who are already being asked to do more with grant funding that hasn't appreciably increased in many years.	In the near future, the Dean's Office will ensure that units receive more of their research overhead revenues directly, which Units can deploy to offset research costs.

	13	"To ensure evergreening of the microscopy suite of instruments in the Imaging Facility, the Department may wish to adopt an extremely systematic approach with regards to the planning of annual applications under the NSERC RTI program, and to leverage CFI funding opportunities."	The CSB Imaging Committee is investigating options to do this and it has already suggested preparing a CFI-IF for the 2027 call to secure service contracts for several instruments in RW (and purchase updates) and to establish an "ESC node" of the imaging facility (i.e., to update the space and replace the SP5).	The Dean's office supports the department's plan to address this recommendation.
	14	"The Faculty should ensure that there is a timely succession plan for the leadership of CAGEF, potentially by appointing an Assistant or Co-Director"	We have prioritized a single cell plant biology search this year, and will communicate with the director of FAS HR about the possibility of the next plant hire being at a more senior level to encourage the identification of a new CAGEF director. There is currently no faculty member who'd be an appropriate co-director and the current director doesn't feel that model would be feasible in any case.	EDUs: C, such as the Centre for the Analysis of Genome Evolution and Function (CAGEF) are reviewed regularly as best practices. The appointment or reappointment of unit leadership is informed by this review process. The last review of the CAGEF took place in 2021-22. In the longer-term, the next Dean's review is currently scheduled for 2026-27. The appointment of a Director will be considered in Spring 2027. The Vice-Dean, Research, will work with the unit at that time, along with the Director, Academic HR, to identify suitable candidates for the CAGAF director role.
	15	"The University, Faculty, and/or Department should assess the infrastructure needs required to provide secure and easy-to-access data storage for researchers and provide the same."	Our IT group is recommending that CSB build a redundant research data storage system (perhaps in cooperation with EEB). There is a standing need from the Imaging Facility for data storage. For groups that already provide for their own storage, CSB could serve as a redundant backup. Note that self-managed, on-premises storage is much cheaper over time than any subscription-based service. However, once established, CSB would own it and must maintain it. There would be an initial purchase costs, minor ongoing maintenance costs, and an ongoing IT staff time commitment.	In the medium-term, there is an evolving plan for CSB to gain tenancy in the Faculty's Research Data Center to meet their data storage needs.
The reviewers noted that "the principle sore points for many members of CSB seem to be related to building infrastructure and renovation." They recommended establishing	16	"Supported by Faculty administration, clearer processes must be established that improve the communication between department administration, users, and Facilities & Services."	It is not exactly clear what CSB can do on its own…we really need FAS and Facilities & Services to be on the same page.	Faculty Infrastructure Planning and Dean's Office leadership have allocated identified personnel to work directly with CSB on

clearer processes to strengthen communications between department administration, users, and Facilities & Services; and exploring ways to enhance transparency, accountability and immediacy related to departmental facilities and building infrastructure needs and requests.			physical and infrastructure needs. The department would still liaise with F&S directly on day-to-day property matters.
	17	"If not already in place, the Department or the Faculty may wish to consider assigning the responsibility of managing the liaison between users and Facilities & Services to a staff member who is familiar with both building infrastructure and researcher needs."	Our CAO is technically this individual, but when there are problems and things don't happen because Facilities & Services is not responding, it falls to the Chair to create a ruckus. It is not clear why this should be the *modus operandi*. A long-promised new building for CSB researchers may actually materialize soon, which would alleviate infrastructure issues.	The Dean's office, in coordination with the Infrastructure Planning group, are actively exploring potential new capital building opportunity for the relocation of CSB faculty and lab facilities.
The reviewers broadly observed challenges around creating a sense of community across the tri-campus graduate unit. They made a number of recommendations related to mitigating the effects of physical separation, including encouraging more regular movement across the three campuses, strengthening collaborative tri-campus faculty decision-making processes, and enhancing communications regarding tri-campus research areas.	18	"The research day could be organized in rotation on the three campuses or off site at a neutral location."	For the past two CSB research days, this rotation model has been in effect. In 2022-2023 academic year, CSB's Research Day was held in the west end, at the Old Mill. The 2023-2024 Research Day was held at Hart House, downtown. The 2024-2025 Research Day will be held either in North York or Scarborough, depending on site suitability. Feedback from faculty and students indicated that transit access to the Research Day site would be an important criterion for the site.	The Dean's office supports the Department's schedule for rotating the location of the research day between the 3 campuses.
	19	"Support staff administering Grad studies could spend 1 or 2 days per term at UTM and UTSC to meet Grad students in person."	The CSB associate grad chair will discuss with CSB's graduate coordinator the possibility of spending a day or two per term at UTM/UTSC, although virtual access at any time has always been available. Another option is to rotate the associate chair grad position to the satellite campuses. This possibility will be investigated in the longer term.	The Vice-Dean Graduate Education can support these discussions and assist the Department at arriving at a solution that satisfies all stakeholders at all campuses.
	20	"Faculty members from UTM and UTSC need to be included in decision making pertaining to graduate studies and policies. For this purpose, regular faculty meetings should be held that include faculty from the other two campuses (once or twice a year)."	The CSB Graduate Affairs Committee already has membership from all 3 campuses, and there are two meetings a year of this committee. According to a recently signed Tri-Campus Graduate Unit Memorandum of Understanding (MoU), the graduate chair of CSB is obligated to hold one meeting annually	The Dean's office is pleased that this recommendation has already been fully addressed by the Department.

			to which all CSB graduate members (i.e., from all 3 campuses) are invited. This shall be the case going forward, as opposed to delegated communication through the UTM and UTSC Biology chairs. This meeting will be held annually in the spring.	
	21	"A small task force comprising members from all three campuses should be convened to review the functionality of the web site to ensure that researchers at UTM and UTSC are as straightforward to identify as those on the St. George campus."	The associate chair research is working with CSB's communication officer to improve the navigation and flagging of CSB researchers according to their location of research (in addition to already flagging research areas and organisms), with inspiration from EEB's website organization (https://eeb.utoronto.ca/people/faculty [↗]).	The Dean's office is pleased that the Department is working to address this recommendation and ensure that navigation to all graduate faculty sites is smooth.
	22	"Members from all three campuses should engage with the Dean's office on long term planning to ensure that sufficient TA capacity exists to support the full complement of UG courses."	We don't think that there is an issue with TA capacity at the 3 campuses. According to the Tri-Campus Memorandum of Understanding, each campus is responsible for its own TA allocation/coordination as UG needs require.	The Dean's office supports the Department's assessment that TA support at the St. George campus is sufficient for undergraduate needs, a matter which is formalized through the MoU.

3 Committee on Academic Policy & Programs (AP&P) Findings

The spokesperson for the reading group reported that the review was positive overall, and that the review summary accurately reflected the full review. While the administrative response covered most of the pertinent issues, the group requested further explanation of the issues regarding space limitations, lack of transparency and communications about infrastructure & renovation and TA assignments, the insufficient number of graduate students available to serve as TAs at UTM and UTSC, and graduate student funding and the potential impacts on recruitment and retention.

Antoinette Handley, Acting Dean, Faculty of Arts & Science responded that the Vice-Dean, Research & Infrastructure was going to engage in discussions with the Chief Operating Officer of Property Services and Sustainability to develop improved and direct lines of communication. She explained that in relation to space integration, the Office of Infrastructure Planning was actively engaged with CSB and the Dean's office on the planning of a new building that would be shared with cognate researchers in another division. She noted that this initiative came from the recognition of the review, that a new building would allow for better, longer term planning. She noted that with the development of the new building, it would allow the Department to test an enhanced modular design for the research labs, with the intention that it would decrease the need for lengthy renovations when new faculty start their labs, and alleviate challenges that CSB had experienced with an aging building infrastructure and ongoing renovations.

Nicholas Provart, Department Chair, Department of Cell & Systems Biology responded that the TAs came from the graduate student pool. He explained that through the Memorandum of Understanding (MoU) that had been signed with both UTM and UTSC campuses, they could provide input into what kind of hires could be made. Thus, if there was a need, they could explore the possibility that they hire faculty in the particular area that TAs were needed in, and those TAs could support the courses. He added that there was little operational room and that there were complexities in requesting St. George graduate students to go to UTM or UTSC. In relation to transparency and communications regarding TA Assignments, Prof. Provart remarked that graduate students were able to choose their preferences, and that they would include additional messaging that the selected preferences may not always be guaranteed. He acknowledged they needed operational flexibility, and that there were related challenges around matching TAs with their preferred courses.

No follow-up report was requested.

4 Institutional Executive Summary

The reviewers highlighted that the Department of Cell and Systems Biology (CSB) encompasses research and training in a diverse group of disciplines, and that its undergraduate and graduate programs appear to be in high demand, well administered, and supported by an excellent

cohort of teaching and tenure-stream faculty. The undergraduate program is notable for faculty (particularly in the teaching stream) commitment to pedagogical innovation, incorporating new methods and technology, including AI tools, to deliver a rich student experience; the graduate program is strong and students appreciate its flexibility and relatively small number of required courses; and new and novel offerings in Bioinformatics and Computational Biology also appear strong and successful. Tenure stream faculty highlight the outstanding research supports available to them; an internal grant review process set up by the Associate Chair Research appears to be a resounding success; and the reviewers commended CSB's stimulating intellectual environment, noting a range of internal and external faculty collaborations. Finally, the reviewers praised the working environment in the Department as "very positive and conducive to success"; staff satisfaction and retention are high, staff feel supported by the administration, and there is an overall sense of stability and confidence in the Departmental leadership team.

The reviewers recommended that the following issues be addressed: explore opportunities to enhance advising, supports, and resources for the department's undergraduate population; strengthen structure, training, mentorship and supports to benefit the graduate program; ensure adequate supports for graduate students and junior faculty; strengthening the consistency and structure of supports for pre-tenure faculty, enhancing communications with this group, and involving them more closely in departmental operations and governance; strengthen research support systems; establish clearer processes to strengthen communications between department administration, users, and Facilities & Services and explore ways to enhance transparency, accountability and immediacy related to departmental facilities and building infrastructure needs and requests; mitigate the effects of physical separation, including encouraging more regular movement across the three campuses, strengthening collaborative tri-campus faculty decision-making processes, and enhancing communications regarding tri-campus research areas.

The Dean's Administrative Response describes the unit's responses to the reviewers' recommendations, including an implementation plan for any changes necessary as a result.

5 Monitoring and Date of Next Review

The Dean's office monitors progress on Implementation Plans through periodic meetings with program leadership and through the Department's five-year unit-level academic planning process, which will begin at the conclusion of the cyclical review. The office of the Vice-Provost, Academic Programs will request a brief Interim Monitoring Report midway between the March 2024 UTQAP cyclical review and the year of the next site visit to report on progress made on the Implementation Plan as outlined in the accompanying Review Recommendations Table.

The next UTQAP cyclical review of the Department will take place no later than the 2031-32 review cycle.

6 Distribution

On August 15th 2025, the Final Assessment Report and Implementation Plan was posted to the Vice-Provost, Academic Programs website and the link provided by email to the Dean of the Faculty of Arts & Science, the Secretaries of AP&P, Academic Board and Governing Council, and the Ontario Universities Council on Quality Assurance. The Dean provided the link to unit/program leadership.