

UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1. Review Summary

Program(s) Reviewed:	Biology, HBSc: Major; Minor Conservation and Biodiversity, HBSc: Specialist; Major Human Biology, HBSc: Specialist; Major Integrative Biology, HBSc: Specialist Molecular Biology and Biotechnology, HBSc: Specialist and Specialist Co-op Molecular Biology, Immunology and Disease, HBSc: Major Plant Biology, HBSc: Major
Unit Reviewed:	Department of Biological Sciences
Commissioning Officer:	Vice-Principal, Academic and Dean, University of Toronto Scarborough
Reviewers (Name, Affiliation):	<ol style="list-style-type: none"> 1. Professor Mark Bernards, Department of Biology, Western University 2. Professor Michael Caldwell, Department of Biological Sciences, University of Alberta 3. Professor David Kirkpatrick, Department of Biology Teaching and Learning, College of Biological Sciences, University of Minnesota
Date of Review Visit:	November 10-13, 2020
Date Reported to AP&P:	October 26, 2021

Previous UTQAP Review

Date: December 19 and 20, 2011

Summary of Findings and Recommendations

1. Undergraduate Programs

The reviewers observed the following **strengths**:

- Outstanding commitment to providing laboratory and experiential learning opportunities
- High levels of student satisfaction
- Thoughtful combination of programs that respond to students' needs

The reviewers made the following **recommendations**:

- Enhancing the quantitative and computational aspects of biological science to develop skills in the organization and management of large data sets
- Expanding participation in the co-op program
- Delivering several large enrolment courses in web-based format

2. Faculty/Research

The reviewers observed the following **strengths**:

- Research success of the faculty

3. Administration

The reviewers observed the following **strengths**:

- High morale of staff, faculty, and students

The reviewers made the following **recommendations**:

- Highlighting distinct areas of strength to assist with recruitment
- Addressing space challenges (especially laboratory space)

Current Review: Documentation and Consultation

Documentation Provided to Reviewers

1. About the University and UTSC: UTSC Academic Plan (2015-20); UTSC Admissions Viewbook (2020-21); Campus Virtual Tour.
2. About the Review: Terms of Reference; Review Report Template; Remote Site Visit Schedule.
3. About the Department: Previous External Review Report (2011); Previous External Review Final Assessment Report; Unit Academic Plan, April 2015; Unit Self Study, February 2020;

- Department Video; Program Videos for Conservation & Biodiversity and Human Biology.
4. About Programs and Courses: Description of all programs (2019-20 Academic Calendar); and description of all courses (2019-20 Academic Calendar); Course Enrolments from 2009 to 2019.
 5. Course Syllabi (all courses).
 6. Faculty CVs (all faculty).

Consultation Process

The reviewers met with the following: the decanal group, including the Vice-Principal Academic and Dean, Vice-Dean Recruitment, Enrolment and Student Success, Vice-Dean Teaching, Learning and Undergraduate Programs, Vice-Dean Graduate and Postdoctoral Studies, Acting Associate Dean Undergraduate Programs and Curriculum, and Academic Programs Officer; the Vice-Principal Research; the Chair of the Department of Biological Sciences; Biological Sciences faculty – tenure- and teaching-stream (all ranks); the Director and staff from the Arts & Science Co-op Office; UTSC Chief Librarian and library staff; technical staff; departmental administrative staff; and undergraduate students.

Current Review: Findings and Recommendations

1. Undergraduate Program

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

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ Undergraduate programs are excellent, and provide a solid foundation in Biology and its main sub-fields, on par with other Canadian universities
 - ▶ Within the Ontario and Canadian contexts, the Specialist programs are among the very best
 - ▶ Majors are well grounded in a core biology curriculum and provide a solid foundation
- Objectives
 - ▶ All programs highly consistent with the University's undergraduate goals, align well with the department's teaching mission and faculty research efforts, and deliver excellent undergraduate experience to students
- Admissions requirements
 - ▶ All programs have well-defined admission criteria
 - ▶ Significant enrolment increase over past decade, which seems likely to continue
 - ▶ Incoming students particularly drawn to Human Biology, Molecular Biology and Biotechnology options; other programs show lower but consistent enrolments
 - ▶ Significant recent enrolment trend towards Major programs

- Curriculum and program delivery
 - ▶ Program content is well thought out and delivered using a range of traditional and innovative approaches
 - ▶ Department to be commended for strong efforts in designing and delivering a modern Biology curriculum
 - ▶ Courses of study for each program are rigorously developed, with comprehensive Program Learning Outcomes
 - ▶ Many programs have undergone revisions in response to previous review
 - ▶ Teaching Stream faculty implementing current best-practice approaches to content delivery in their courses
 - ▶ Student research opportunities noted as highlight of conversations with faculty
 - ▶ Co-op option of Specialist in Molecular Biology & Biotechnology program represents a successful enhancement of the standard Specialist program, and is well supported and administered
- Innovation
 - ▶ Popularity of cross-disciplinary studies indicates healthy programs, providing students sufficient flexibility to tailor scholarship towards their personal goals
 - ▶ Recently-begun renovations to teaching labs promise to significantly elevate learning in impacted courses
 - ▶ Teaching Stream Faculty largely responsible for driving teaching innovation, including a number of unique and effective initiatives (cross-course poster project, C-level team research projects)
- Assessment of learning
 - ▶ Teaching Stream faculty have developed assessments to track outcomes of the changes made to PLOs
- Student engagement, experience and program support services
 - ▶ In general, students in programs administered by the department have an excellent educational experience
 - ▶ Student survey results indicate general satisfaction with the programs
 - ▶ Students commend Facilitated Study Groups (FSGs) as being central to their study process and success, and key for maintaining a sense of community after shift to online learning in response to COVID-19
- Quality indicators – undergraduate students
 - ▶ Entering undergraduates consistently strong, with a slight recent upward trend in incoming students' high school average (~85%)
 - ▶ Steady year-over-year increase in number of students on Dean's Honours list
- Quality indicators – alumni
 - ▶ Graduates are well prepared for future activities be they graduate school or workforce (either Government or private sector)

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

- Admissions requirements
 - ▶ Specialist and Minors have seen 1/3 enrolment reduction over past decade
- Curriculum and program delivery
 - ▶ Concerns raised by some students around sequencing of classes and the frequency of their availability, especially with regard to core courses
 - ▶ Co-op program and joint Paramedicine program present unique challenges to student progression
 - ▶ Relatively limited number of D-level courses that truly differentiate the distinct departmental Specialist programs
 - ▶ Professors at all ranks indicate they do not have enough time to meet all requests for UG research mentoring, particularly in supervised research courses
 - ▶ Teaching Stream faculty directly supervise undergraduate research courses, however note severely limited resources compared to Tenure Stream colleagues
- Student funding
 - ▶ No evidence of undergraduate scholarships or similar monetary support mechanisms

The reviewers made the following **recommendations**:

- Curriculum and program delivery
 - ▶ Explore formalizing research aspects of curriculum, by setting goals for the percentage of student involvement in research; a stronger emphasis on upper level research would benefit students
 - ▶ Provide Teaching Stream faculty with full support (financial, access to laboratory facilities, field equipment, etc.) to maximize the student research experience
 - ▶ Create capacity for new faculty to diversify upper-year course offerings
 - ▶ Review critical points in timetable of course offerings and consider offering required courses more frequently
- Student funding
 - ▶ Development of donor-funded scholarships would provide financial relief for students and increase programs' attractiveness

2. Faculty/Research

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ Faculty – Teaching Stream in particular – provide high quality classroom and laboratory instruction; their knowledge and expertise in curriculum development and delivery represent a significant departmental resource
 - ▶ UTSC faculty compare favourably with other small campus research intensive universities in Canada
 - ▶ Junior faculty members are uniformly high achieving academics, positioned for national and international success

- Research
 - ▶ Professors at all ranks conduct the expected “full scope and breadth” of research
 - ▶ Quality judged relative to core research funding measured against NSERC DG successes is high
 - ▶ Faculty research programs are highly subscribed to by graduate students and by undergraduate students seeking research learning opportunities, which reviewers note as indicative of their relevance
 - ▶ Tenure Stream faculty have self-assorted into non-exclusive research clusters whose members interact constructively
 - ▶ At level of Tenure Stream faculty recruitment, the department presents a well conceived plan for developing strength in seven identified research clusters
 - ▶ Funding support for research initiatives has remained strong, with a recent trend towards more external funding, most notably governmental agencies and non-profit organizations
- Faculty
 - ▶ Faculty complement stands at approximately 82% Tenure Stream and 18% Teaching Stream – a reasonable distribution, given extensive undergraduate teaching demands

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

- Overall quality
 - ▶ While UTSC faculty members at all ranks compared favorably with UTM faculty members at all ranks, neither group compared as well with faculty members in EEB and CSB at the St. George campus
- Research
 - ▶ Concerns expressed around lab renovation timelines, and subsequent delays in faculty productivity and outcomes
 - ▶ Reviewers view the lack chance to meet with graduate student stakeholders a missed opportunity in their assessment of the strength of departmental research activities, and quality of research environment

The reviewers made the following **recommendations**:

- Overall quality
 - ▶ Formally recognize Teaching Stream faculty as a ‘Research Cluster’ within the department, and encourage and promote continued curricular innovation that can be shared across all faculty involved in teaching
- Research
 - ▶ Provide maximal research support to new Tenure Stream faculty, either through accelerated renovations, or support for alternative research programs pending laboratory completion
 - ▶ Prioritizes quality of research space over proximity, ensuring needs of new and established researchers are met

- ▶ Include interviews with graduate student stakeholders in future review site visits

3. Administration

The reviewers observed the following **strengths**:

- Relationships
 - ▶ High morale, strong sense of community and collegiality amongst faculty, staff and students
 - ▶ Department has benefited from strong leadership since its inception and current chair has fostered a collegial environment
 - ▶ Local student composition indicates critical and important recognition from the local community
 - ▶ Tenure Stream faculty have self-assorted into non-exclusive research clusters whose members interact constructively; Teaching Stream faculty also form a cohesive unit
 - ▶ Department has developed extensive local, national and international partnerships with academic units in numerous universities and colleges, and with external government agencies at the local, provincial and national level
- Organizational and financial structure
 - ▶ Straightforward departmental organization structure that functions smoothly
 - ▶ Programs are well supported by excellent administrative and technical staff, through top quality library resources and a strong Co-op office
 - ▶ Department is effectively utilizing its “human resource” to realize their departmental mission and vision to excel in research and teaching
 - ▶ Recently initiated renovation (and expansion) of teaching labs universally viewed as a welcome change, and is absolutely essential to department’s ability to deliver high-quality undergraduate lab courses
- Long-range planning and overall assessment
 - ▶ Programs offered by the department align well with the UTSC academic plan
- International comparators
 - ▶ The Department of Biological Sciences and the undergraduate programs it offers are competitive on a global stage

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

- Relationships
 - ▶ Some faculty note strained relationships with cognate units (in particular Cell & Systems Biology, and Ecology & Evolutionary Biology), discontent with the graduate programs linked these departments, and a desire to develop their own graduate program
- Organizational and financial structure
 - ▶ Several impacts noted regarding tri-campus structure of graduate programs in biological sciences:
 - Department’s lack of involvement in governance and decision-making regarding graduate programs administered by CSB and EEB

- Inconvenience of the travel between UTSC and UTSG necessary to meet program requirements
 - Opacity around graduate student funding
- ▶ Physical constraints (both in total square footage and amenability to renovation) of the Andrews Building; all stakeholder groups expressed concerns around general departmental space
- ▶ Department has grown to physical limits of allotment in the Andrews Building; any future growth will necessitate difficult choices around space
- ▶ A number of the core facilities need renovation, most notably the greenhouse and aquatics facilities
- ▶ Administrative staff roster has not grown as quickly as rest of department
- Long-range planning and overall assessment
 - ▶ Recent faculty hires, driven by strong and growing UG enrolment, have brought department to a critical tipping point in terms of identity and future growth
 - ▶ UTSC complement planning is sensitive to the need to ensure that new hires meet standards set by cognate departments regarding supervision of tri-campus graduate students

The reviewers made the following **recommendations**:

- Relationships
 - ▶ Repair and make functional relationships with CSB and EEB
 - ▶ Either move to create own independent graduate program, or seek to build new relationships with cognate departments on graduate programming
 - ▶ Maintain department's high standard of achievement in external partnership development and relationships at all levels
 - ▶ Continue and build on excellent work of being locally relevant, to enhance national social impact
- Organizational and financial structure
 - ▶ Prioritize quality of research space over proximity, ensuring the needs of new and established researchers are met
- Long-range planning and overall assessment
 - ▶ Further explore development of a Conservation & Biodiversity Co-op program
 - ▶ Either develop own UTSC-administered graduate program and set own path for faculty complement, or evolve complement planning process to become a joint initiative between UTSC and its two graduate program cognate departments
 - ▶ Develop and articulate written complement plan for Teaching Stream faculty
 - ▶ Develop and articulate written complement plan for administrative and teaching support staff; ensure that staff complement growth keeps pace with faculty growth and any graduate program development
 - ▶ Related to space planning, decide what the Department values more:
 - Increasing the size of the faculty, staff and student complement, thereby requiring a new building/buildings to house growth; **or**

- Downsizing around complement planning and growth via attrition, remaining where they are currently housed with all members in close proximity
- ▶ Regarding complement planning:
 - Either develop own UTSC-administered graduate program and thus set own path for faculty complement planning; **or**
 - Evolve complement to become a joint initiative between UTSC and its two graduate program cognate departments
- ▶ Reviewers note several areas of opportunity for revenue generation:
 - Possible expansion of core facilities could lead to an increase in external users;
 - A focus on obtaining external support through endowments and scholarships
 - Increased involvement in revenue-generating Masters programs
- ▶ Include donor-funded scholarships and/or bursaries in fundraising plans



September 15, 2021

Professor Susan McCahan
Vice-Provost, Academic Programs
Office of the Vice-President and Provost
University of Toronto

Dean's Administrative Response: External Review of the Department of Biological Sciences

Dear Susan,

Thank you for the April 8, 2021 letter requesting my administrative response to the external review of the Department of Biological Sciences. We want to thank the review team – Professor Mark Bernards, Department of Biology, Western University; Professor Michael Caldwell, Department of Biological Sciences, University of Alberta; and Professor David Kirkpatrick, Department of Biology Teaching and Learning, College of Biological Sciences, University of Minnesota – for their consultation with us during the remote site-visit, held from November 10-13, 2020, and for their report, which was received on December 16, 2020, and finalized on January 4, 2021.

I appreciate the seriousness with which the reviewers approached the external review process, as well the thoughtful consideration given to Biological Sciences and its undergraduate programs. I am very pleased by the overall positive review of the Department. In particular, the reviewers noted the excellence of the undergraduate programs, the high-quality of teaching overall as well as the innovative pedagogical approaches in delivering course content, the strong sense of community and collegiality among the faculty, staff and students, the high morale, and the consistently strong leadership in the Department.

The external review report was sent to the Chair of the Department, Professor Andrew Mason, on January 5, 2021, with a request to share it widely among the faculty, staff and students. The decanal group, including myself, the Vice-Dean Teaching, Learning and Undergraduate Programs (VDTLUP), Vice-Dean Graduate and Postdoctoral Studies (VDGPS), Vice-Dean, Recruitment, Enrolment and Student Success (VDRESS), Vice-Dean Faculty Affairs, Equity, and Success (VDFAES), Interim Associate Dean Undergraduate Programs and Curriculum (ADUPC), the Director of the Office of the Vice-Principal Academic and Dean, and the Academic Programs Officer, met with the Chair of Biological Sciences and the current Associate Chair Teaching and Undergraduate Affairs, Associate Chair Research and Graduate Studies (now Acting Chair), and the former Associate Chair Teaching and Undergraduate Affairs, on May 5, 2021 to discuss the external review report and administrative response; I am pleased with the depth of the discussion that took place.

My administrative response to the points raised in your letter is given below. This response has been developed in close consultation with both the Chair and Acting Chair of Biological Sciences and reflects the key elements of the unit response letter, dated August 4, 2021. It also includes responses to points raised in the Request for Administrative Response that are outside departmental control.

Let me address the specific points raised in your letter:

- *The reviewers recommended that the Department explore formalizing research aspects of the curriculum, and that teaching stream faculty in particular receive appropriate access to labs and other resources to support program quality and undergraduate research.*

As the Chair outlines in his Response letter, these recommendations from the review team are related to undergraduate research. First, they recommend that the Department begin to formalize research aspects of the curriculum “by setting goals for the percentage of student involvement in research.” The impetus for this recommendation is the reviewers’ understanding that undergraduate research at the upper level “appears to be variable in its availability, based primarily on faculty willingness, capacity and involvement.” Given this variability, they feel that a stronger emphasis on upper-level research would be beneficial to undergraduates in each program. Second, the review team recommends that: “(a) teaching-stream faculty in the Department “receive full support (financial, access to laboratory facilities, field equipment, etc.)” to maximize the student research experience; and (b) the Department “formally recognizes the Teaching Stream Faculty as a Research Cluster within the Department, and encourages and promotes continued curricular innovation that can be shared across all faculty involved in teaching.”

With regard to the first recommendation, it is important to note that undergraduate students in the Department of Biological Sciences are already strongly encouraged to engage in research activities and have access to many opportunities to do so. Indeed, students begin building their research experience at the B-level (e.g., BIOB90H3), continue with courses at the C-level (e.g., BIOC90H3), and have access to rich array of opportunities at the D-level, including undergraduate thesis projects, summer research placements, and (for students in the Specialist Co-op program in Molecular Biology and Biotechnology) co-op placements. Building further on these course elements, in the 2019-20 academic year, the Department established an undergraduate, in-program Certificate in Biological Sciences Research Excellence that encourages students to engage in research, and formally recognizes, on their transcripts, students’ research accomplishments. These carefully scaffolded research opportunities are a highlight of the Department’s programs and research culture.

All faculty in the Department of Biological Sciences are highly invested in undergraduate research, but they believe strongly that they can only realistically support a limited number of students each year, dependent on the nature of the research (e.g., field work involving relatively large-scale surveys and data collection). This is in accordance with the nature of independent research projects, which require significant resources and investment by faculty (although the Department does provide limited financial reimbursement in support of D-level projects). Nevertheless, the expansion of course-based research opportunities remains an important area of potential growth. The Department proposes to expand the role of, and pedagogical/professional development resources available to, the teaching-stream faculty. For example, some members of the teaching stream faculty already engage work-study students in the summer months to develop and pilot mini experiments that are then incorporated into the Biology introductory course labs. In coming years, with more reliable use of renovated teaching lab space, this model will be adapted into course-based undergraduate research experiences (CUREs) that include an added biology education focus for the results of their experimentation.

In response to the second recommendation, the Department agrees that explicit recognition of pedagogical research and student research supervisions, largely led by teaching-stream faculty, would be beneficial. They plan to revise the departmental governance document to clarify their status as follows: 1) recognizing the contributions of teaching-stream faculty in the area of pedagogical research as integral to the department; and 2) making explicit that this entails access to full support and resources for teaching-stream faculty led student research. The Department further notes that financial, space, and equipment supports are currently available and teaching-stream faculty will be encouraged to leverage them. Finally, the Department has developed flexible options for all newly hired faculty to maintain

productivity while their labs are under development, including access to temporary space combined with earlier initiation of the design and renovation process for new labs.

While the Dean's Office strongly supports recognition for the pedagogical/professional development activities of teaching stream faculty, including discipline-based research, it is important to note that basic research is not required as a part of the workload of teaching-stream faculty at the University of Toronto. As a result, there are currently more limited resources and opportunities at the University to support teaching-stream faculty research, as opposed to pedagogical/professional development. It would be possible for the Department to provide resources to teaching stream faculty to allow them to supervise student research conducted as part of coursework, and the Dean's Office would certainly consider requests to enhance the teaching budget to permit this kind of research activity. While the Dean's Office supports the long-term development of research opportunities and related resources for teaching-stream faculty as part of their teaching and pedagogical/professional development activities, particularly given the growing emphasis on the scholarship of teaching and learning, changes to departmental governance and any related workload expectations for teaching-stream faculty research would raise issues of policy that would need to be addressed in dialogue with the Provost's Office.

- *The reviewers noted significant student concerns regarding the sequencing and frequency of required courses, and recommended that the Department review "critical pinch points" in its course offerings to enable timely degree progression.*

In his Response letter, the Chair notes that the Department of Biological Science has been working steadily to expand course offerings in the summer term to include all core courses in their programs; this initiative gives students the opportunity to complete any courses they may have missed during the academic year, particularly as a result of co-op work terms. Although the Department prefers that students maintain the recommended sequence of courses for their program(s), they recognize that some students will want, or need, to deviate from this pathway. To support these students, the Department regularly updates the undergraduate *Academic Calendar* to clarify the ideal program planning, and they have also created incentives for students to follow the recommended sequences. In addition, the Department provides advising sessions with the departmental Program Coordinator, prior to registration deadlines, with the goal of proactively assisting students in their academic planning. In terms of the number of upper-level courses available to students, the Department has been working steadily on broadening the selection of these courses (e.g. BIOC35H3, BIOD07H3, BIOD63H3, BIOD13H3 all added within the past three years, and BIOD29H3 proposed for the 2021-22 academic year) to more efficiently stream students to graduation. The effectiveness of these measures is demonstrated by time-to-completion rates in the Department, which compare favourably with institutional norms. The Dean's Office supports the Department in these endeavours and has suggested that the Department develop specific plans regarding the sequence and availability of courses in its programs. This will be supported and informed by strategic enrolment management led by the Dean's Office.

- *The reviewers recommended that the Department explore the development of a Co-op program in Conservation and Biodiversity.*

The Chair reports that plans to introduce a Specialist (Co-operative) program in Conservation and Biodiversity have already been initiated, and consultations with the Arts & Science Co-op Office, who are responsible for securing appropriate co-op work term placements for students, is currently ongoing. The Department notes that a major modification proposal is in development, and it has been submitted to the Dean's Office as part of the 2021-22 curriculum cycle. The expectation is that students will be able to begin enrolling in the program in Fall 2022.

- *The reviewers observed that recent faculty hires, driven by increasing undergraduate enrolments, have brought the Department to an "important crossroads" with regard to identity and future growth. They note that the Department has reached the limits of its current space, and recommend that meeting the space needs of new and*

established researchers in a timely way be prioritized over maintaining spatial proximity of the Department as a whole.

The Chair emphasizes that meeting the space needs of new faculty is a priority in the Department of Biological Sciences; however, a central consideration in the allocation of faculty research space in the Department is access to research resources and infrastructure. The Chair observes that the dispersed model of departmental growth imposes different constraints on complement planning because some areas of research cannot be supported in lab space that is removed from core facilities, and points out that the reviewers also seem to recognize this point in the review Report: “The success of the movement of research groups to new locations, should this be part of the Department’s decision regarding future space use, is likely to be correlated with easy access to appropriate core facilities (pg. 18).” The Chair acknowledges that that wet lab capacity in the Science Wing and Science Research Building are not fully utilized, and the Department will consider both proximal and less proximal space as best fits their complement planning priorities.

It may be helpful here to note that there is a process at UTSC for identifying space and equipment needs for new faculty. This process, which involves the Offices of the Vice-Principal Academic and Dean, the Vice-Principal Research and Innovation, and the Chief Administrative Officer, enables the campus to prepare in a proactive way for the needs of new faculty, and also encourages departments to consider the research facility needs of new faculty at the time that they develop their faculty complement plans. The availability of suitable space is taken into consideration when the campus develops its faculty recruitment and complement plans.

- *The reviewers recommend that the Department develop written complement plans for Teaching Stream faculty and administrative staff.*

In his Response, the Chair emphasizes that Department of Biological Sciences recognizes the important contributions the teaching-stream faculty make to the academic mission, and he reiterates that more coherent approach to complement planning will follow from an explicit recognition of teaching-stream faculty as an integral part of a research cluster that is focused on pedagogy. He further notes that, while teaching-stream faculty do participate in the annual campus-wide complement planning process they have not, in the past, brought hiring proposals to planning discussions in the same way that other research clusters normally do. The Department believes that their planned changes to departmental governance will address this.

It should also be noted that the Faculty Complement Committee (FCC) was created during the academic year 2019-20 to provide recommendations to me regarding the distribution of teaching-stream and tenure-stream faculty positions sought by academic units in the yearly recruitment cycle, within the context of strategic multi-year departmental and campus faculty complements. The FCC provides a consultative, inclusive and transparent process that involves all academic units in determining the complement submission at UTSC. Plans for hiring teaching-stream faculty will be considered in the review of faculty complements.

With regard to complement planning for administrative staff, the Department notes they are understaffed relative to other comparable departments, and they have already requested an additional staff position (dedicated to management of research funds), which has been provisionally approved. Development of a more comprehensive staff hiring plan will be incorporated in the next departmental academic plan, and the Dean’s Office will continue to work with the Department in assessing its short- and long-term staffing needs.

- *The reviewers noted that there are “structural barriers” to developing effective relationships with cognate departments, impacting the Department’s faculty complement planning and faculty morale. They recommend that issues of tri-campus graduate program administration be addressed in order to improve relationships.*

The Chair believes that the review may have gained an inaccurate impression of the tri-campus graduate landscape at the University, and notes that the Department's complement planning process is not constrained in any way by their tri-campus graduate relationships with cognate units on the St. George campus. As he notes in his Response, the only expectation is that a graduate chair must be represented on each hiring committee and is required to co-sign a letter of offer, and these requirements are not a source of tension.

However, the Chair does acknowledge that there are other points of tension. First, graduate resources are remote from the Department. While this challenge is somewhat mitigated by campus-level graduate support via the Office of the Vice-Dean Graduate and Postdoctoral Studies, the Department believes it can undermine department cohort building. Second, the sense of detachment from cognate graduate units among faculty, which is largely a consequence of distance is somewhat inevitable in disciplines like biology where faculty are tied to physical infrastructure for their work. In this instance, the Department notes that some faculty do maintain strong ties with their affiliated graduate unit, but they primarily identify as members of UTSC Biological Sciences, with complement planning, undergraduate curriculum development and graduate training taking place in that context. Only graduate programming and administration are dispersed.

The Department believes that a proposal for a new graduate program, that is currently under development, is a constructive way to address these issues. The proposed program in Interdisciplinary and Applied Biology, which is in the very early stages of development, is designed to provide PhD-level training in the biological sciences, with an emphasis on cross-disciplinary training, hands-on experience, and the applicability of basic science to real-world problems. The Department anticipates that most faculty will not change their primary graduate affiliation; instead, the new program would be an alternative intake. Moreover the new program will require the development of more graduate course offerings that will alleviate the requirement for graduate students to travel to the St. George campus for courses; this will address a University of Toronto priority for diversified career training for graduate students; and the program will directly advance the campus strategic goals of inclusivity, access, and graduate growth, because it is likely to have broader appeal among students who might not initially consider traditional academic careers.

The Dean's Office will monitor the implementation of recommendations through ongoing meetings with the Chair. A brief report to the Office of the Vice-Provost, Academic Programs, midway between the November 2020 site visit and the year of the next site visit, and no later than Fall 2024, will be prepared. The next external review of the Department has been scheduled for 2027-28.

Regards,



Professor William A. Gough
Vice-Principal Academic & Dean

cc.

Professor Kenneth C. Welch, Acting Chair, Department of Biological Sciences, UTSC

Implementation Plan

Action	Timeline	Lead
Revisions to departmental governance document to: 1) recognize the contributions of teaching-stream faculty in the area of pedagogical research as integral to the department; and 2) make explicit that this entails access to full support and resources for teaching-stream led student research.	Short term [6 months] – to be completed in Fall 2021	Acting Chair, Department of Biological Sciences
Introduce a new Specialist (Co-operative) program in Conservation and Biodiversity	Short to medium term [6 months to 1 year] – anticipated start date is Fall 2022	Ivana Stehlik, Associate Professor, Teaching Stream, Department of Biological Sciences
Expansion of course-based undergraduate research experiences (CUREs).	Medium to long term [1 to 5 years]	Associate Chair, Teaching and Undergraduate Affairs, Department of Biological Sciences
Development of a more comprehensive staff hiring plan as part of the next departmental academic plan.	Medium to long term [2 to 3 years] – to be completed by Spring 2023	Chair, Department of Biological Sciences
Introduce a new PhD in Interdisciplinary and Applied Biology	Medium to long term [2 to 3 years] – earliest anticipated start date is Fall 2023	Mauricio Terebiznik, Associate Professor, Department of Biological Sciences Nate Lovejoy, Professor, Department of Biological Sciences

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

The spokesperson for the reading group reported that the review summary accurately reflected the full review. The reading group found the review very positive with reviewers remarking on the excellence of the undergraduate programs which were rooted in up-to-date pedagogical methods resulting in a modern Biology curriculum.

In response to a question from the reading group, Professor Kenneth Welch, Acting Chair, Department of Biological Sciences, commented that:

- The Department had proposed new course based undergraduate research experiences which were expected to launch in 2023-24 and that work continued in formalizing aspects related to those new offerings.
- Responding to a concern raised that the frequency of offerings in the co-op program could result in delayed in graduation, Professor Ashok, Associate Chair, Undergraduate Affairs Department of Biological Sciences, commented that:
- there was a high degree of confidence that all students were on track to graduate without delay.
- Pre-program advising had been put in place to assist first- and second-year students.

No follow-up report was requested.

4. Institutional Executive Summary

The reviewers observed excellent, globally competitive undergraduate programs; they commended the department for strong efforts in designing and delivering a modern Biology curriculum; they noted that faculty – particularly in the teaching stream – provide high quality classroom and laboratory instruction; programs are well supported by excellent administrative and technical staff, through top quality library resources and a strong Co-op office; the local student composition indicates critical and important recognition from the local community; overall morale within the department was described as very high, with students reporting an excellent educational experience and strong sense of community; and finally, the department's use of Facilitated Study Groups in many programs was noted as a significant strength, and commended as key for maintaining a sense of community among students after the shift to online learning in response to COVID-19. The reviewers recommended that the following issues be addressed: exploring formalizing research aspects of the curriculum, and providing teaching stream faculty with appropriate access to resources to support program quality and undergraduate research; reviewing “critical pinch points” in course offerings to ensure timely degree progression; exploring the development of a Co-op program in Conservation and Biodiversity; prioritizing meeting the space needs of new and established researchers in a timely way over maintaining spatial proximity of the department as a whole; developing written complement plans for Teaching Stream faculty and administrative staff; and finally addressing issues around tri-campus program administration to improve relationships with cognate departments. The Dean's Administrative Response describes the Faculty, unit and programs'

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 will monitor the implementation of recommendations through ongoing meetings with the Chair.

The Dean will provide an interim report to the Vice-Provost, Academic Programs no later than Fall 2024 on the status of the implementation plans.

The next review will be commissioned in 2027-28.

6. Distribution

On January 15, 2022, the Final Assessment Report and Implementation Plan was posted to the Vice-Provost, Academic Programs website and the link provided by email to the Vice Principal Academic & Dean of UTSC, the Secretaries of AP&P, Academic Board and Governing Council, and the Ontario Universities Council on Quality Assurance. The Dean provided the link to the Chair of the Department.