

***SUBMITTED TO OUCQA FOR INFORMATION – August 1, 2024***

***APPROVED BY TRENT UNIVERSITY’S SENATE COMMITTEE – December 5, 2023***

# Final Assessment Report & Implementation Plan – Executive Summary – BSc Biology, BSc Biomedical Science, and BSc Conservation Biology

# Completed by the Cyclical Program Review Committee (CPRC)

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| **Degree Programs Being Reviewed** | BSc Biology  BSc Biomedical Science  BSc Conservation Biology |
| **External Reviewers** | Dr. Costin Antonescu, Toronto Metropolitan University  Dr. Scott Ramsay, Wilfred Laurier University |
| **Internal Representative** | Dr. Laura Summerfeldt, Department of Psychology, Trent University |
| **Year of Review** | 2022-2023 |
| **Date of Site Visit** | January 26-27, 2023 |
| **Due Date for Implementation Report from the Program** | Nov 1, 2024 |
| **Date Prepared by CPRC** | Oct 18, 2023 |
| **Date Approved by Provost & VP Academic** | Nov 16, 2023 |
| **Signature of Provost & VP Academic** | **A close-up of a signature of Michael Kahn, Provost and Vice President Academic** |

The Department of Biology offers three distinct degree programs, BSc Biology, BSc Conservation Biology, and BSc Biomedical Science. Students are able to customize their education to meet their interests and career aspirations. Graduates will have a well-developed understanding of the hierarchical nature of life, from molecules to cells, from tissues to organisms, and from populations to ecosystems, and will be able to apply their knowledge of Biological principles to understand the relationship between organisms and their environments.

As noted by the External Reviewers, ‘The three programs offer a strong and comprehensive education in various specific aspects of Biology in fields that are highly relevant and impactful to society. The academic strengths of these programs are strongly supported by the research excellence of the Department, as well as many different strategies for experiential learning, integrated throughout the curriculum.

The BSc Biology provides students with a solid, fundamental understanding of all aspects of biology (from molecules to ecosystems) and build their scientific communication and laboratory skills.

The BSc Conservation Biology (Honours) degree is offered in two forms – a placement option, or a co-op option. Both options give students hands-on experience by working with conservation organizations such as in the Ministry of Northern Development, Mines, Forestry and Wildlife (located on Trent’s campus); Nature Conservancy Canada; and Parks Canada.

The BSc Biomedical Science combines the study of biology and medicine, and through local partnerships, gives students hands-on experience in health care practices not typically experienced at the undergraduate level.

**Overview**

During the 2022-2023 academic year, BSc Biology, BSc Conservation Biology, and BSc Biomedical Science underwent a review. Two arm’s-length external reviewers (Dr. Costin Antonescu, Toronto Metropolitan University and Dr. Scott Ramsay, Wilfred Laurier University) and one internal representative (Dr. Laura Summerfeldt, Department of Psychology, Trent University) were invited to review the self-study documentation. The site visit took place at the Peterborough campus on January 26th – 27th, 2023.

This Final Assessment Report (FAR), in accordance with Trent University’s Institutional Quality Assurance Policy (IQAP), provides a synthesis of the cyclical review of the undergraduate degree programs. The report considers four evaluation documents: the Program’s Self-Study, the External Reviewers’ Report, the Program Response, and the Decanal Response.

A summary of the review process is as follows: the academic unit completed a self-study that addressed all components of the evaluation criteria as outlined in Trent’s IQAP. Appendices included: Curriculum Vitae, Course Syllabi, Data Tables, Student and Alumni Surveys, and a Library Statement of Support. Qualified external reviewers were invited to conduct a review of the programs that involved a review of all relevant documentation (self-study, appendices, and IQAP policy) and participation in a virtual visit. During the virtual site visit, reviewers met with senior administration, faculty, students, and staff.

Following receipt of the External Reviewers’ Report, the Program and Dean provided responses to the Report. Based on the four review documents, the Cyclical Program Review Committee (CPRC) then reviewed and assessed the quality of the degree programs and reported on significant program strengths, opportunities for improvement and enhancement, and the implementation of recommendations.

The Implementation Plan identifies twenty-four (24) recommendations for implementation and specifies the proposed follow-up and the person(s) responsible for leading the follow-up. The Academic Unit, in consultation with their Dean, will submit an Implementation Report in response to the recommendations identified for follow-up. The Report is due November 1, 2024.

**Significant Program Strengths**

Addressing student interests and concerns is a priority of the Department. The Department and its Curriculum Committee are to be commended for the process they have adopted to allow for the continuous improvement and relevancy of their programs and curriculum. Most recently, an extensive review of course offerings took place that resulted in providing students with more flexibility in terms of choice and in completing their degree requirements. Examples of this include the introduction of new courses, the addition of online course offerings, and prioritizing the offering of summer courses at the 3000- and 4000- level for co-op students.

Providing experiential learning opportunities is a strength across the three degree programs. Students can choose from an array of hands-on learning including placements, internships, and co-ops. High impact practices are evident throughout the program. Labs are offered in most first and second year course courses, and students will have access to first-hand fieldwork experiences in ecologically related courses. The unique setting of the University provides ample opportunity for study in the field in the areas of conservation biology and ecology. As well, students have the unique opportunity to complete an Honours Thesis or a Community-Based Research project. Faculty mentors are committed to providing students with undergraduate research opportunities where students may have the opportunity to work with faculty in their research labs, receive valuable research training, and may even have the opportunity and benefit of presenting their research at conferences and/or co-authoring peer-reviewed manuscripts.

The expertise and strength of faculty is critical to providing students in these three programs with enhanced learning experiences. The Department of Biology has a strong cohort of faculty with diverse research expertise, and as External Reviewers noted faculty ‘have demonstrated success in securing research funding’. Faculty are able to incorporate recent research topics and current field methodologies into their curriculum, providing student with up-to-date perspectives and applications.

An additional strength of the program is the partnerships and external relations that have been developed through active research programs, as well as through community partnerships. These partnerships benefit our students through successful placements within organizations in the community and beyond, e.g., Ministry.

**Opportunities for Program Improvement and Enhancement**

The recommendations below specifically address specific gaps and issues that will enhance the course offerings and learning experiences for students in the three degree programs.

More generally, the Department has noted the rapid growth of students to their programs and the need for additional resources to support this growth in both student majors and increased service teaching. There are larger class sizes, fewer GTAs with expertise, and the demand for lab space has reached capacity. It will be important for the Department to work closely with their Dean to ensure the necessary resources are provided to sustain the program.

The Department is encouraged to build on their strengths in experiential learning through collaboration with Careerspace in order to seek out new partnerships and external relationships to meet the growing need for student placements and experiential learning opportunities.

Additionally, as part of the annual academic planning process, and should the opportunity arise to hire additional faculty, the Department should identify areas of research that need to be strengthened or enhanced, for example the area of Health was noted in Recommendations 5 and 12.

Notably, the Department of Biology has an engaged Curriculum Committee that closely monitors curriculum and courses. The Department is encouraged to explore courses that incorporate the areas of health and Indigenous studies, both of which would strengthen their programs and be an attractive option to students.

**Implementation Plan**

The Implementation Plan identifies those recommendations that require action by the academic unit. The Chair or Director, with members of the academic unit, will be responsible for leading the follow-up in consultation, and where appropriate, with Dean(s) and other university departments.

The Academic Unit will report on actions taken and the status of each recommendation by the due date provided. The (Associate) Dean will be responsible for reviewing the Implementation Report and submitting the final report to the Office of the Provost.

**DUE DATE FOR IMPLEMENTATION REPORT: Nov 1, 2024**

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| **Recommendation** | **Proposed Follow-Up**  If no follow-up is recommended, indicate ‘No follow-up report is required’ and provide rationale | **Specific Timeline**  Indicate specific timeline for addressing or completing recommendation | **Position Responsible for Leading Follow-up** |
| **Biology** |  |  |  |
| **Recommendation 1**  That the Biology Program create a bridging course to support students that arrive in the program without Grade 12 Biology or Grade 12 science courses. | No follow-up required.  New BIOL 1001H course has been developed. |  |  |
| **Recommendation 2**  That the Biology Program carefully considers impacts on resources and recruiting students before creating a new direct-entry major. | No follow-up required.  No program developments are currently planned. |  |  |
| **Biomedical Science** |  |  |  |
| **Recommendation 3**  That the Biomedical Science Program consider revisions to the first-year requirements for the program, with an aim to offer more flexibility to students to choose electives and avoid carry-over effects into second year. | The Department will review first year course requirements and provide an update on any changes to first year offerings.  CPRC recommends the following be considered:   * Streamline first year courses * Differentiate BIOM 1000H from BIOL 1030H * Remove MATH 1120H – Calculus II as a requirement (not needed as a prerequisite for upper year required course)   The Implementation Report will provide an update. | April 2024 | Chair |
| **Recommendation 4**  That the Biomedical Science Program consider strategies for additional offerings in statistics, specifically in upper-year courses. | No follow-up is required.  Additional course offerings in Statistics may not be a priority for BIOM at this time. Students have the opportunity to take additional elective courses in Statistics, and there is not a lot of flexibility in the BIOM program to increase required courses. |  |  |
| **Recommendation 6**  That the Biomedical Science Program address issues of limited experiential learning opportunities for Biomedical Science students.  **Recommendation 12b (All)**  That the Department consider strategies to examine collaborative research opportunities for students in all three programs.  **Recommendation 13 (All)**  That additional research practicum courses be considered to provide students with more opportunities for hands-on research prior to 4th year, for example in a faculty-led research laboratory or group. | The Department will explore additional experiential opportunities, including Course-Based Undergraduate Research Experiences (CUREs) and Community Based Research Projects.  The Implementation Report will provide an update on Experiential Learning Opportunities available to students in all three programs, and will specifically talk about undergraduate research opportunities. | April 2024 | Chair |
| **Recommendation 7**  That the Biomedical Science Program consider including a 4thyear biochemistry course in the list of eligible program electives. | The Implementation Report will provide an update on developing electives at the 4000-level. | Dec 2023 | Chair |
| **Recommendation 8**  That the Biomedical Science Program consider strategies to take into account inclusive excellence for competitive portions of the program, such as the Internships. | Department to develop inclusive selection criteria to be used for awards and competitive internships.  Department is encouraged to consult with Rona Jualla Van Oudenhoven, Director Equity, Diversity, & Inclusion  The Implementation Report will provide an update on the development of inclusive criteria. | December 2023 | Chair |
| **Recommendation 9**  That the Biomedical Science Program review and compare the structure, goals, and outcomes of the program with the Trent-Swansea double degree program to ensure that the two programs are clearly distinguished from each other. | No follow-up is required.  The Biomedical Science program is sufficiently different from the Trent/Swansea program, therefore is not directly competing with the BIOM degree. |  |  |
| **Biomedical Science and Conservation Biology** |  |  |  |
| **Recommendation 5**  That the **Biomedical Science** Program consider new course offerings that allow a more diverse view of human health and disease.  **Recommendation 12a**  That the Department consider strategies to integrate Health and **Conservation Biology** teaching. | The Department has indicated that a new ‘One Health’ course has been developed and is open to students across the three degrees, and that a new faculty members has been hired in the areas of health.  The Department should also consider courses offered by other academic units that could be integrated into their program (e.g., Health & Behavior courses).  The Implementation Report should provide an update on plans to offer additional course offerings in health in both the Biomedical and Conservation Biology degree programs. | April 2024 | Chair |
| **Conservation Biology and All Programs** |  |  |  |
| **Recommendation 10**  That the **Conservation Biology Program** offer a greater diversity of upper-year courses in the summer term, and address concerns about late cancellations in upper-year courses.  **Recommendation 19 – All Programs**  That more deliberate mechanisms be established for selecting summer courses, giving special consideration to offering a reasonable set of 3000- and 4000-level courses for co-op students who are on a summer study term. | The Department should review course offerings to ensure that co-op students will have access to upper year courses.  The Implementation Report should provide an update on the plan to offer upper years courses in the summer. | April 2024 | Chair |
| **All Programs** |  |  |  |
| **Recommendation 11**  That the Programs would benefit from the development of a concerted and resourced plan to ensure that there is sufficient support for establishing and maintaining long-term partnerships. | No follow-up is required.  The Department is encouraged to consult and collaborate with Careerspace to develop a plan establishing and maintaining external partnerships. |  |  |
| **Recommendation 14**  That faculty input be considered in GTA assignments. | No follow-up is required.  GTA allocation is governed by the CUPE 2 Collective Agreement. |  |  |
| **Recommendation 15**  That increased support be provided for the teaching development of GTAs, along with consideration for a GTA mentorship program. | No follow-up required.  CTL offers a Graduate Teaching Certificate, and the Department offers a mentorship program.  CTL is continuously working with the Graduate Office to offer supports for GTAs. |  |  |
| **Recommendation 16**  That mechanisms be implemented to address student concerns about GTA performance. | There is a process in place to deal with GTA performance, however, the Department should consider implementing separate surveys that would allow students to report on their experiences with respective GTAs. It should be noted that formative development of GTAs is not used for job performance.  The Implementation Report will provide an update. | April 2024 | Chair |
| **Recommendation 17**  That more frequent ‘Town Hall’ sessions be held for each student group/individual degree program. | To ensure continuous student feedback, the Department will consider: (1) how to proceed with either single or combined Town Halls; (2) more formal or regular communications with students; and (3) adding students to their departmental committees.  The Implementation Report will provide an update. | April 2024 | Chair |
| **Recommendation 18**  That the issues of inconsistent learning objectives and expectations of in-person courses and their online counterparts be addressed, as well as concerns about course codes being identical for online and in-person offerings. | The Department should review courses that are offered both in-person and online, to ensure that learning outcomes and expectations are identical for each.  The Implementation Report will provide an update on this review. | April 2024 | Chair |
| **Recommendation 20**  That course offerings be reviewed to ensure their relevance and currency in the programs, and to ensure there are relevant faculty members who can teach the courses. | The Department should review course offerings on an ongoing basis.  The Implementation Report will provide an update on the Department’s review of course offerings. |  | Chair |
| **Recommendation 21 – Curriculum**  That a diversified set of capstone experiences be developed that could be offered to a greater number of 4th year students without straining the capacity of faculty to supervise honours theses. | The Implementation Report will provide an update on additional capstone experiences to be offered in 4th year, including Course-Based Undergraduate Research Experiences (CUREs) and Community Based Research Projects. | Discussions to begin Fall 2023 with resolution by April 2024 |  |
| **Recommendation 22 – Curriculum**  That the gap between program expectations for BIOL 2000 and student experience be addressed. | That BIOL 2000H be reviewed to ensure that the textbook supports the learning outcomes.  The Implementation Report will provide an update on BIOL 2000 and any changes that have been made to the required textbook readings, course delivery, and/or instruction. | April 2024 |  |
| **Recommendation 23 – Faculty Hire**  That the Department develop a strategy to identify gaps where faculty are needed. | The Department will consider these gaps as part of the annual academic plan process.  The Implementation Report will identify any gaps as presented in the annual academic plan. | December 2023; this is an ongoing process | Chair |
| **Recommendation 24 – Faculty Hire**  That administration provide support for new hires. | No follow-up required.  A number of new appointments have recently been appointed to Biology. |  |  |