Western UNIVERSITY · CANADA

Biology
Final Assessment Report & Implementation Plan
August 2026

Faculty / Affiliated University College	Faculty of Science	
Degrees Offered	Bachelor of Science (BSc)	
Date of Last Review	2017-2018	
Modules Reviewed	Honours Specialization in Animal Behaviour Honours Specialization in Biodiversity and Conservation Honours Specialization in Biology Specialization in Biology Major in Biology Minor in Biology Major in Ecosystem Health Honours Specialization in Genetics Major in Genetics Minor in Genetics Honours Specialization in Genetics and Biochemistry Honours Specialization in Synthetic Biology	
External Reviewers	Dr. Brian Cumming Professor, Department of Biology, Queen's University	Dr. Nicolas Provart Professor, Department of Cell & Systems Biology, University of Toronto
Internal Reviewers	Dr. Daniel Robinson Associate Dean, Faculty of Information and Media Studies	Morgan DeCampos Undergraduate Student
Date of Site Visit	March 2-3, 2026	
Date Review Report Received	March 19, 2026	
Date Program/Faculty Response Received	Program Response: June 18, 2026 Faculty Response: June 18, 2026	
Evaluation	Good Quality	
Approval Dates	SUPR-U: September 22, 2026 ACA: October 6, 2026 Senate (for information): October 23, 2026	
Year of Next Review	2033-2034	
Progress Report	June 2029	

Overview of Western's Cyclical Review Assessment Reporting Process

In accordance with Western's Institutional Quality Assurance Process (IQAP), the Final Assessment Report (FAR) provides a summary of the cyclical review, internal responses, and assessment and evaluation of the Biology Undergraduate Program, delivered by the Faculty of Science.

This FAR considers the following documents:
- the program's self-study brief;
- the external reviewers' report;
- the response from the Program; and
- the response from the Dean, Faculty of Science

This FAR identifies the strengths of the program and opportunities for program enhancement and improvement, and details the recommendations of the external reviewers – noting those recommendations to be prioritized for implementation.

The Implementation Plan details the recommendations from the FAR that have been selected for implementation, identifies who is responsible for approving and acting on the recommendations, specifies any action or follow-up that is required, and defines the timeline for completion.

The FAR (including Implementation Plan) is sent for approval through the Subcommittee on Program Review - Undergraduate (SUPR-U) and the Senate Committee on Academic Curriculum and Awards (ACA), then for information to Senate and to the Ontario Universities' Council on Quality Assurance. Subsequently, it is publicly accessible on Western's IQAP website. The FAR is the only document from the cyclical review process that is made public; all other documents are confidential to the Undergraduate Biology Program, the Faculty of Science, and SUPR-U.

Executive Summary

The Department of Biology offers twelve undergraduate modules, including joint modules with the departments of Psychology and Biochemistry. The curriculum is comprised of almost 100 courses that range from Biology 1001A and Biology 1002B, each with over 2,000 students, to a diversity of fourth-year courses where the enrolments are often less than 20 students. All students begin with common first-year and second-year core courses. At the honours specialization level, students experience an advanced level of subject-area knowledge, greater facility in scientific writing and presentations, greater depth in critical thinking, and the ability to execute an experiment in their field, rather than describing one.

The Biology program brings diverse perspectives together to bear on fundamental biological questions, and to train the next generation of biologists to understand, critically evaluate, and apply biological concepts to bear on the world's pressing challenges. Students in our programs acquire the knowledge, tools and skills that allow them to succeed in a wide range of careers, including research in academia, government, NGOs and industry, consultancy, medicine and law, to name a few. Enrolment of students registered in at least one module in 2024-2025 was 1367 students.

The self-study included refinement of the program learning outcomes and a curriculum mapping exercise. It was equally informed by a student focus group, an alumni survey and a dedicated departmental retreat which served as a forum for broad consultation and collaborative planning.

The external reviewers shared a positive assessment of the Undergraduate Biology Program. They offer four recommendations with considerations for further enhancement.

Strengths and Innovative Features Identified by the Program

- Biology functions as an undergraduate teaching hub, delivering foundational and shared courses for large numbers of students progressing through Science, Health Sciences, and Basic Medical Sciences, while also supporting cross-faculty and interdisciplinary programs.
- The broad suite of customizable Biology-focused modules allows students to pursue pathways spanning general biology, genetics, biodiversity and conservation, animal behaviour, ecosystem health, and synthetic biology, while combining Biology with offerings from other faculties.
- Research-active faculty bring current scholarship into teaching, supported by facilities and collections such as the Biotron, Advanced Facility for Avian Research, Molecular Genetics Unit, and Biodiversity Collections.
- Experiential opportunities to participate in honours theses, independent research, co-op placements, field courses, community-engaged projects, research-laboratory work, and local or international learning.
    - 2-week field course offered through the Ontario Universities Program, the Field Research in Ecology and Evolution Diversified program which offers subsidized opportunities for students from under-represented groups, and Ontario Biology Day.
- Strong enrolment, attracting students transferring from related programs. The program shows generally positive progression and retention patterns.

Concerns and Areas of Improvement Identified and Discussed by the Program

- Recent departures and anticipated retirements could significantly reduce teaching capacity and disciplinary breadth, particularly in physiology, ecology and evolution, plant and fungal biology, systematics, and cell and developmental biology.
- Growing enrolments, oversubscribed upper-year courses, and extensive waitlists are limiting student choice and, in some cases, complicating timely progression through modules.
- Declining or constrained funding for teaching assistants, equipment, supplies, technical staffing, and teaching facilities has led to pressure on lab-intensive courses.
- Uptake of field courses, international experiences, exchanges, and co-op opportunities remains limited, with financial, informational, and other access barriers affecting participation.
    - Consider possibility of securing additional funding from donors to finically support student experiential learning opportunities.
- Need to consider gaps in routine exit and alumni data, incomplete tracking of graduate outcomes and limited formal program-level feedback.

Review Process

As part of the external review, the review committee, comprising two external reviewers, one internal reviewer and a student reviewer, were provided with Volume I and II of the self-study brief in advance of the scheduled review and then met in-person over two days with the:

- Vice-Provost, Academic Programs
- Vice-Provost, Academic Planning, Policy and Faculty
- Director, Academic Quality and Enhancement
- Western Libraries Team Members
- Dean, Faculty of Science
- Associate Dean, Academic
- Department Chair
- Associate Chair, Undergraduate
- Undergraduate Education Committee Members
- Program Faculty Members
- Undergraduate Program Staff
- Undergraduate Students

Following the site visit, the external reviewers submitted a comprehensive report of their findings which was sent to the Program and Decanal Office for review and response. Formative documents, including Volumes I and II of the Self-Study, the External Report,

and the Program and Decanal responses form the basis of this FAR. The FAR is collated and submitted to SUPR-U by the Internal Reviewer with the support of the Office of Academic Quality and Enhancement.

Summative Assessment – External Reviewers' Report

External reviewers shared that *"Western University's Undergraduate Biology Program reveals a department that is academically strong, deeply student-focused, and central to the educational mission of multiple faculties. Biology functions as a "work-horse department," supporting students from Science, Health Sciences, and Medicine while maintaining high-teaching quality, diverse module offerings, and a rich suite of experiential learning opportunities."*

Strengths of the Program:

- Extensive range of specialist, major, and interdisciplinary modules enables students to customize their studies while retaining curricular coherence, depth, and a strong second-year foundation.
- Faculty achievements, including national and institutional research chairs and scholar awards, demonstrate research leadership, scholarly innovation, pedagogical excellence, and commitment to student mentoring.
- Field courses, honours theses, work-study positions, undergraduate research awards and internships, community-engaged learning, and access to zoological and herbarium collections provide rich hands-on and research-focused experiences.
- A strong Biology Undergraduate Society, and a "Thriving in Biology" mentorship program foster a strong student experience.

Prospective Areas of Improvement for the Program to Consider

- Large waitlists and constrained laboratory capacity limit access to high-demand upper-year, laboratory, and research-focused courses.
- Reduced teaching-assistant support and rising proctoring demands, threatens experiential learning and timely feedback.
- Need for consistent institutional guidance on AI-related assessment and academic integrity.
- Improve communication and visibility of opportunities such as undergraduate research awards, internships and events.
- Encourage efforts to increase the representation of racialized faculty, recruit Indigenous scholars, encourage Indigenous student participation, and better reflect the diversity of the student population.

Summary of the Reviewers' Recommendations and Program/Faculty Responses

The following are the reviewers' recommendations in the order listed by the external reviewers.

Reviewers' Recommendation	Program/Faculty Response
Recommendation #1: Develop a Computational Biology Strategy There is strong student demand for more computational training, and administrators expressed openness to expanding offerings in this area. While students benefit from courses such as Biol/Stat 2244 and isolated bioinformatics electives, the curriculum lacks a coherent computational pathway. The department should consider introducing a 3rd-year computational biology course that bridges the gap between introductory R-based training and advanced 4th-year genomics and bioinformatics courses. More broadly, the department would benefit from a formal computational strategy that articulates core competencies. The department should strongly consider a hire in the area of computational biology to effectively implement the strategy.	**Program:** Over the years, the program has thought about pathways to learning computational biology. Because the modules and students are so diverse, we have felt that a single broad-strokes advanced computational biology course would not serve their needs well; instead, we introduce methods of computational biology as tools for different research fields such as ecology, bioinformatics, cell biology and image analysis in multiple separate courses across third and fourth years. An LT hire with these strengths could develop modules in computational biology in existing courses and provide support and training in this area for faculty and students. With the recent withdrawal of the bioinformatics module in Computer Science as well as the recently discontinued HSP in Computational Biochemistry (Schulich), perhaps Science and Basic Medical Sciences could consider developing a computational biology strategy at the faculty levels, and this strategy might inform decisions for faculty hires in Biology as well as other departments. A working group will be struck this summer reporting to the Biology Undergraduate Chair and including representatives from the mathematics, statistics and actuarial sciences and computer science departments, with the goal of a report in time to help direct the fall budget submission. We do need to address the existing university-wide limitations on data storage and transmission, and recent reductions in existing computer lab infrastructure for undergraduate teaching, as part of any computational biology strategy. **Faculty:** The Faculty defers to the Department's expertise on the most appropriate pedagogical approach for its diverse student population and is open to the distributed model of embedding computational methods across existing courses rather than a single dedicated course. The Faculty agrees with the department's observation that students pursuing degrees in the biological and life sciences are not particularly drawn to a standalone joint program with computer science, as reflected in enrolment trends in related computational programs across the Faculty and the Schulich School. This supports the department's approach of embedding computational methods within discipline-specific courses. The Faculty strongly supports the proposed working group and encourages Biology to lead it. The department is encouraged to identify, as part of the working group's report, any resource and staffing needs that may inform future budget submissions.

Recommendation #2: Improve Communication About USRA/USRI and Research Opportunities Students consistently reported that they were unaware of USRA opportunities and other summer opportunities or learned about them too late. The department should adopt more modern and student-friendly communication channels, including a departmental Instagram account, coordinated in-class announcements, and a refreshed website with consistently updated information and a regular undergraduate newsletter. Early messaging from the Dean's office about USRA timelines would help the department communicate proactively.	**Program:** This recommendation speaks to the impacts of recent cuts to staffing in communication at the Department and Faculty levels. Because of these cuts, we have been struggling, and unsuccessful, in keeping our websites current and broadcasting important information to our communities in a timely fashion. According to the review, our students felt that official news about the upcoming summer research opportunities - both NSERC USRA and Western USRI - from central administration comes too late in the year, so the Department needs to put out general and promotional information early in the school year with our best guesses based on the previous year's programs. Getting this information to our undergraduates about research opportunities in general is a priority that we will be addressing at the Biology Undergraduate Education Committee (BUEC), taking advantage of our connections with Biology Undergraduate Society (BUGS) and making use of our email lists of all Biology students at the 2nd, 3rd, and 4th year levels. The Bio 4999E (honours research thesis course) information session is usually held in February for the next year's students but should be moved forward to October. **Faculty:** The Faculty supports the department's commitment to improving communication about undergraduate research opportunities, and acknowledges that reduced communications staffing has made this more difficult. The Faculty notes that official USRA information is distributed to departments in December each year, approximately two months before the submission deadline. General promotional information about NSERC USRA and Western USRI can be communicated as early as September. The Faculty encourages the department to establish a dedicated, year-round webpage for undergraduate research awards, updated each December when official information arrives. The Faculty also supports moving the Bio 4999E information session to October/ November to improve equity of access.
Recommendation #3: Improve Access to Research and Lab Courses Given the large waitlists and competition from Health Sciences and Medical Sciences students, the department should explore mechanisms to prioritize Biology students in upper-year labs and research courses. Priority access for	**Program:** The first part of this recommendation has just been done: Biology staff have communicated with the Registrar's office to set enrolment priorities for our 3rd and 4th year Biology lab courses students in Honours Specialization and Specialization modules that require them. The Chair has suggested to BUEC that we consider the feasibility of introducing a 3rd-year independent study course that could both act as a bridge to our existing independent study (Biology 4970F/G and Biology 4971G/Z) and honours research (Biology 4998E and Biology 4999E) courses in 4th year, and an expanded opportunity for more students to experience research, including those for whom the 4th year courses are not the best option. We are hopeful that recent provincial announcements for increased funding for STEM will translate to better support from the Faculty for the infrastructure and operating costs of our

Biology majors, expanding spring and summer offerings, and reviewing the exclusion between independent study and thesis courses would help ensure that students in the program can complete required components in a timely manner. These measures are particularly important given the centrality of lab-based learning to the program's identity.	undergraduate teaching labs, possibly including this new initiative for independent research opportunities at the 3rd year level. Meanwhile, we have increased enrolment capacities to the maximum safely possibly within our most sought-after 3rd year courses and are for the first time offering a summer edition of Human Genetics (Biology 3592A), which was one of the highly over-subscribed courses in recent years. If approved, LT hires in the areas of biodiversity and computational biology would help meet existing demands and add increased capacity for anticipated additional enrolments. **Faculty:** The Faculty fully supports the department's response. The immediate action of establishing enrolment priority for Biology students in their own upper-year lab and research courses was the right step and addresses a long-standing inequity. The Faculty supports the proposed 3rd-year independent study course as a bridge to existing 4th-year thesis and independent study options and encourages the BUEC to advance this proposal under the incoming Undergraduate Chair. The Faculty recognizes that sustaining lab-based learning at Biology's scale requires continued investment in teaching capacity, TA funding, and laboratory infrastructure, all of which are connected to the faculty renewal priorities identified throughout this review.
Recommendation #4: Advocate for Improvements to the Scheduling and Registration Platform Although the scheduling system is not controlled at the departmental level, the student experience is significantly affected by the disconnect between Draft-My-Schedule and the registration platform. Western should explore integrating these systems or improving the workflow between them. In the meantime, clearer departmental guidance on navigating the two-system process would help reduce student frustration.	**Program:** The Department of Biology is happy to support efforts at the University (Registrar's Office) level to improve the connections between Draft-My-Schedule and the registration platform. At the Department level, the best we can do is provide tailored academic advice, which will rely on continued staffing support from the Faculty for what students consistently report is friendly, valuable and accurate advising within the Biology department. This ties into Recommendation #2, the need for improved staffing and IT support for communications at the department and faculty levels. **Faculty:** The Faculty acknowledges the inconvenience of having to transfer planned courses manually from Draft-My-Schedule to the Student Center when the registration window opens. The Faculty notes that even with tighter system integration, students would still face real-time competition for seats. The more substantive issue is course capacity, which is addressed under Recommendation 3. The Faculty encourages the department to communicate clearly to students that Draft-My-Schedule is a planning tool and that registration outcomes depend on seat availability at the time of enrolment. The Faculty will continue to advocate for process improvements through the Registrar's Office, but does not consider this a high-priority structural concern.

Implementation Plan

The Implementation Plan provides a summary of the recommendations that require action and/or follow-up. In each case, the Undergraduate Program Chair and the Dean of the Faculty are responsible for enacting and monitoring the actions noted in Implementation Plan.

Recommendation	Proposed Action and Follow-up	Responsibility	Timeline
Recommendation #1: Develop a Computational Biology Strategy	1. Establish a working group that will include representatives from the Mathematics, Statistical and Actuarial Sciences, and Computer Science departments (as well as members of Schulich) with the goal of drafting a computational biology strategy and creating a report to help inform the fall budget submission. 2. Assess and prioritize IT, data storage and transmission infrastructure.	1. Undergraduate Chair; 2. Incoming Director of Biology Core Facilities	1. By October 2026 2. By September 2027
Recommendation #2: Improve Communication About USRA/USRI and Research Opportunities	• Create promotional materials for NSERC USRA/Western USRI programs and have Biology undergraduate staff distribute in the Fall. • Collaboratively strategize improved communication processes and updates to the Biology website, for implementation throughout the 2026-2027 year. • Move the Biology 4999E information session to October or November.	Undergraduate Chair;	By December 2027
Recommendation #3: Improve Access to Research and Lab Courses	• Consider the feasibility of introducing a 3rd-year independent study course that could both act as a bridge to the existing independent study and honours research courses in 4th year (with possible implementation in 2027-28). • Increase enrolment capacity to the maximum for the most sought-after third year courses, and offer Biology 3592A/B: *Principles of Human Genetics* over the summer. • Make a request for Limited-Term faculty to support course offerings.	Undergraduate Chair; Department Chair	By January 2027
Recommendation #4: Advocate for Improvements to the Scheduling and Registration Platform	• Improve communications about how Draft-My-Schedule is a planning tool and that students are responsible for course registration – the outcome of which depends on seat availability at the time of enrolment.	Undergraduate Chair	By January 2027