Western UNIVERSITY · CANADA

Anatomy and Cell Biology
Final Assessment Report & Implementation Plan
August 2026

Faculty / Affiliated University College	Faculty of Science, Schulich School of Medicine & Dentistry	
Degrees Offered	Bachelor of Medical Sciences (BMSc); Bachelor of Science (BSc)	
Date of Last Review	2017-2018	
Modules Reviewed	Honours Specialization in Medical Cell Biology Major in Medical Cell Biology Minor in Medical Cell Biology	
External Reviewers	Dr. Craig Mandato Associate Professor, McGill University	Dr. Keith Wheaton Professor, University of Ottawa
Internal Reviewers	Dr. Jan Plug Associate Dean, Faculty of Arts and Humanities	Hussain Nasser Undergraduate Student
Date of Site Visit	February 24-25, 2026	
Date Review Report Received	March 27, 2026	
Date Program/Faculty Response Received	Program Response: April 22, 2026 Faculty Response: May 19, 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 Undergraduate Anatomy and Cell Biology Program, delivered by the Schulich School of Medicine & Dentistry.

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, Schulich School of Medicine & Dentistry

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 Program, the Schulich School of Medicine & Dentistry, and SUPR-U.

Executive Summary

The Anatomy and Cell Biology Department has a rich history of excellence in undergraduate education, offering courses and modules in support of a variety of programs at Western. As part of the BMSc Program, students enter the modules in Year 3. The undergraduate Anatomy and Cell Biology program at Western is designed to provide students with a foundational understanding of the structure-function relationships within the human body and to begin to develop critical skills necessary to succeed in science. Courses within the program allow students to study the human form and function from the biochemical, cellular, tissue, and anatomical perspectives and to understand some of the disease processes that arise from structure/function disorders at each of these levels. Total enrolment of students registered in a least one Anatomy and Cell Biology module in 2024-2025 was 151 students.

The self-study included refinement of the program learning outcomes and a curriculum mapping exercise. It was informed by student surveys, a student focus group and a dedicated faculty/staff retreat used primarily to undertake a SWOT analysis and the development of a 5-year strategic plan.

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

Strengths and Innovative Features Identified by the Program

- The program integrates biochemical, cellular, physiological, histological, anatomical, and disease perspectives, distinguishing it from programs focused primarily on molecular biology or anatomy alone.
- The Honours Specialization culminates in a supervised laboratory research project, supported by cross-departmental project sharing and matching processes that broaden project choices and help align students with preferred research environments.
- Recent developments include expanded anatomy, neuroanatomy, embryology, and histology offerings; redesigned thesis and companion courses; and a forthcoming experiential capstone for Major and double-Major students.
- Courses combine recorded or blended lectures, in-person laboratories, small-group learning, debates, presentations, critiques and research proposals.
- The small Honours Specialization cohort fosters community and faculty teaching evaluations are consistently strong.
- The department has developed an EDID Bias Checklist tailored to medical science courses providing instructors with a self-reflective tool to evaluate and strengthen inclusivity in course design and delivery.

Concerns and Areas of Improvement Identified and Discussed by the Program

- Vacant administrative support positions, reliance on limited-term coverage, faculty members with major administrative responsibilities, constrained summer offerings, and the expansion of companion and capstone courses raise concerns about maintaining sufficient teaching and support capacity.
- Students identified overlap among 2000-, 3000-, and 4000-level cell biology courses; the program intends to clarify progressive expectations, strengthen skill scaffolding, and minimize unnecessary duplication.
- Desire for more experiential learning and greater awareness of co-op and internship options.

- Focus-group participants described mental-health challenges associated with the program's high-pressure and competitive environment, prompting greater attention to wellness, failure, resilience, and time-management supports.

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 of Academic Quality and Enhancement
- Centre for Teaching and Learning Team Members
- Western Libraries Team Members
- Vice Dean, Basic Medical Sciences, Schulich School of Medicine & Dentistry
- Associate Dean, Basic Medical Sciences, Schulich School of Medicine & Dentistry
- Assistant Dean, Program Review & Development, Schulich School of Medicine & Dentistry
- Department Chair
- Undergraduate Chair
- Undergraduate Education Committee Members
- Program Faculty Members
- Undergraduate Program Staff
- Undergraduate Students
- Director, Schulich Education Enhancement Division (SEED)
- Program Alumni
- Graduate Teaching Assistants

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 the program's multimodal delivery strategy "*not only facilitates the successful completion of the program's learning outcomes but also provides the high-impact, experiential learning opportunities that distinguish the Western undergraduate experience.*"

Strengths of the Program:

- Research-active faculty provide disciplinary and research expertise, while Teaching Scholars have strengthened instructional innovation, pedagogical consistency, mentoring, and student-facing support.
- The curriculum progresses logically from foundational scientific and anatomical knowledge to functional pathways, molecular mechanisms, ethical inquiry, and advanced research, creating a connected “ladder” of competencies.
- Cadaveric laboratory immersion, collaborative laboratory work, community-based learning, senior seminars, and discovery-based research make for distinctive experiential learning.
- Specialized anatomy laboratories, advanced three-dimensional anatomical software, digital research resources, and highly skilled laboratory staff provide an impressive foundation for the program’s research-intensive and experiential curriculum.
- Modernization of the curriculum to include emerging fields such as bioinformatics and regenerative medicine.

Prospective Areas of Improvement for the Program to Consider

- Recent retirements of tenure-track professors have not been consistently replaced; need for a succession plan to maintain research-intensive expertise.
- Teaching Scholars should better complement, rather than replace, tenure-track researchers whose active laboratories support authentic discovery-based learning and research supervision.
- Disconnect regarding expectations for educational research funding, scholarly activity, start-up support, and the feasibility of securing major external grants within teaching-intensive appointments.
- Unfilled leaves appear to be placing substantial pressure on remaining technical staff and creating risks to safety, program quality, compliance, and sustainability.
    - Critical laboratory preparation and support responsibilities appear concentrated among too few specialized staff
- Declining numbers of research-intensive faculty may constrain thesis supervision, laboratory mentorship and the research experience of the HSP cohort.

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 formal five-year Faculty Succession Roadmap This roadmap should identify: A) The specific pedagogical and research competencies lost through recent retirements. B) A prioritized hiring plan to ensure that mandatory systemic courses and capstone research seminars are adequately staffed by research-active faculty. C) A contingency plan to maintain current laboratory supervision levels in the event that new hiring is delayed, ensuring that the "high-impact" nature of the program remains unimpeded.	**Program:** The Department Chair and Executive Committee are developing a multi-year Faculty Succession Roadmap to sustain the program's research-intensive, laboratory-based curriculum amid recent retirements and anticipated leaves. Since 2018, seven faculty members have retired and three additional retirements are expected, while only four faculty have been hired, resulting in reduced research-active and teaching capacity. Leadership appointments have further affected teaching availability, contributing to gaps in cell biology, neurobiology, cadaveric anatomy, thesis supervision, capstone mentorship, and clinically integrated instruction. The Department has prioritized two new faculty positions and will develop a targeted plan to recruit tenure-track, research-active faculty who can support core teaching, undergraduate thesis supervision, and strategic disciplinary needs. The Roadmap will also maintain an appropriate balance between Teaching Scholars and research-intensive faculty. Recognizing that hiring depends on Faculty-level budget approval, contingency measures include a proposed specialized anatomy laboratory position, flexible teaching assignments, greater use of cross-appointed and affiliated faculty, and complementary deployment of Teaching Scholars to preserve high-impact laboratory and research experiences. **Faculty:** The Decanal team supports the program's response. New faculty hires in the Basic Medical Sciences are prioritized by the Basic Science Chairs based on the teaching and research needs of the Faculty and the research priorities of Western. The Chairs along with the Dean's office will determine next steps for hiring faculty. There is a plan to hire 30 new faculty members by 2030 that should address the concerns of Department Chairs. However, each hire is still subject to budgetary considerations and dependent upon university approval.

Recommendation #2: Maintain the Research-Intensive Student Experience A) An expansion of thesis projects to include educational research directed by teaching scholars. B) Requiring that all ACB faculty take at least one ACB thesis student in their lab, before taking students from other departments. C) Producing clear guidelines for the major and Honours Specialization students to complete their degree in an easy assessable format. D) That priority be given to communication between the academic staff of each of the 7 streams to realign course offerings in terms of pre-requisite courses, overlapping course times and limited enrolments.	**Program:** The Faculty is exploring a SoTL-focused course that would expand thesis and capstone opportunities through rigorous educational research led by Teaching Scholars. These projects would be recognized as scholarly equivalents to traditional bench research, broadening student participation while maintaining academic standards. Where feasible, ACB faculty will be expected to supervise at least one Year 4 Medical Cell Biology thesis student, with this priority reinforced through annual workload discussions. To improve program navigation, students will receive structured degree-pathway worksheets before course registration, with resources also available on the ACB website. The Undergraduate Chair will also work with colleagues across the seven Schulich streams to strengthen coordination of assessment scheduling, course timetables, prerequisites, and enrolment capacities. Together, these measures will expand authentic research opportunities, improve the clarity of degree requirements, reduce structural barriers, and increase flexibility and course choice, particularly for students pursuing double majors. **Faculty:** The Decanal team supports the program's response and has established a working group to integrate SoTL research into BMSUE programs. Options include expanding Medical Sciences 3383F/G/Z and either creating a new SoTL research course or incorporating educational research into existing thesis courses. Students already have extensive degree-planning supports, including Medical Sciences 1000Y, Intent to Register events, advising through online, in-person, and virtual channels, regular communications, and program worksheets. The primary opportunity is therefore to improve the timing and format of communications so information reaches students when most relevant. Coordination of timetabling, prerequisites, and course conflicts already occurs among the BMSUE office, Undergraduate Chairs, Program Directors, and Department Chairs. Given the complexity of coordinating required and optional courses across programs and faculties, the Decanal team considers further refinement unlikely.

Recommendation #3: Laboratory Support and Operational Sustainability Conduct an immediate Workload and Capacity Audit for laboratory technical staff. The Faculty should increase the Full-Time Equivalent (FTE) headcount for anatomical technologists to align with student enrollment. Investing in support staff is a requirement for maintaining safety, ethical compliance, and the apprenticeship model of instruction. We recommend that the Department: • Ensures sufficient numbered skilled staff that there is never a single point of failure. • Establish a budget for the Legacy Task Force Subcommittee. • Consider potential generation of revenue from the use of the Anatomy Laboratory to become a sustainable self-funding unit moving forward.	**Program:** The Department recognizes the cadaveric anatomy laboratory as central to the ACB program and is addressing concerns about staff workload, burnout, and operational vulnerability. A completed Workload and Capacity Audit assessed staffing demands, laboratory use, operational pressures, and opportunities to improve role distribution across all programs using the facility. Based on its findings, the Department has proposed a revised staffing model that includes a specialized technical position to strengthen sustainability, diversify staff roles, and reduce faculty operational burdens. Laboratory operations are also being reviewed through an Occupational Health and Safety lens. Greater cross-training, shared responsibilities, and operational redundancy will reduce physical demands and reliance on individual personnel while improving safety and continuity. The Department supports sustainable funding for the Legacy Task Force's ethical stewardship work. It will also explore Continuing Education programming and external workshops as a longer-term revenue opportunity, subject to sufficient staffing, expertise, and Faculty-level support, informed by successful models at peer institutions. **Faculty:** The Decanal team supports the program's response. Additional staffing and funding can be requested by the department through the annual budget process with the Dean's office. While not guaranteed, requests will be considered and evaluated with budgetary considerations in mind. The Decanal team has formed a working group, including representation from ACB, to leverage anatomy training opportunities in partnership with Continuing Education. We met with members of the Continuing Education Office and the Vice-Provost, and all parties are enthusiastic about moving forward with planning, developing as business plan etc. commencing in the Summer/Fall of 2026.
Recommendation #4: Enhance the "Digital- Physical" Hybrid Delivery Continue to fund and expand access to advanced anatomical software and bioinformatics tools. These resources should be viewed as essential "Laboratory Equipment" that prepares students for the technological	**Program:** The Department remains committed to a hybrid digital-physical model in which technology enhances, rather than replaces, the program's signature cadaveric laboratory experience. It will expand advanced anatomical visualization and medical imaging resources, including 3D platforms, CT and MRI datasets, and secure digital infrastructure. Integrating these tools with cadaveric dissection will strengthen clinical correlations and better prepare students for medical and graduate education. To modernize histology instruction and address the long-term costs of slide replacement, the Department will develop a student-led project to identify, curate, and digitize histological slides.

demands of modern medical and graduate school environments. It was pointed out that resources such as histological slide replacement was a priority to consider for future resource costs. It was mentioned that digitizing slides was one alternative.	This initiative will improve the accessibility and sustainability of teaching resources while creating applied, project-based learning opportunities. The Department will also explore collaboration with the Schulich Education Enhancement Division to draw on institutional expertise in digital media development, archiving, and dissemination. **Faculty:** The Decanal team supports the program's response. Additional funding can be requested through the annual budget process if needed to support the initiative. Funds for teaching innovation can also be requested through the Science Student Development Fund (SSDF). While neither source of funds is guaranteed, the department has successfully obtained SSDF repeatedly in the past.

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 formal five-year Faculty Succession Roadmap.	• Complete the development of a Faculty Succession Roadmap. Identify and anticipate future gaps, with a targeted hiring plan. • Implement contingency measures to ensure that high-impact laboratory and research experiences are maintained without compromise. • Utilize flexible teaching assignments to ensure core course coverage. • Leverage cross-appointed and affiliated faculty to support teaching and research supervision.	Department Chair; Executive Committee; Undergraduate Chair	By January 2027
Recommendation #2 Maintain Research-Intensive Student Experience.	• Explore the creation of a course to provide SoTL research opportunities to support degree requirements. • Anatomy and Cell Biology faculty will be expected, when feasible, to supervise at least one Year 4 Medical Cell Biology thesis student. • Provide all students with structured degree pathway worksheets upon acceptance into the program, prior to course registration. • Discuss current processes such as scheduling exams, assignments and courses with other department leaders to reduce student barriers.	Department Chair; Undergraduate Chair	By January 2027
Recommendation #3 Laboratory Support and Operational Sustainability.	• Re-evaluate the laboratory operations through an Occupational Health and Safety lens, with the goal of reducing the physical demands placed on staff while improving overall efficiency and sustainability. • Explore continuing education programming and external workshops as a long-term strategic revenue generating goal.	Department Chair; Undergraduate Chair	By September 2027 By September 2029

Recommendation #4 Enhance the "Digital-Physical" Hybrid Delivery.	• Develop a student-led project initiative to systematically identify, curate, and digitize histological slides. • Explore the incorporation of 3D printing technologies to develop anatomical models that complement cadaveric and digital resources. • Explore collaboration with the Schulich Education Enhancement Division (SEED) - institutional experts in digital media development.	Department Chair; Undergraduate Chair	By September 2027