Physiology and Pharmacology
Final Assessment Report & Implementation Plan
May 2026

Faculty / Affiliated University College	Schulich School of Medicine & Dentistry	
Degrees Offered	M.Sc., PhD	
Date of Last Review	2017-2018	
External Reviewers	Dr. Elizabeth Cowey Professor, Department of Physiology and Biophysics Dalhousie University	Dr. Rashmi Kothary Professor, Faculty of Medicine University of Ottawa
Internal Reviewers	Dr. Elizabeth Webb Associate Dean, Graduate and Postdoctoral Studies Faculty of Science	Ella Doornaert PhD Candidate Neuroscience
Date of Site Visit	February 4 and 5, 2026	
Date Review Report Received	February 11, 2026	
Date Program/Faculty Response Received	Program Response: March 26, 2026 Faculty Response: March 26, 2026	
Evaluation	Good Quality	
Approval Dates	SUPR-G: June 15, 2026 ACA: September 8, 2026 Senate (for information): September 18, 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 Graduate Physiology and Pharmacology 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 - Graduate (SUPR-G) 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 Graduate Physiology and Pharmacology Program, the Schulich School of Medicine & Dentistry, the School of Graduate and Postdoctoral Studies (SGPS), and SUPR-G.

Executive Summary

The department of Physiology and Pharmacology is the largest medical science department in the Schulich School of Medicine & Dentistry, serving as the academic home for about 80 full-time and cross- appointed faculty members, 85 graduate students, 10 postdoctoral fellows, and 20 administrative and research staff.

This research-intensive department has a strong commitment to graduate education, offering Master of Science (MSc) and Doctor of Philosophy (PhD) degrees, with research and teaching emphasizing the multidisciplinary and integrative nature of current research in physiology and pharmacology. MSc and PhD Students develop skills as physiology and pharmacology researchers in diverse fields, including neuroscience, cardiovascular sciences, endocrinology, reproductive and developmental biology, musculoskeletal biology, cell biology, receptor biology and cell signaling, stem cell biology and regenerative medicine, cancer biology, basic and clinical pharmacology and toxicology, drug metabolism-pharmacokinetics, and pharmacogenomics.

The self-study was informed by dedicated student surveys and a graduate student-led focus group. Additionally, a departmental retreat carried out an analysis of strengths, weaknesses, opportunities, and threats (SWOT) in association with the Graduate Program.

The external reviewers shared a positive assessment of the Graduate Program in Physiology and Pharmacology. They offer ten recommendations with considerations for further enhancement.

Strengths and Innovative Features Identified by the Program

- The Department secured nearly $80 million in peer-reviewed research funding from 2019–2024, with faculty holding multiple Canada Research Chairs and prestigious national/international awards.
- Mandatory biannual advisory committee meetings, with a dedicated Graduate Studies Representative (GSR) on every committee, have helped with monitoring student progress and timely degree completion.
- Molecular Techniques (PHYSPHRM 9550), a two-week optional intensive laboratory course for graduate students, allows students to learn key techniques and aspects of experimental design prior to their official start in the program.
- To support the exploration of academic and non-academic career options the program’s Departmental Seminar Series features alumni from the program to talk about their post-graduation career trajectory every year.
- Students benefit from participation in two strong Collaborative Specializations (Developmental Biology and Musculoskeletal Health Research) and industry internship opportunities (e.g., Genentech).

Concerns and Areas of Improvement Identified and Discussed by the Program

- Graduate stipends are not keeping pace with inflation, international students have limited scholarship access.
- Difficulty recruiting qualified applicants from outside Western's undergraduate pipeline, compounded by federal caps on international student permits, extended visa wait times, and competition from course-based MSc programs.
- Students at satellite research sites (e.g., Victoria Hospital, St. Joseph's) face logistical obstacles attending on-campus seminars and TA obligations and appear unaware of what departmental core facilities and equipment are available to them.
- Limited non-academic career exposure. Students desire more information, networking, and programming around alternative careers outside of academia, including greater industry representation at seminars.
- Need for clearer institutional guidance on the use of artificial intelligence in teaching and research.
- Promote anonymous reporting from graduate students on laboratory /program issues.
- Combine different courses and training at Western and promote micro-credential or digital badges that would be relevant and achievable for Physiology and Pharmacology students.

Review Process

As part of the external review, the review committee, comprising two external reviewers, one internal reviewer and a graduate 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, Graduate & Postdoctoral Studies
- Associate Vice-Provost, Graduate & Postdoctoral Studies
- Director of Academic Quality and Enhancement
- Administrative Coordinator, School of Graduate and Postdoctoral Studies
- Vice-Provost Academic Planning, Policy & Faculty
- Vice Dean, Basic Medical Sciences, Schulich School of Medicine & Dentistry
- Associate Dean, Graduate and Postdoctoral Studies, Schulich School of Medicine & Dentistry
- Assistant Dean, Program Review and Development, Schulich School of Medicine & Dentistry
- Collections & Content Strategies Librarian
- Teaching and Learning Librarian
- Department Chair
- Graduate Program Chair
- Graduate Education Committee Members

- PhysPharm Graduate Student Council Members
- Program Faculty Members
- Graduate Program and Departmental Staff
- Graduate Students

Following the site visit, the external reviewers submitted a comprehensive report of their findings which was sent to the Program and Dean 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 the SGPS and to SUPR-G 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 Phys Pharm department has a high-performing, research-intensive graduate program with very solid fundamentals […] Overall student satisfaction appeared very high with almost all aspects of the student experience and the departmental head and graduate program leadership are to be congratulated.*"

Strengths of the Program:

- A very active department level EDID committee with trainee representation, participation on the faculty EDID committee, a needs assessment survey, improved web-based resource visibility, and a Graduate Opportunity Scholarship that has already recruited underrepresented trainees.
- The Grant Writing course provides a unique opportunity for students to prepare for work beyond the program.
- Individual lab spaces were well equipped and there was a good approach to the use of core facilities, with students having access to small office spaces.
- The inclusion of an arm's length GSR in the research advisory committee is seen as a critical resource for students.
- Faculty are consistently successful in securing competitive funding (~80 M CAD in 2019–2024; 21 new CIHR grants and multiple NSERC, CFI and foundation awards) and hold numerous CRCs and endowed chairs, providing an excellent training environment.
- Student research productivity is exceptional. For instance, all 42 PhD graduates in the review period produced at least one first-author paper and averaged ~6.5 publications each.
- Completion times have improved significantly with the MSc completion dropping from ~32.5 to ~25.8 months for post-pandemic cohorts.

Prospective Areas of Improvement for the Program to Consider

- Consider expanding admissions decisions from the Graduate Program Director alone to the full graduate committee and providing EDI-related training to supervisors who select students for admission (associated with recommendation #8).
- Develop a plan to strategically address upcoming retirements (associated with recommendation #9).
- Increasing translational research opportunities for students (associated with recommendation #5).
- Alter the timing of program events to better accommodate and foster community for students (associated with recommendation #6), including the Molecular Techniques course. (associated with recommendation #3).
- Better support and communications for students regarding conflict resolution pathways, wellness and mental health resources (associated with recommendation #10).
- To address the imbalance of Physiology and Pharmacology courses, continue targeted pharmacology faculty recruitment, and the inclusion of stronger pharmacology focused graduate electives or streams. (associated with recommendation #2).
- Student stipends need urgent attention (associated with recommendation #1).

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: Increase Stipends, Especially for MSc Students Overall, there is agreement that student stipends are a major issue, especially for master's level students. Ph.D. student stipends are higher and are an attraction to students to transfer. The challenge is compounded for international students, who begin their program as master's students, where their tuition fees are significantly higher than when they become Ph.D. students.	**Program:** The program has been aware of this issue and to address it we have increased our base stipend for MSc students by $2000 in September of 2022 and again by $2000 for MSc and PhD students in April of 2024. Furthermore, we also offer the opportunity for supervisors with international MSc students without scholarships to increase their stipend by $3400. These efforts have ensured that our funding packages are in line with other units within Schulich. We will continue our ongoing effort, along with other units within Schulich, to advocate for an increase to Western Graduate Research Scholarship (WGRS) funding, particularly for domestic and international MSc students. We are also working with Western to identify and access alternate funding mechanisms. In particular, we will advocate to standardize international MSc fees (currently ~$23,000/year) to parallel those of international PhD and domestic MSc/PhD fees (~$9000/year). Finally, we will engage in an open discussion with faculty supervisors regarding the breakdown of graduate students funding packages and explore the possibility of adjusting stipends. **Faculty:** Balancing the needs of the students with available resources and maintaining comparable (harmonized) funding packages across programs can be difficult. The decanal team agrees with the approach proposed by the program and notes that an increase in base funding for MSc and PhD students was recommended at the Schulich School of Medicine and Dentistry Graduate Affairs Committee Meeting (Nov. 27, 2025). WGRS funding will be reviewed for the upcoming budget cycle. With the latest announcement of an increase in tuition and WGU by the province, a respective increase of WGRS is anticipated. We also note that alternative sources of funding need to be investigated outside the traditional funding models (WGRS, grants, Teaching Assistantships, Tri-Agency and OGS funding). A good example is the MITACS (mitacs.ca) industry, academic and government partnership grants.

Recommendation #2: Strengthen Pharmacology Representation and Recruitment The previous review flagged physiology as dominant; the department has responded via the Human Therapeutics milestone and more integrated undergrad Phys/Pharm courses, and prioritizes pharmacology in new hires, but acknowledges that the balance is still tilted. Continued targeted pharmacology recruitment, and perhaps stronger pharmacology focused graduate electives or streams, would further address this.	**Program:** With regards to faculty recruitment, the strategic plan for growth of the department does include expansion in the area of Pharmacology. This strategy aligns with Schulich priorities, especially around the Bioconvergence Centre that is currently in the planning stages of construction and current recruitments in the area of Medicinal Chemistry (CRC joint with Science in progress). We acknowledge however that the ability to recruit new faculty requires budgetary approval from Schulich. With respect to the suggestion to increase Pharmacology focused graduate electives, we offer two PhD courses that cover major concepts in Pharmacology ("Pharmacokinetics" and "Translational Research-Bench to Bedside"). We agree with the reviewers that expansion of elective options could only benefit our trainees. **Faculty:** The decanal team concurs with the plan proposed by the program. However, we note that the external reviewers also recommended that we prioritize new pharmacology faculty hires. New faculty hires in the Basic Medical Sciences are prioritized by the Basic Science Chairs based on teaching and research needs of the School and the research priorities of Western. The Chairs along with the Dean's office will determine if hiring additional pharmacology-oriented faculty is the most strategic use of resources.
Recommendation #3: Reschedule Molecular Techniques Course Timing There is an optional Molecular Techniques course that is offered in late August. The timing of this course makes it difficult for all interested students to participate. The course could be offered during reading week in the early fall of each year to make it more accessible to a larger cohort of students and help minimize inequalities.	**Program:** We will consult the Molecular Techniques course manager and teaching team to explore potential alternatives for its delivery. One possibility is to deliver the course in two increments: the first half offered during the 1st week of September and the second half during fall reading week. Since access to the departmental teaching labs during the academic year is the limitation that motivated its current scheduling, we will also explore potential alternate locations. We acknowledge here that limitations to teaching spaces is a major constraint, particularly those equipped for both didactic and lab-based learning. **Faculty:** The decanal team agrees with the response provided by the program.

Recommendation #4: Ensure Regular Advisory Committee Meetings Although the advisory committee meetings are meant to be held every six months, they are strictly student-driven and often are held less frequently. Our recommendation is to have these meetings on a more regular basis, and have oversight provided by the departmental office.	**Program:** All new graduate students meet with their supervisor and their graduate student representative (GSR) within 2 weeks of starting their degree and go through a letter of understanding. This letter, signed by the student, supervisor, and GSR, explains that students are required to meet with their full Advisory Committee by the end of the first term of their degree and every 6 months thereafter. The Graduate Administrator then contacts students as the first term is ending to remind them that they should have their first Advisory Committee meeting. This information is also highlighted in the Student Handbook, mentioned at the Graduate Chair's meet and greet session in September, and in the CCT 9551 graduate course. Therefore, although the organization of the Advisory Committee meetings is student led, there are multiple reminders in place that promote student self-reliance and responsibility. Moreover, our graduate administrator will send email reminders to students who have gone more than 6 months between advisory meetings. To improve implementation, we will include calendar prompts in the GSR report at the end of each Advisory Committee meeting. Automated reminders via Outlook a month prior to when the next meeting should occur will help trigger meetings. We will include calendar prompts in the GSR report at the end of each Advisory Committee meeting. Automated reminders via Outlook a month prior to when the next meeting should occur would remind students and supervisors to schedule a meeting. **Faculty:** The decanal team agrees with the response provided by the program. The program could also develop a culture of booking the date/time of the next student advisory committee meeting at the conclusion of each advisory committee meeting.
Recommendation #5: Expand Translational Research Training Opportunities The SWOT "Opportunities" section in the self-study also points to better leveraging existing basic-clinical collaborations to create more structured translational training experiences, which remains an area for growth. There is an opportunity to	**Program:** Although we welcome clinical scientist engagement in the graduate program, this is mostly out of our control. Supervisors may accept graduate students from different graduate programs and most clinician scientists do not directly supervise graduate students (they largely engage as collaborator or co-supervisors). While we would be pleased to facilitate 'match making' between basic and clinical researchers in specific areas, the decision to co-supervise graduate trainees is one that must be made by individual researchers. We clarify for the reviewers that we have 15 faculty members whose primary appointments are in clinical departments but hold cross or adjunct appointments with us. We agree with the value of promoting structured translational training experiences and will explore ways in which we can promote alternate paths for clinician scientist engagement in graduate student training.

increase the translational research opportunities for the students.	**Faculty:** The decanal team agrees with the response provided by the program.
Recommendation #6: Improve Event Scheduling for Multi-Site Inclusion Graduate students are distributed across three sites. This has its challenges when it comes to getting a sense of community. However, common activities such as seminars, research days, and social gatherings throughout the year help to mitigate this geographical divide.	**Program**: We agree that engaging graduate students from multiple sites citywide is important. To address this, the department has been cognizant to ensure representation of faculty and students from all sites on key committees. This has facilitated certain events being held simultaneously at both sites, including socials and seminars. Although we already have graduate student representation on departmental committees, we will redouble our efforts to capture the student voice by ensuring that we have students from multiple sites on all social and planning committees to mitigate this as much as possible. We will balance the timing of events with our EDID based focus, for example scheduling seminars to end before 4 PM to facilitate school pick up for faculty, staff and students with care-giving responsibilities. **Faculty:** The decanal team concurs with the response provided by the program.
Recommendation #7: Develop Clear AI Usage Guidelines The rapid development and easy access to artificial intelligence requires a clearer direction of how it should be utilized within academia, including both teaching and research.	**Program:** To address this, we will create opportunities for shared learning on this topic, for example inviting AI specialists to discuss appropriate use of AI in academia at our departmental meetings, special seminars (for e.g. our “Lunch and Learn” series). Based on the information gathered from these sources and recommendations from SGPS, the Graduate Executive Committee will discuss how to incorporate AI specific resources in graduate student scholarship. Criteria and recommendations on AI usage will then be added to the Graduate Student Handbook. **Faculty:** The decanal team agrees with the response provided by the program. We note that AI has the power to be both transformative and disruptive. Western is working at all levels to establish policies, best practices and guardrails for the use of AI at the institution. In addition to the activities proposed by the program, there are new resources available to all graduate students through the Own Your Future program, including a 5-module online workshop ‘Harnessing GenAI for Research’.

Recommendation #8: Broaden EDI Lens in Admissions Process Expanding all admissions decisions to the larger graduate programs committee rather than leaving it in the hands of the graduate program director will hopefully result in a more consistent and systematic EDI lens being applied to the acceptance process. We also recommend that admissions-related EDI training be provided to supervisors who are selecting students.	**Program:** Admission to the Graduate Program in Phys/Pharm is dependent on a 2-step process. The first is provisional acceptance into the program based on student grades, letters of reference, the student's statement of interest and the applicant's CV. For the past decade, the Graduate Program Chair has adjudicated most student applications and discussed applications that were borderline in the area of academic achievement with the Graduate Executive Committee. Moving forward, the Graduate Executive Committee will be consulted with all applications where students have been accepted at Western but fall below the WGRS funding cutoff (i.e., between 70 and 80% overall average). The committee will discuss the applicants' letters of reference and personal statements to better assess the different methods in which students received their education. The second step in being admitted to the Graduate Program in Phys/Pharm is dependent on securing a supervisor and laboratory placement. The Inclusive Excellence Guidance PDF described in the recommendation will be shared with all potential supervisors. Furthermore, we will encourage supervisors to access the UWO EDI Learning website, which contains several training resources including online modules and workshops. **Faculty:** The decanal team concurs with the response provided by the program. There are many excellent EDI-DIA training resources available at Western that can provide invaluable insights for all faculty involved in selection processes, including admissions, scholarships and awards. We also note that the Schulich School of Medicine and Dentistry has appointed an Associate Dean of Equity, Diversity, Inclusion and Decolonization that can provide assistance.
Recommendation #9: Preserve Administrative Team Complement and Continuity The administration team was uniformly described as outstanding by all members of the department. We recommend that this administrative team not be disrupted or reduced in complement, and that centralization be avoided.	**Program:** We agree that our Graduate Program, and the Department as a whole, benefit from a strong administrative team. It is our understanding that currently there are no plans at Schulich to reduce our administrative complement or to centralize administrative support. For this reason, we do not see this as an immediate concern. To prepare for potential retirements or unexpected leaves, our Operations Manager has developed a strategic plan that distributes responsibilities across the administrative team to ensure continuity. **Faculty:** The decanal teams also recognizes the excellence of the administrative team and agrees that there are no current plans to alter the current arrangement.

Recommendation #10: Clarify Wellness and Conflict Resolution Resources There did appear to be some confusion concerning which resources were available to students regarding their wellness and conflict resolution pathways. We recommend that a flow chart be added to the graduate handbook outlining conflict resolution pathways, and additionally that information related to wellness and mental health resources be repeated briefly at all subsequent student advisory meetings.	**Program:** We will update the Student Handbook to include a flowchart for conflict resolution and mental health resources. Information on how to access these resources will be highlighted at the yearly Graduate Program Chair's 'meet and greet' with graduate students and will also be included as a brief checkbox item in the first advisory committee GSR report to indicate if the student is aware of the flowchart. Although mental health resources are linked on the department's Graduate Studies website, it is currently in the "life and community support" link and requires a few clicks to access it. We will move it so that it can be accessed on the Graduate Studies main page. At the beginning of each academic year, we will send out a GSR refresher package to all members of the Graduate Studies Committee. **Faculty:** We agree with the program's response. There are many resources available to students at Western. The decanal team recognizes that students now communicate differently and traditional methods such as email and handbooks may not be the best way to reach them. To address this issue, we will produce a short video to introduce students to financial, wellness, and conflict resolution resources and pathways available to them. We will include viewing of this video as a requirement within the existing "Introduction to Biomedical Research" milestone which all students in Schulich research thesis-based programs must complete within the first term of their program.

Implementation Plan

The Implementation Plan provides a summary of the recommendations that require action and/or follow-up. In each case, the Graduate Program Chair, in consultation with the SGPS 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: Increase Stipends, Especially for MSc Students	• Review WGRS funding. • Investigate alternative funding sources – outside the traditional funding models. • Advocate to standardize international MSc fees to parallel those of international PhD and domestic MSc/PhD fees. • Engage in an open discussion with faculty supervisors regarding the breakdown of graduate students funding packages. • Explore the possibility of adjusting stipends to improve student wellness.	Dean's Office; Graduate Chair	By September 2027
Recommendation #2: Strengthen Pharmacology Representation and Recruitment	• Explore the opportunity to have the following courses serve as electives for graduate students: "DSP9001: *Adverse Events of Drug Use*", "DSP9002: *Pharmacovigilance Methods and Applications*", "DSP9003: *Pharmacogenomics and Variability in Drug Response*", and "DSP9004: *Legal aspects of Drug Safety*".	Dean's Office; Department Chair	By September 2027
Recommendation #3: Reschedule Molecular Techniques Course Timing	• Consult the Molecular Techniques course manager and teaching team to explore potential alternatives for its delivery, and alternative locations.	Graduate Chair	By September 2027
Recommendation #4: Ensure Regular Advisory Committee Meetings	• Include calendar prompts in the GSR report at the end of each Advisory Committee meeting. • Send automated reminders via Outlook a month prior to when the next meeting should occur to remind students and supervisors to schedule a meeting.	Graduate Chair; Graduate Administrator	By September 2027

Recommendation #5: Expand Translational Research Training Opportunities	• Explore ways in which we can promote alternate paths for clinician scientist engagement in graduate student training, for example as members of their Comprehensive Exam Committees and/or Advisory Committees.	Graduate Chair, GSR's	By September 2026
Recommendation #6: Improve Event Scheduling for Multi-Site Inclusion	• Capture the student voice by ensuring student representation from multiple sites on all social and planning committees. • Balance the timing of events with our EDID based focus.	Graduate Chair; Social Committee Chair;	By January 2027
Recommendation #7: Develop Clear AI Usage Guidelines	• Create opportunities for shared learning on this topic, for example inviting AI specialists to discuss appropriate use of AI in academia at our departmental meetings, special seminars (for e.g. our "Lunch and Learn" series). • Discuss how to incorporate AI specific resources in graduate student scholarship. • Add criteria and recommendations on AI usage to the Graduate Student Handbook.	Graduate Chair; GEC	By September 2027
Recommendation #8: Broaden EDI Lens in Admissions Process	• Consult the Graduate Executive Committee (GEC) with all applications where students have been accepted at Western but fall below the WGRS funding cutoff. • Encourage supervisors to access the Western EDI Learning website, which contains several training resources including online modules and workshops. • Create EDID portal and promote EDID recruitment workshops for supervisors.	Graduate Chair; GEC	By September 2026

Recommendation #9: Preserve Administrative Team Complement and Continuity	• Develop a strategic plan that distributes responsibilities across the administrative team to ensure continuity.	Graduate Chair; GEC	Ongoing
Recommendation #10: Clarify Wellness and Conflict Resolution Resources	• Update the Student Handbook to include a flowchart for conflict resolution and mental health resources. • Highlight how to access resource at the yearly Graduate Program Chair's 'meet and greet' with graduate students. • Move the Mental Health resources link so that it can be accessed on the main page of the website. • Send out a GSR refresher package to all members for the Graduate Studies Committee which will include, updated items in the Graduate Student Handbook, mental health and wellness resources, etc.	Graduate Chair	By September 2027