



Cyclical Program Review Final Assessment Report and Implementation Plan for the Graduate Programs Offered by the Department of Biomedical and Molecular Sciences

Programs Reviewed:

- Master of Science and PhD in Biomedical and Molecular Sciences, with the following Fields of Specialization:
 - Biochemistry and Cell Biology
 - Experimental Medicine
 - Microbes, Immunity, and Inflammation
 - Reproduction and Developmental Sciences
 - Therapeutics, Drug Development, and Human Toxicology
- Master of Science in Anatomical Sciences (MScAS)
- Graduate Diploma in Pharmaceutical & Healthcare Management & Innovation (GDip (PHMI)). Commenced September 2018.

N.B. This cyclical program review fulfilled the requirement for monitoring of the graduate diploma 5 years after students were first enrolled.

In accordance with Queen's University Quality Assurance Processes (QUQAP), this final assessment report provides a synthesis of the external evaluation, internal responses, and assessment of the above programs. This report identifies the significant strengths of the programs, and opportunities for program improvement.

An implementation plan is attached that identifies:

- who will be responsible for acting on and monitoring progress on the recommendations,
- any resource or governance implications resulting from the recommendations, and
- timelines for implementation of the recommendations.

[Final Assessment Report: Executive Summary](#)

Summary of Review

- 1) The Department of Biomedical and Molecular Sciences produced a self-study document that was reviewed by the Dean, Faculty of Health Sciences, the Vice-Provost and Dean, School of Graduate Studies and Postdoctoral Affairs, and the Vice-Provost (Teaching and Learning). The self-study was approved on December 12, 2022.

- 2) The review team visit took place on March 13-14, 2023. The review team members were:
 - i. Dr. Lisa Porter, Distinguished Professor, Department of Biomedical Sciences, University of Windsor. Director, WE-Spark Health Institute.
 - ii. Dr. Hanne Ostergaard, Professor, Medical Microbiology and Immunology Department, University of Alberta. Director, Cancer Research Institute of Northern Alberta.
 - iii. Dr. Brian Cumming, Professor and Head, Department of Biology, Queen's University
- 3) The visit included meetings with
 - i. Students
 - ii. Faculty members
 - iii. Staff: Department Manager and Program Assistants
 - iv. Department Head and Graduate Program Coordinator
 - v. Program Director, Graduate Diploma (Pharmaceutical and Healthcare Management and Innovation)
 - vi. Dean and Associate Dean, Graduate and Postdoctoral Education, Faculty of Health Sciences
 - vii. Health Sciences Librarians
 - viii. Vice-Provost and Dean and Associate Dean, School of Graduate Studies and Postdoctoral Affairs
 - ix. Vice-Provost (Teaching and Learning)
- 4) The review team reported on April 17, 2023. The Department Head, Faculty Dean and the Vice-Provost and Dean (School of Graduate Studies) provided responses to the review team report.
- 5) The Senate Cyclical Program Review Committee considered all the documentation, and a draft Final Assessment Report and Implementation Plan, at its meeting on October 30, 2023. The Report and Plan was approved on January 22, 2024.

The following strengths were noted:

- Faculty are engaged and committed to developing high impact learning experiences.
- Students have access to cutting edge technologies.
- The diversity of research areas within the department is a strength. There are possibilities for student collaboration.
- Faculty members' level of research funding is excellent, and their rate of research publications is good. The reviewers found the faculty highly qualified to supervise graduate students and contribute to the academic quality of the programs.
- The academic calibre of the programs' students is excellent.
- The merger of departments and then programs (2011-2014) has improved the interdisciplinarity of the graduate program. Weekly seminars that bring the entire department together allow students to learn about research in other areas.
- Progress has been made on all recommendations from the review that preceded the merger of programs.

- Financial support of graduate students is excellent.
- Opportunities for graduate students to act as teaching assistants are a strength, as this is unusual in Faculties of Medicine.
- All MSc students present on their research to the entire department. Outside speakers present at weekly seminars, enhancing the learning environment for students.
- The graduate diploma in Pharmaceutical and Healthcare Management and Innovation is a highly innovative program.

The following opportunities for enhancement were noted:

- More focused purpose and vision for the pattern 2 Anatomical Sciences program. There is an opportunity to consider whether the program could become a broader pedagogical course-based MSc program for all disciplines in the department.
- Examination of courses for relevance, appropriate level of instruction, opportunities for integration with courses offered by other departments. Alignment of course learning outcomes with program level learning outcomes.
- Further expand and promote to students professional and career development opportunities, including making information available on alumni careers.
- Further embedding of the programs in the community, beyond the volunteer efforts of faculty and students.
- Consideration of modifying entrance requirement to be more equitable; allowing non-honours students to apply if their courses align with the program and they meet minimum GPA requirements.
- Greater use of the excellent library resources available to the programs. Department leaders could explore with Health Services librarians how they can help support graduate students and researchers.

Summary of Review Team Recommendations

The review team made eleven recommendations in the following areas:

- Development of metrics necessary to analyze program quality improvement.
- Continuation of the centralized equipment and technical support model.
- Further development of I-EDIAA (Indigenization, equity, diversity, inclusion, anti-racism, and accessibility) action plan.
- More cohesion in framework of departmental values, vision, mission, and strategic priorities.
- Hiring of faculty members for the joint purpose of teaching and research, particularly to meet demands of the department's undergraduate programs.
- Differentiation of degree level expectations and program-level learning outcomes and clear articulation of these to students and faculty.
- Generation of course summaries for all courses, with descriptions of how they align with program-level learning outcomes.
- Delivery of pattern 1 programs to be independent of research fields.

- Planning for sustainability of pattern 2 Anatomical Sciences program.
- Consideration of updates to PhD comprehensive examination.
- Desk space for graduate students and maintenance/upgrade of physical learning environment.

Status

The graduate programs in the Department of Biomedical and Molecular Sciences have been approved to continue.

Dates monitoring reports due: September 2025, January 2028*

Date of next review: 2027-2028 **OR** 2028 – 2029
academic year**

Prepared by Vice-Provost (Teaching and Learning) October – December 2023

Approved by the Senate Cyclical Program Review Committee January 22, 2024

* If the next review takes place in 2027-2028, a 4-year monitoring report will not be required.

** Department Head, DBMS, to decide by May 1, 2025 which of these years would be preferable for the next review. Two of the department's undergraduate programs (Life Sciences and Biochemistry) will be reviewed in 2027-2028. The department head will consider if the undergraduate and graduate reviews should be combined.



Implementation Plan

Recommendations	Proposed Follow-up	Responsibility for Leading Follow-up	Resource or Governance Implications	Timeline for Addressing Recommendation
<p>1. Core shared facilities – we support the initiative for renewed and centralized equipment and technical support. This is valuable from many perspectives, and we encourage the continued use of this model.</p>	<p>Continue successful initiatives to apply for infrastructure and equipment funding.</p> <p>Complete and implement business plan for operation of equipment in the core facilities.</p>	<p>Department Head, Scientific/ Technical and Academic Directors.</p>	<p>Time for research teams and support staff to target available funding.</p>	<p>Funding applications as competitions arise.</p> <p>Complete business plan by end of 2023-2024 academic year.</p>
<p>2. DBMS needs to establish and maintain metrics collection, analysis, and integration for program quality improvement. They need to design appropriate metrics for program evaluation (e.g., composition of core faculty; FTE students/FTE faculty; frequency of courses offerings, number of students in classes, time to-completion of degrees, student/ faculty demographics, current positions of program</p>	<p>Consulting with Institutional Research and Planning and SGSPA, department to develop and implement an improved tracking system for student population including:</p> <ul style="list-style-type: none"> -the metrics listed -scholarships and awards -exam details 	<p>Associate Head, Graduate Studies, DBMS</p>	<p>Staff and faculty time.</p>	<p>Data collection methods established by end of summer 2024 term.</p> <p>Regular data collection thereafter to facilitate reporting</p>

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graduates and additional metrics as required for the program).	-recent graduate outcomes -demographic details of faculty and students.			and analysis in next cyclical program review.
3. The EDI Committee should build an action plan, using many of the existing resources at Queen’s, to integrate EDI initiatives in all departmental activities and continuously improve the plan with new learnings regarding EDII. This should include initiatives to increase diversity in graduate recruitment. We commend the success in recent faculty recruitment from equity-deserving groups. DBMS needs to ensure compliance with AODA training requirements for faculty and all graduate students acting on data provided centrally.	Committee to develop and implement comprehensive action plan and keep it under review. SCPRC recommended that the department work with the Associate Dean, EDIIA on developing learnings on EDIIA. Department to follow up on identified AODA training gaps on a regular basis, no less than two times per year	Head, DBMS	None: equity committee already exists in the department	Complete action plan by end December 2024. Monitoring of implementation on annual basis thereafter: progress shared with department. Training reminders to continue until 100% AODA compliance reached.
4. Provide a more cohesive framework – values, mission, vision, strategic priorities. Aligning hires to strategic research areas, course offerings, and overall graduate program structure. Clear articulation of the governance structure of the Department. Consider revision of the Terms of Reference for your Post-Graduate Education	Ensure that all decisions on hiring requests, course offerings and program structure are informed by the strategic priorities identified in recent years.	Head and Associate Head, Graduate Studies, DBMS	Update of terms of reference for existing committee.	Terms of reference for PEC to be updated by Fall 2023.

Recommendations	Proposed Follow-up	Responsibility for Leading Follow-up	Resource or Governance Implications	Timeline for Addressing Recommendation
<p>Committee (PEC) to provide structure and focus and enhance interdisciplinarity (e.g., composition, membership, objectives, necessity of field leaders, meeting frequency, roles of coordinator, associate coordinator, and members).</p>	<p>Ensure the business of PEC and other departmental forums is driven by strategic objectives.</p> <p>Organize annual retreats to review progress in implementing strategic objectives.</p>			<p>Annual review of progress implementing strategic objectives.</p>
<p>5. Differentiate Degree Level Expectations and revise Program-level Learning Outcomes (PLOs) for the thesis-based MSc and PhD programs and clearly articulate to your students and faculty.</p> <p>Generate full course summaries of all graduate courses, and a description of how they align with Program-level Learning Outcomes. Consider eliminating low-enrolment courses, and those that lack alignment with your programs.</p>	<p>Post the existing information on program websites.</p> <p>Revise the PLOs to reflect skills developed in the interdisciplinary research and teaching environment.</p> <p>Create a common course syllabus template for all courses in the programs.</p> <p>Examine the need for courses with low enrolment, decide on removal of these courses.</p>	<p>Associate Head, Graduate Studies, DBMS and Post-graduate Education Committee.</p>	<p>Faculty time resource implication for curriculum mapping.</p> <p>Approvals by various governance bodies needed for PLO and course changes.</p>	<p>Websites updated by Fall 2023.</p> <p>Curriculum mapping 2024-2026, including:</p> <p>Revised PLOs by end of 2024-2025 academic year.</p> <p>Course syllabus template to be completed for use in 2025-2026 academic year.</p> <p>Consideration of changes to course</p>

Recommendations	Proposed Follow-up	Responsibility for Leading Follow-up	Resource or Governance Implications	Timeline for Addressing Recommendation
				offerings: 2024 - 2025. Updated courses begin to be offered in 2024-2025 academic year, completion in 2025-2026.
6. Delivery of the Pattern-1 graduate programs should be independent of research fields to encourage interdisciplinary collaboration and reduce redundancy of course offerings.	Decide whether to retain fields of specialization in the Pattern-1 programs. If appropriate, develop program major modification proposal to update field designations. Ensure that program communications (e.g., website, handbooks) clearly reflect current research.	Head and Associate Head, Graduate Studies, DBMS, consulting with Post-graduate Education Committee.	Senate approval needed for deletion of fields.	If appropriate, approval of field deletion in 2024-2025 academic year. Academic calendar updated for start of 2025-2026 academic year.
7. The Department should work with the offices of the Provost and the Registrar to ensure that the central University records accurately reflect the programs offered.	Department to liaise with quality assurance team in Provost's Office and student information team in Registrar's Office.	Associate Head, Graduate Studies/Depart	none	End of 2023-2024 academic year.

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		ment Manager, DBMS		
8. Consider updating the graduate PhD Comprehensive Exam (CE) – is a single CE option suitable for all candidates. The reviewers favour the development of a research proposal format, as this encourages most of the DLEs.	<p>Survey faculty on “ideal” comprehensive exam that suits graduate students’ research and skillset development for career goals.</p> <p>Consult with graduate students.</p> <p>Post-graduate education committee to review results and decide on the best way to update and refine the comprehensive exam.</p> <p>Consult with SGSPA in this work.</p>	Associate Head, Graduate Studies, DBMS and Post-graduate Education Committee.	None.	December 2024
9. Environment for Learning. In addition to new student common spaces, students require individual desk space for focused learning and writing.	<p>Execute plan to create 18-desk room for graduate students on 7th floor of Botterell Hall.</p> <p>Work to secure funding for second hot-desk area on second floor of building.</p>	Department Head, DBMS with support from University and Faculty planning and financial staff.	Cost of renovations.	<p>7th floor room complete by Spring 2024.</p> <p>2023-2024</p> <p>2024-2025</p>

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	Develop plans for students who require it to have individual desk space.			
10. P2 Anatomical MSc Program – the sustainability of this program seems to be in jeopardy (recent and pending retirements, need for additional space). We see value in the teaching and skills components. A clear plan for sustainability needs to be developed.	A new faculty member (planned hire) will update the program, expand research offerings and contribute to expansion of the program (develop stream into a PhD program).	Dean, Health Sciences is responsible for faculty hiring. Department Head to make the case for new positions.	Hiring of faculty member(s) to replace retiring member(s).	Dependent on initial faculty hire.

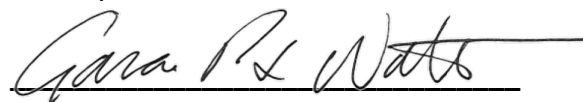
The Dean of Health Sciences is responsible for monitoring the implementation plan. The details of progress made will be presented in monitoring reports to the Vice-Provost (Teaching and Learning), submitted to the Senate Cyclical Program Review Committee (SCPRC) for approval and to Senate for information. All monitoring reports will be posted on the university web site.

Final Assessment Report & Implementation Plan

Date approved by SCPRC:

January 22, 2024

Vice-Provost (Teaching and Learning)



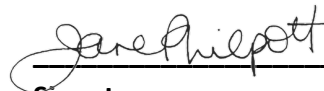
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Vice-Provost and Dean, School of Graduate Studies



Signature

Dean, Queen's Health Sciences



Signature

**Final status of graduate programs in the
Department of Biomedical and Molecular Sciences**

Approved to Continue

Date of next program review

2027-2028 OR 2028 – 2029 academic year*

Next Steps for Department

Monitoring reports to be submitted 18 months and 4 years after receipt of the signed Final Assessment Report: September 2025 and January 2028.** The provost's office will remind the department of the deadlines nearer the time and provide a template for these reports.

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** If the next review takes place in 2027-2028, a 4-year monitoring report will not be required.