Western UNIVERSITY · CANADA

Neuroscience
Final Assessment Report & Implementation Plan
October 2022

Faculty / Affiliated University College	Schulich School of Medicine and Dentistry	
Degrees Offered	MSc, PhD	
Date of Last Review	2013-2014	
Approved Fields	N/A	
External Reviewers	Dr. Tim O'Connor, Department of Cellular & Physiological Sciences University of British Columbia	Dr. Jennifer Steeves, Department of Psychology York University
Internal Reviewers	Dr. Mark Zbaracki, Associate Dean (Designate) Richard Ivey School of Business	Sarah Carver, Ph.D. Candidate, Industrial and Organizational Psychology
Date of Site Visit	June 21 and 22, 2022	
Date Review Report Received	August 29, 2022	
Date Program/Faculty Response Received	Program: September 29, 2022 Faculty: October 14, 2022	
Evaluation	Good Quality	
Approval Dates	SUPR-G: November 7, 2022 ACA: November 23, 2022 Senate (for information only): December 2, 2022	
Year of Next Review	Year of next cyclical review: 2028-2029	
Date of Progress Report	June 2025	

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 Program in Neuroscience delivered by Schulich School of Medicine and 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 and 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 Senate Graduate Program Review Committee (SUPR-G) and 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 graduate cyclical review process that is made public; all other documents are confidential to Western's Schulich School of Medicine and Dentistry, the Neuroscience graduate program, the School of Graduate & Postdoctoral Studies (SGPS), and SUPR-G.

Executive Summary

Established in 1991, Western's Neuroscience Graduate Program is the oldest one in Canada and is one of the largest graduate programs on campus. For 30 years, the Program has offered MSc and PhD degrees. Also offered, is a combined degree in neuroscience in the Doctor of Medicine MD/PhD program.

The vision for the Graduate Program in Neuroscience is to train the next generation of neuroscientists, so that they can conduct significant research during their graduate training and gain essential skills needed for their future careers. Over the last six years, the number of students in the program has more than doubled from 62 in 2015 to 134 in 2021. The faculty involved in the program also continues to grow, with more than 90 faculty members from different Faculties and departments across campus.

To inform the self-study for this program review, planning among program leadership began in the fall of 2019. In winter 2020, surveys were administered to current students (n=72) and alumni (n=12). In addition, 15 students also participated in a focus group. Topics related to the clarity and appropriateness of program offerings and expectations, fairness of the evaluation of progress, quality of supervision and guidance and availability from advisory committee and other mentors, level of financial and health support, access and suitability of research equipment, and overall satisfaction with the program. Finally, a program retreat took place in June 2020.

The external reviewers presented a positive assessment of the Neuroscience Graduate Program. They offered 11 recommendations for further enhancement.

Strengths and Innovative Features Identified by the Program

- Vibrant and engaged student community – in part due to the work of the Society of Neuroscience Graduate Students (SONGS).
- Participation in Collaborative Specializations such as: Global Health Systems in Africa, Music Cognition, and Machine Learning in Health and Biomedical Systems.
- Affiliations with a number of other campus research facilities, research cores, institutes, and centers.
- The program has a number of strategic partnerships with various institutions throughout the world (e.g., Donders Institutes).
- BrainsCAN has supported a number of program initiatives (e.g., research day, quarterly graduate student publication).
- Principles of Neuroscience course (9500A/B) for all first-year graduate students – which discusses the types of experimental models and data analyses used in neuroscience research and teaches to review, criticize, write, discuss, and present experimental results.

- All full-time students are required to enroll in a Neuroscience Seminar Course which fosters a sense of community within the program through weekly meetings, student presentations and increased interactions between faculty and students.
- All students are required to participate in bi-annual Advisory Committee meetings to discuss progress toward timely completion, identify barriers to progress, and provide a venue in which guidance and possible contingencies can be discussed.

Concerns and Areas of Improvement Identified and Discussed by the Program

- With a growing number of supervisors in other faculties, the program funding structure may have to be revisited.
- Factors that lead to possible inequities in student funding. Disparities can create tensions as students "shop" for more favourable funding packages.
- The need for plans to ensure the financial stability of initiatives that have been funded by grant monies (which are set to expire).
- Issues assessing the quality of foreign institutions via international applications.
- Inability to track student profiles, from an EDI perspective, through the current recruitment process.

Concerns shared by program students include:

- lack of faculty engagement and feedback associated with the seminar course;
- need for greater clarity on the process of the comprehensive exam, and the expectations for all parties involved; and
- large funding discrepancies across students with supervisors in different faculties.

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 virtually (due to pandemic restrictions) over two days with the:

- Vice-Provost of the School of Graduate & Postdoctoral Studies
- Associate Vice-Provost of the School of Graduate & Postdoctoral Studies
- Vice-Provost, Academic Planning, Policy and Faculty
- Associate Vice-Provost, Academic Planning, Policy and Faculty
- Director, Academic Quality and Enhancement
- Vice Dean, Basic Medical Sciences
- Associate Dean, Graduate and Postdoctoral Studies
- Neuroscience Graduate Program Director
- Neuroscience Program Committee
- Associate University Librarian

- Graduate Program and Department Staff
- Program Faculty Members
- Graduate Students

Following the virtual 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 Final Assessment Report (FAR) of the Graduate Program in Neuroscience. 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 *"Overall, the Graduate Program in Neuroscience is an excellent program that is supported by strong leadership and a group of committed and enthusiastic faculty. Students, faculty and the administration were extremely positive about the program and all highlighted its wide recognition on campus, nationally and internationally. Indeed, it has been so successful that the program is expanding at a significantly higher rate than previous years."*

Strengths of the Program

- Research laboratories and shared facilities are world class and support and enable the high caliber research at the institution and facilitate an appropriate intellectual climate.
- Commitment and dedication exemplified by members of the supervisory committees.
- Support and direction for students to achieve the learning outcomes expected of a graduate student at the University.
- Faculty are leaders in their fields and have significant funding and research outputs. Faculty appear to publish extensively with graduate students in top tier journals and present at international and national meetings.
- Significant increase in student enrolment, with about 60 new students joining the program in September 2022.
- The required core neuroscience course is offered a number of times a year ensuring that class size is kept to a minimum.
- Commitment to bi-annual committee meetings by members of the program is highly commendable. This exceeds the standard 'one meeting per year' followed by other neuroscience graduate programs.
- Development of a specialized remedial course (Neuroscience 9000) for certain entering students. – An innovative solution to a problem facing all Neuroscience graduate programs as the discipline expands.

- Opportunities for students to formally add Collaborative Specializations is innovative and helps this program stand apart from others at competing institutions.
- Student research excellence is notable, with PhD students publishing an average of 4 first author manuscripts and 8 total publications during their training.
- Graduating students are highly successful at the next stage of their careers and go into a variety of career directions

Areas of Concern or Prospective Improvement

1. The expansion in enrolment would add unreasonable strain on supervision capacity and on program support staff to meet the demands of the program moving forward.
2. There is need for additional faculty to support the program's expansion rather than rely on other faculties to provide professors.
3. Faculty members in the program have primary appointments in non-neuroscience departments across several faculties. This leads to issues such as inconsistent funding minimums for students, unequal recognition of neuroscience teaching and administration by home departments and confused allegiances /connections to program versus department amongst students and faculty.
    - The need for additional faculty to support expansion and faculty renewal depends on the goodwill of departments to hire neuroscience faculty.
4. The disparity in student funding, which is particularly challenging for international MSc students.
5. Lack of common physical space for the administrative staff means that the students do not have a central home department.
6. Lack of faculty engagement in the seminar course.

Summary of the Reviewers' Recommendations and Program/Faculty Responses

The following are the reviewers' recommendations in the order listed by the external reviewers. Recommendations requiring implementation have been marked with an asterisk (*).

Reviewers' Recommendation	Program/Faculty Response
1. Standardize the minimum student funding package across all units involved in the program. In particular, for those MSc students coming from Health Science *	**Program:** Major components of student funding (e.g., WGRS, GTAs) are outside of the program's control. The Director is engaged in discussions with all faculties to make them aware of this issue, which is endemic to all interdisciplinary programs where contributing supervisors come from different faculties. **Faculty:** The program is making efforts to reduce discrepancies between the stipends offered by different faculties. These are difficult discussions given the historical differences between the graduate student funding models of the different faculties. There will be decanal participation in the stipend discussions at the upcoming steering committee meeting and the department will support efforts to at least minimize the stipend differences between Neuroscience students supported by different funding models.
2. Develop a document that explicitly states the amount and source of a student's stipend. This should include any conditions and be signed by the student and the supervisor.	**Program:** Both the supervisor and student are made aware of their full funding package through Mercury, which requires acknowledgement from both parties. Funding packages for students receiving external awards are complicated by both the plethora of these awards, and the possibility that awarded students may or may not also receive GTAs. For transparency, the program will post on its website examples of the most common funding plans for such students. **Faculty:** In collaboration with the SGPS, the Mercury system is now being used to inform students of their funding packages. The faculty recognizes the extraordinary effort that this requires with over 150 students with multiple faculty funding models, GTAs in different faculties, and constantly evolving supervisor funding sources.
3. The seminar course should be redesigned to enhance faculty attendance and feedback to students. *	**Program:** The seminar course continues to evolve, in part due to enrollment pressures. For the current 2022-2023 academic year, first year MSc and first year PhD students are not presenting (as recommended by the external reviewers). The return to in-person seminars has also increased the vibrancy of the seminars and overall engagement. Discussions for how the seminar course could be improved are continuing at the program committee level. **Faculty:** The faculty supports the evolving structure of the seminar course and recognizes the efforts of the program to maintain its vibrancy now in person seminars has been re-established**.**

4. In consultation with the School of Graduate Studies: a) Promote the reduction of tuition fees for international students, particularly at the MSc level. Alleviation of these fees would most likely enhance the diversity of applications to the program. b) Redevelop and broaden the metrics for award adjudication at the University level to recognize the diverse nature of the student body. * c) Administrative support from the School of Graduate studies to continue the collection of data on post-graduate career outcomes for in-depth analyses and future development of the program's research and teaching plan.*	**Program:** A) The program is committed to working with the SGPS to address these three (3) issues. Recent discussions at Schulich Grad Council also raised the possibility of halving student tuition for upper year students (students in second year of their MSc, and students beyond the first year of their PhD). Such a change would impact both domestic and international students. B) The program will follow the recommendations from the SGPS regarding redeveloping the metrics for award adjudication at the University level to recognize the diverse nature of the student body. C) The program currently does an exit poll of the graduating class; since the SGPS is interested in harmonizing this across all graduate programs, the program will work with them in the future. **Faculty:** A) Partly due to this review and consistent input from all of our thesis-based graduate programs, the Faculty is making a strong effort to consider reducing tuition fees for International MSc students. This matter has been discussed at several forums and the department hopes to make progress on this issue. B) The Faculty has begun discussions to redevelop the metrics for award adjudication at the University level to recognize the diverse nature of the student body, and other issues to support increased diversity of student population and how awards are adjudicated. Neuroscience has consistently been a leader in those discussions and the faculty is actively supporting those initiatives. C) The Faculty supports the efforts of the program in obtaining data on post-graduate career outcomes and any University-wide efforts to harmonize gathering this data from our graduates.
5. Develop a memo that standardizes the expectations of faculty who join (or are currently in) the program. This should include expected participation in the various courses, supervision commitments and administration expectations.	**Program:** The program is preparing a "welcome letter" for new faculty members, which will cover these expectations. When prepared, it will also be distributed to all faculty members, as a reminder. **Faculty:** The department is pleased that the program has already acted on this excellent recommendation.

6. A second support staff member should be permanently added to the Program annual budget.*	**Program:** The continued growth of the program is such that a second permanent support staff member is essential. This individual would be hired through Schulich, and a request for a FT role will be made in the upcoming budget cycle. The Director will engage with the discussions with the Steering Committee for the Graduate Program in Neuroscience to come up with a fair means to distribute the costs of this additional support staff member. **Faculty:** An additional 0.5 FTE person has been hired and is in the current Schulich budget to support the Neuroscience graduate program. The department is planning on interfaculty talks to make that a 1.0 FTE position for 2023 as outlined in the program response.
7. Physical space considerations: a) Secure a program office for support staff so that they can work in closer proximity to one another. b) Secure a meeting room for committee meetings and research talks that would also ground the program physically. *	**Program:** The program agrees. The Director will engage with the Steering Committee on this issue. This space should be either in the Robarts Research Institute or the Western Interdisciplinary Research Building. **Faculty:** The Faculty agrees with the reviewers as to the benefits of such space for the program administration, committee meetings and research talks; and will work with the program to develop space for these initiatives. The founding of the Western Neuroscience Institute, as well as a new planned Bioconvergence Centre will provide opportunities to create a dedicated space.
8. Develop recurring activities for neuroscience faculty and students to provide a sense of community. Such activities could include monthly pizza seminars (one lab presents their research to the community), specialized journal clubs, social hours etc. *	**Program:** In accordance with the pandemic guidelines, the program aims to increase in-person social events, including monthly socials at the grad club, a welcome BBQ, a holiday event, and others. The Program also provides logistical and financial support for events run by SONGS. Continued growth in the program will require increased budgetary support, which is part of ongoing discussions and budget planning. The program is committed to enhancing the sense of community. **Faculty:** The Faculty supports the suggestions of the program in re-establishing a community infrastructure in accordance with pandemic guidelines; and is willing to provide support in terms of both space and finances.
9. All departments should recognize the valuable teaching, supervision and administrative contributions made to the program and that these	**Program**: This is particularly important information for the yearly APE process, as different home departments may have different cultures regarding recognition of requirements to the Neuroscience Graduate Program. The Program committee will consider the best strategies for conveying information about workload back to the Departments.

contributions should be considered equal to departmental contributions when it comes to consideration of promotion and tenure. *	**Faculty:** This type of recognition is now in place at Schulich. Currently in Schulich, the Basic Science Chairs assign and recognize teaching in the Neuroscience program as part of the workload of their faculty. Importantly, there is an agreement that all teaching is recognized equally whether it is in the home program or in an interdisciplinary program. That ethos has developed in recognition of the value of interdisciplinary science as exemplified by the Neuroscience graduate program. Other faculties (Science/Social Sciences) are following suit.
10. Establish a committee to identify and interview potential candidates to replace the current director at the end of the current appointment.	**Program:** This is something to be discussed by the Program Committee. **Faculty:** There is a defined administrative process in place that ensures a program review and the initiation of a search for a new program director before the current director reaches the term end. The Neuroscience steering committee and the faculty will support the process and advise candidates on the expectations and support for the faculty member from Schulich.
11. Establish a working group to explore the long-term establishment of an autonomous Neuroscience entity that can hire its own faculty to fulfill the teaching requirements in the undergraduate and graduate Neuroscience Programs, as well as support the ongoing Neuroscience research that is a pillar of the University's long term research plan. *	**Program:** The program looks forward to working with leaders on campus regarding the establishment of such a working group. **Faculty:** Neuroscience has a prominent role at Western and is widely recognized as one of the signature research areas of the University. The size and strength of Neuroscience at Western has in part been recognized by the recent establishment of the Western Institute for Neuroscience in 2020. This entity is a significant investment by the University and demonstrates the long-term support of Neuroscience by Western. It does not have the ability to hire faculty, though. However, the steering committee of the institute includes the Deans of the eight participating Faculties which suggests that priorities for Neuroscience hiring will be high. In fact, Western has just submitted an application for a Canada Excellence Research Chair (CERC) for a neuroscientist, and an application for a $160 million CFREF grant, focusing on Neuroimmunology.

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 is responsible for enacting and monitoring the actions noted in Implementation Plan.

The number of recommendations prioritized for implementation has been reduced as some are outside the scope of the review (#4a), are already being acted on, or will be acted on through dedicated institutional processes, as described in the program and faculty responses above. As a result, the recommendations not appearing in the implementation table are recommendations #2, #4a, #5 and #10.

Recommendation	Proposed Action and Follow-up	Responsibility	Timeline
Recommendation #1: Student funding: Standardize the minimum student funding package across all units involved in the program.	• Discuss minimizing the stipend differences between Neuroscience students from different units with the decanal group and the steering committee. • Determine a feasible strategy across units, indicating the responsibilities and opportunities appropriate to each unit and a plan for sustainability.	Dean, Director, Graduate Program Vice Dean, Basic Medical Sciences Associate Dean, Grad and Postdoctoral Studies Steering Committee	By July 2023
Recommendation #3: Seminar course: The seminar course should be redesigned to enhance faculty attendance and feedback to students.	• Develop a plan for the enhancement of the seminar course which clarifies its purpose, bolsters faculty engagement and rethinks the provision of feedback to students. ▪ Consider scheduling more in-person seminars, which may result in increased vibrancy of the seminars and overall engagement.	Director, Graduate Program Program Committee	Redesign to be completed by September 2023

Recommendation #4: b) Redevelop and broaden the metrics for award adjudication at the University level to recognize the diverse nature of the student body. c) Continue the collection of data on post-graduate career outcomes for in depth analyses and future development of the program's research and teaching plan.	b) Assess the impact of changes made in the adjudication of awards in Fall 2022, and solicit ideas and strategies used by other programs to further enhance the adjudication process. c) Develop a strategy with feasible mechanisms to obtain data on post-graduate career outcomes from graduates.	Director, Graduate Program SGPS	By September 2023
Recommendation #6: Support staff: A second support staff member should be permanently added to the program annual budget.	• Develop a plan with partner faculties to turn the recently approved 0.5 Schulich funded FTE into a 1.0 FTE position in 2023.	Deans, Director, Graduate Program Decanal Group	By September 2023
Recommendation #7: Physical space considerations: Secure a program office for support staff and a meeting room for committee meetings and program events.	• Engage with the Steering Committee to review available space options, in particular in the Robarts Research Institute or the Western Interdisciplinary Research Building. • Develop a feasible plan to secure space and a timeline to transition into it.	Deans, Director, Graduate Program Decanal Group Steering Committee	By December 2023

Recommendation #8: Enhance community: Develop recurring activities for neuroscience faculty and students to provide a sense of community.	• Increase the number of in-person social events, including monthly socials at the grad club, a welcome BBQ, a holiday event, and other events in accordance with pandemic guidelines. • Determine options to increase budgetary support for program community events, in particular those coordinated by SONGS.	Deans, Director, Graduate Program Program Committee Associate Dean, Grad and Postdoctoral Studies	By September 2023
Recommendation #9: Department recognition of faculty contributions: Recognize the teaching, supervision and administrative contributions made to the program. These should be considered equal to home department contributions when it comes to consideration of promotion and tenure.	• Engage in a discussion about how work within the Neuroscience Program is recognized across academic units. • Determine a feasible strategy across units, indicating the responsibilities and opportunities for each unit and plan for sustainability.	Deans, Director, Graduate Program Vice Dean, Basic Medical Sciences Associate Dean, Grad and Postdoctoral Studies Steering Committee	By December 2023
Recommendation #11: Long term sustainability: Explore the long-term establishment of an autonomous Neuroscience entity that can hire its own faculty to fulfill the teaching requirements in the undergraduate and graduate Neuroscience Programs, as well as support the ongoing Neuroscience research.	• Determine a medium-term hiring plan for Neuroscience programs that focuses on the long-term sustainability of teaching and research requirements.	Deans, Steering Committee	By December 2023