CARLETON UNIVERSITY COMMITTEE ON
QUALITY ASSURANCE
Cyclical Review of the undergraduate and graduate programs in Neuroscience

Executive Summary and Final Assessment Report

This Executive Summary and Final Assessment Report of the cyclical review of Carleton's undergraduate and graduate programs in Neuroscience are provided pursuant to the provincial Quality Assurance Framework and Carleton's Institutional Quality Assurance Process (IQAP).

EXECUTIVE SUMMARY

The undergraduate and graduate programs in Neuroscience reside in the Department of Neuroscience, a unit administered by the Faculty of Science.

As a consequence of the review, the programs were categorised by the Senate Quality Assurance and Planning Committee (SQAPC) as being of good quality. (Carleton's IQAP 7.2.12).

The External Reviewers' report offered a very positive assessment of the programs. Within the context of this positive assessment, the report nonetheless made a number of recommendations for the continuing enhancement of the programs. These recommendations were productively addressed by the Director of the Department of Neuroscience, the Dean of the Faculty of Science and the Dean of the Faculty of Graduate and Postdoctoral Affairs in a response to the External Reviewers' report and Action Plan that was submitted to SQAPC on November 7th, 2019.

Neuroscience
Unit Response to External Reviewers' Report & Action Plan
Programs Being Reviewed: Undergraduate and Graduate Programs in Neuroscience and Mental Health
Completed by Unit: Neuroscience, June 10, 2019
Approved by Dean: Charles Macdonald, June 27, 2019
Note: This document is made available for public posting on the Vice- Provost's website.

Introduction & General Comments

Please include any general comments regarding the External Reviewers' Report.

The Department of Neuroscience was pleased to receive the Reviewers' very positive External Reviewers' report on April 10, 2019. This report was shared with our faculty and staff, and we are committed to the continual improvement of our programs to enhance the student, staff, and faculty experience. This document contains both a response to the External Reviewers' Report and an Action Plan (Section B) which have been created in consultation with the Dean(s).

For each recommendation, a category has been applied indication one of the following responses:

Recommendations agreed to unconditionally;
Recommendations agreed to if resources permit;
Recommendations not agreed to.]

Calendar Changes

If any of the action items you intend to implement will result in calendar changes, please describe what those changes will be. To submit a formal calendar change, please do so using the Courseleaf system.

UNIT RESPONSE AND IMPLEMENTATION PLAN Programs Being Reviewed:				
External Reviewer Recommendation & Categorization	**Action Item**	**Owner**	**Timeline**	**Will the action described require calendar changes? (Y or N)**
1. *Central Administration must ensure the Health Sciences Building be totally completed and fully operational with NO further delays. We were repeated told, as have the faculty and students, that the animals will move into the building in June. The reviewers cannot emphasize strongly enough how important it is that the University meet this promised deadline.*	*The timeline for the completion of the facility and the return of the animals is contingent upon construction schedules that are beyond the control of the university. The current plan is for the animals to return by the end of August.*	*University*	*Aug. 2019*	*N*

2. *Central Administration must ensure Faculty members are supported with timely, equitable, and sustained bridge research funding if required as a result of gaps in research funding exacerbated or caused by significant and ongoing construction delays. NSERC does NOT factor construction delays into funding decisions, they simply award or decline funding based on research productivity, HQP training, and the merit of the proposed research. Both the productivity and the HQP components of the funding formula are likely to be affected by the delays the faculty have endured. As well, graduate scholarship success is likely to be affected by the delays the students have endured. This also pertains to the importance of ensuring that "per diem" charges are kept to a minimal level to ensure that when the building is completed, the Faculty members can maintain a*	*Extensive bridge funding has been provided and will continue to be provided. This includes having contracted vivarium space at the University of Ottawa and other facilities to allow for the researchers and students to undertake research during the construction of the new facility. Upon return, per diem charges will be reasonable and heavily subsidized in order to assist the researchers in the department.*	*University*	*Aug. 2019*	*N*

	high level of productivity with their grant funds.				
3.	*Central Administration must ensure graduate students are supported through the ongoing delays in construction; this includes: (1) sensible, fair, and easily accessed personal and research sample transportation to and from University of Ottawa, along with (2) straightforward, fair, transparent, timely, and penalty free program extensions (3) Costs associated with travel to and from research sites in the most convenient manner for the students.*	*The University and the Faculty of Science have supported and continue to support graduate students in each of the categories outlined by the external reviewers.*	*University and Faculty of Science*	*Aug. 2019*	*N*
4.	*Central Administration must aid Faculty members to correct the "combined" program name issue to provide truth in advertising with respect to this program, and eliminate student enrollment confusion. A simple solution is to change to Neuroscience and Biology, which would be unique in*	*The dean has met with the chairs of the departments of Biology and Neuroscience and are working on a solution that is transparent to students and amenable to both departments.*	*University*	*Sept. 2019*	*Y*

	Canada. Without this name change, there is not only student confusion, but the program is not unique as interdisciplinary Neuroscience programs exist across several departments (and faculties) at most Canadian Universities.				
5.	*Central Administration must develop a system to provide faculty members credit for instruction of independent studies students and honours students. Moreover, Central Administration must develop a system to provide faculty members financial support for such student supervision as this is costly in both time invested and research consumables used in the administration of arguably one of the most powerful forms of experiential learning available. The faculty self-study suggested that faculty receive $1500/honours student to pay for the research costs of the project -this*	*The Faculty of Science is working on a system to account for the workload associated with research student supervision. The suggestion regarding financial support – although laudable in theory – is not consistent with practice in any of the other experimental science departments within the Faculty, the University, or at comparable Universities. There are insufficient resources available for such a program.*	*University and Faculty of Science*	*Sept. 2020*	*N*

	seems reasonable to the reviewers				
6.	*Central Administration and Communications need to provide consistent and active assistance in the distribution of materials designed to specifically promote the Department of Neuroscience, their undergraduate and graduate programs, and their excellence in research, teaching, and student engagement (e.g., SFN Chapter award), and cross-campus, national, and international collaborations and interdisciplinarity.*	*The Faculty of Science and the University use many different resources to promote the Department of Neuroscience, the research and teaching excellence it exhibits, and the individuals (faculty, staff, and students) that are associated with it.*	*University and Faculty of Science*	*Sept. 2019*	*N*
7.	*Central Administration needs to arrange transport for those who want this service for the return of research/laboratory equipment and materials from the University of Ottawa to Carleton.*	*The University and the Faculty of Science have supported and continue to support individuals (faculty, staff, students) for travel to the University of Ottawa for the duration of the disruption.*	*University and Faculty of Science*	*Aug. 2019*	*N*

8. *Central Administration must hire a lab manager and/or project coordinator with the requisite skills required to get expensive, highly technical, and equipment critical to research and teaching laboratories, both responsible for significant experiential learning at the undergraduate and graduate levels, online, initially, and as an ongoing line item investment to secure smooth operation of these key resources.*	*The Faculty of Science has already hired a lab coordinator responsible for such tasks regarding the teaching labs for the Department. Additional requests for resources will be considered as part of our typical budget cycle.*	*Faculty of Science*	*Mar. 2020*	*N*
9. *Student/faculty ratios, class sizes, impressive retention rates, impressive record of student engagement, impressive growth of the Neuroscience undergraduate population, the addition of new undergraduate labs and extreme pressure on honours thesis projects indicate that the Department requires additional faculty. We recommend that the University recognize the workload and the cost to students who are unable to*	*The Faculty of Science intends to provide an additional faculty member hire for the Department. Additional requests for resources will be considered as part of our typical budget cycle.*	*Faculty of Science*	*Mar. 2020*	*N*

conduct an experiential learning research experience at the undergraduate level by providing at least two additional faculty members in areas deemed appropriate by the currently active Departmental Committee on Future Hiring headed by Dr Abizaid.				
10. *As identified in the Departmental self-study the co-op students benefit from work placements, but the majority of students do are unable to find placement. We encourage the co-op office to expand their range of expertise to the life sciences to increase opportunities for students in these fields.*	*The Faculty of Science is prepared to work with the Department and the Co-op office to expand suitable opportunities for our students to engage in work placements, etc.*	*Faculty of Science*	*Sep. 2019*	*N*
11. *The Neuroscience students in the NMH program are excluded from the second year laboratory course BIOL 2200 (Cellular Biology) and as such have no laboratory courses in their second year. We would encourage the Dean of Science to follow the recommendation of*	*The Faculty of Science will work with the Departments of Neuroscience and Biology to expand their capacity and lab offerings for students. Additional requests for resources will be considered as part of our typical budget cycle.*	*Faculty of Science*	*Mar. 2020*	*Y*

the self-study, that additional resources be given to the Department of Biology to run additional sections of the course that is critically important to Neuroscience students.				
12. *Neuroscience Faculty Members should emphasize and promote their already existing multidisciplinary research clusters and collaborations.*	As noted by reviewers, the department does have many existing research clusters and collaborations. Indeed, we have expertise across a wide range of neuroscience and mental health topics and are capitalizing on our existing strengths by establishing formal research clusters (some examples of our research clusters are stress and mental health, Parkinson's disease, dysregulated excitability, social neuroscience, and metabolic regulators of mental health). An increased online presence and resources in these areas are currently being developed. In terms of collaborations within Carleton, we collaborate extensively with colleagues in other units (biology, chemistry, psychology, public policy, health sciences, etc). We have a research centre (CHAIM) that is consciously and conscientiously interdisciplinary, facilitating joint discussions, events, and student experiences. We also enjoy strong collaborations both within the city (University of Ottawa, OHRI, Royal Ottawa Hospital) and beyond. We will increase the visibility of these collaborations/clusters through changes to our departmental website.	Departmental administrators will work to make these clusters more visible on our departmental website	By September 2019	N
13. *Neuroscience Faculty Members should be explicit about the graduate student committee composition (internal/external, external/external) for*	Graduate student committee compositions will be made more explicit, especially with regards to specific external and internal members. This information will be updated in the online Graduate Student Handbook, so will be readily accessible to all students. Specifically, the M.Sc. and Ph.D. thesis prospectus committee comprises the supervisor	Our graduate handbook will be updated by our graduate administrator to reflect the increased clarity	September 2019	N

various stages (comprehensive exam, masters and doctoral defenses) in their graduate handbook.	plus two additional core neuroscience faculty; this is also referred to as the Thesis Advisory Committee (TAC). The M.Sc. final thesis defense committee includes an additional 'internal examiner' which is an additional faculty member from outside of neuroscience (but typically within Carleton). The 'internal examiner' can be a Carleton faculty member with no formal ties to the department, or a Carleton faculty member with a 0% cross-appointment to the Department of Neuroscience or can be an adjunct professor appointed to the Department of Neuroscience. The Ph.D. prospectus committee includes the TAC, internal examiner, plus an additional 'external member' that comes from outside of Carleton and has no formal ties to the Department of Neuroscience. The Ph.D. comprehensive committee will be made up of the supervisor plus two additional neuroscience faculty members (which may or may not differ from the TAC). The Ph.D. comprehensive committee may also include examiners that are external to the core Neuroscience faculty (equivalent to the 'internal examiner' described above) to enhance the range of expertise on the examining committee, should the committee judge this to be in the best interests of the Ph.D. candidate.	of the graduate student committee compositions.		
14. *Neuroscience Faculty Members should tighten up the Graduate Student Review process to track students having difficulty meeting expectations with action plans provided to remediate problems.*	To tighten up student tracking, brief TAC meetings will occur once per year for all graduate students and during this meeting, students will present their progress thus far, and their plan for the next year. At the end of each meeting, the TAC will complete and sign a form that outlines any additional actions that need to be taken. We will be more diligent in making sure students meet milestone dates. The graduate administrator will be responsible for ensuring that the progress for each student is tracked appropriately and will inform both the	The graduate administrator and Graduate Chair will together work to ensure students will be meeting the timelines and expectations	Ongoing	N

	supervisor and the TAC of any students who have not completed their annual review. The Graduate Chair will also actively encourage all PIs to meet regularly with students to better gauge their progress through the program.			
15. *Neuroscience Faculty members should clarify the preferred method of conducting the comprehensive exam, with clear timelines and expectations for success in the preferred method.*	The CPR committee agrees with the recommendation. However, rather than making a definitive decision on which version of the comprehensive exam is the preferred option, we have struck an ad hoc committee to explore fully what format of the comprehensive exam would be the most rigorous and meet the learning objectives and benchmarking purpose of the comprehensive exam.	Prof Hildebrand has agreed to Chair this committee for the duration of the 2019-2020 academic term. A recommendation will be made to the Department by Jan 2020, with a final decision by Apr 2020. Calendar changes (if necessary) will take a full year for approval.	September 2021	Potentially
16. *Neuroscience Faculty Members should provide clarification and transparency surrounding graduate support sources and minimums. This should include creating a Department specific RA (with funding from the Dean of Science) to be included in the graduate student funding.*	Student funding from the Scholarship and TA portion of the official offer will be guaranteed but unfortunately, the RA portion cannot be as strictly guaranteed. Hence, this portion is dependent upon the specific PI.	All faculty	Ongoing	no

17. *Neuroscience Faculty Members should list possible courses from other units to show interdisciplinarity (as described in the organizational chart; quadrants: 1. psychosocial, 2. behavioural, 3. translational, 4, cellular/molecular).*	We have developed a list of courses that students could choose from that would likely increase the breadth of their degree, that are outside the faculty of science. We will include these courses as recommended options on our departmental website (Carleton.ca/neuroscience/current undergraduates/FAQ)	The undergraduate administrator and Undergraduate Chair	Completed	no
18. *Recently not all students have received co-op placements. Increase the range of opportunities for majors and general students as well (p.6)*	See 10			
19. *We recommend that the Department specifically list in the Undergraduate Calendar a set of suggested electives from other departments that will provide a broader coverage of neuroscience courses outside of the domain of the expertise of the current faculty members, such as cognitive neuroscience and computer science. This would provide a broader approach and demonstrate interdisciplinarity. (p.7)*	See 17			

20. *Reviewers see an opportunity that exists to add practical options such as graduate students completing research project rotations in other labs for course credit. Such courses are common practice in other universities. (p.8)*	We currently have a graduate course (NEUR 6301; 6302, Techniques in Neuroscience I and II), which is available to any graduate student. Students are required to learn a new technique not previously acquired for their thesis. These are often undertaken outside of the PI's lab or even outside the departmental labs.	n/a	n/a	no
21. *The reviewers see an opportunity to list other relevant courses from other programs that students may consider enrolling in to provide breadth and/or relevant experience required to complete their graduate training. (p.8)*	We are exploring listing certain psychology courses as possible courses that could be taken as part of their graduate training. Carleton also has an agreement with the UOttawa so that our graduate students can take any of their courses. We will highlight this in our graduate handbook.	Graduate administrator	Sept 2019	no
22. *The reviewers see an opportunity to list other relevant courses from other programs that students may consider enrolling in to provide breadth and/or relevant experience required to complete their graduate training. (p.8)*	See 21.			
23. *The reviewers are concerned that one weakness is significant enrollment pressure that will impede gaining research-based experience for all students who want such*	See 9. The reviewers recommend addressing this comment by the provision of additional faculty resources. We currently offer a 4th year Independent study (NEUR 4900) that students can take in 3rd year. Further, we will be offering 3rd year course-linked labs which will offer increased opportunities for lab-based experiential learning. Finally, additional faculty hires will also increase	See 9	See 9	

opportunities. We see the flip side of this weakness as an opportunity for growth to address this need, possibly by expanding to include research project course options in third year to promote and allow for more research experience. (p.8)	the number of placements for undergraduate volunteer or course-based research experience.			
24. *Possible weakness is that the requirements are too essential, and as a result, a key neuroscience area, cognitive neuroscience, is omitted. This weakness can be turned into an opportunity by listing related courses from other departments that students may consider completing. (p.9)*	See 17			
25. *The program has an appropriate governance and administrative structure but a glaring weakness is that in the past has relied heavily upon one valiant faculty member, with negative results for this faculty member. An opportunity exists, and seems to be in progress now, by having a new chair, and could further be enhanced by allowing the current and future Chairs receive 100*	To be addressed by the Dean.			

percent release from teaching responsibilities. (p.9)				
26. *We heard many different funding levels from senior administration and faculty in the Department of Neuroscience. The minimum guarantee varied from $18,500 (Department understanding) - $24,000 (from Dean of Graduate Studies and PDFs). Recommendation #14 addresses this concern. We recommend that the faculty provide clarification and transparency regarding the minimum guaranteed funding and that a Departmental RA fund be created with funding from the Dean to be included in the minimum guarantee to ensure adequate funding in the current competitive climate for attracting high quality students.*	See 16			

27. *One weakness the reviewers observed was the lack of external examiners in the comprehensive committee membership. Because of this, an opportunity for increasing the breadth of training for graduate students would be the inclusion of external examination members on the comprehensive exam committee. (p. 13)*	See 15			
28. *Tighten up and clarify the preferred method for the comprehensive exam and student progress reports. (p.14)*	See 15			