



SUBJECT	Tuition - Bachelor of Science in Neuroscience
SUBMITTED TO	Finance Committee
MEETING DATE	June 8, 2021
SESSION CLASSIFICATION	Recommended session criteria from Board Meetings Policy: OPEN
REQUEST	REQUESTED - Approval IT IS HEREBY RESOLVED that the Finance Committee, in accordance with authority delegated by the Board of Governors, approves tuition for the Bachelor of Science in Neuroscience of \$187.23 per credit for domestic students and \$1,413.19 per credit for international students in alignment with other Faculty of Science programs for 2021-2022, subject to increases as approved by the Board of Governors.
LEAD EXECUTIVE	Andrew Szeri, Provost and Vice-President Academic, UBC Vancouver
SUPPORTED BY	Pam Ratner, Vice-Provost and Associate Vice-President Faculty Planning Simon Bates, Associate Provost Teaching & Learning

PRIOR SUBMISSIONS

The subject matter of this submission has not previously been considered by the Finance Committee.

EXECUTIVE SUMMARY

Neuroscience is an interdisciplinary field of study that has displayed accelerated growth in recent decades. UBC has a long history and strong expertise in Neuroscience, but currently does not offer a Neuroscience undergraduate program. The existing Bachelor of Science specialization in Behavioural Neuroscience does not sufficiently meet student demand, and covers but one subfield of neuroscience – it does not offer the broad scope wanted by students interested in a Neuroscience program.

The Faculties of Arts, Medicine, and Science are proposing to create a Bachelor of Science major's program in Neuroscience, which would replace the existing Bachelor of Science in Behavioural Neuroscience. The program was approved by the UBC Vancouver Senate in April 2021.

Pending approval from the Board of Governors and the Ministry of Advanced Education and Skills Training, the program will admit its first cohort of students in September 2022.

In the 2021-2022 academic year, proposed per-credit tuition fees for the program (consistent with other Faculty of Science programs) are \$187.23 for domestic students and \$1,413.19 for international students. These fees are subject to increases as approved by the Board to remain consistent with tuition rates for the Bachelor of Science leading up to the program's launch in 2022-2023. These figures lead to annual tuitions of approximately \$5,616.90 for domestic students and \$42,395.70 for international students for the 30-credit normal course load.

The cohort sizes for 2022W and 2023W will be 150 students per year. Thereafter, the cohort sizes will be capped at 200 students per year. Anticipated time for completion of the program is the same as for most BSc programs: 32 months (8 terms) of full-time study.

The Office of the Vice-President Students conducted a student consultation regarding the tuition proposal (as per Policy LR4). The e-consultation was conducted from February 1, 2021 to March 3, 2021. Both the Alma Mater Society (AMS) and the Science Undergraduate Society (SUS) were supportive of the proposal. The AMS requested clarification that additional fees for practical experiences (e.g., co-op terms, capstone projects) will align with cognate undergraduate programs, which the administration confirmed.

Key elements of this specialization that are in alignment with UBC’s strategic plan include:

- Strategy 3: [Thriving Communities](#): The specialization provides opportunities for undergraduate-undergraduate, undergraduate-graduate student, and undergraduate-faculty mentorships, undergraduate Neuroscience conferences and journals, and similar initiatives, all for which current students and alumni have expressed strong support.
- Strategy 8: [Student Research](#): With a curriculum that encourages student-directed research experiences, and builds to capstone and co-op experiences, the specialization will establish and strengthen relationships between students, industry stakeholders, and faculty.
- Strategy 13: [Practical Learning](#): A co-op program with strong support from industry partners provides valuable experiential learning opportunities for students, as well as employment opportunities post-graduation.
- Strategy 14: [Interdisciplinary Education](#): As a collaboration between the faculties of Arts, Science, and Medicine, the program brings together people and resources across a number of disciplines. The comprehensive, interdisciplinary curriculum for the specialization draws on the wealth of expertise of faculty members from multiple departments.
- Strategy 15: [Student Experience](#): With a strong cohort model, and dedicated staff and space, the specialization will establish supportive, collaborative communities of students working and learning together.

The rationale for such a new program includes:

- 1) Addressing the absence of an undergraduate Neuroscience program despite considerable growth in this field of Science over the past five decades. Most research-intensive universities have an undergraduate program in Neuroscience or something comparable.
- 2) Addressing the results of a 2019 large-scale formal survey, that indicated that a majority (55.4%) of current students and alumni would have been ‘likely’ or ‘very likely’ to choose to major in Neuroscience over their current major.
- 3) Increasing demand for an undergraduate education at UBC in general, through the offering of a program in Neuroscience, which we anticipate would have considerable draw.
- 4) Supporting the neuroscientific research being carried out by myriad faculty members spanning multiple Faculties (e.g., Arts, Science, Medicine).
- 5) Strengthening UBC’s reputation by offering an undergraduate program in Neuroscience that would both complement the existing graduate program in Neuroscience and also broaden the impact of UBC as a leader in the field of Neuroscience.

The program is focused on graduating students with a solid foundation in neuroscience theory and research, strong practical research and lab skills, and well-developed soft skills (including critical/creative thinking, writing, and mentoring). With a curriculum that encourages student-directed research experiences, and builds to capstone and co-op experiences, the program will provide students with ample opportunity to apply their knowledge and gain practical experiences. Undergraduate Neuroscience students take many different pathways upon graduation, including: graduate school in Neuroscience; advanced/professional degrees in related fields; medical school; and jobs in educational settings, hospitals and other healthcare settings, industrial and government research and development facilities, and government and regulatory agencies.

APPENDICES

1. Tuition and Fee Assessment Details
2. Student Tuition Consultation Report

Tuition and Fee Assessment Details

Program Description: Bachelor of Science in Neuroscience

Anticipated Start Date: September 2022

	Domestic	International
Tuition fees per credit – Note 1	\$187.23	\$1,413.19
Application fees (undergraduate) – Note 2	\$73.00	\$123.00
Non-refundable acceptance deposit – Note 3	\$500.00	\$1,000.00
Other faculty and course fees	N/A	N/A

Note 1 – Proposed tuition reflects approved 2021/22 tuition for the Bachelor of Science program and will be subject to increases as approved by the Board to remain consistent with the Bachelor of Science program leading up to the program’s launch.

Note 2 – This is the current fee for the 2022W application cycle and is subject to increases as approved by the Board.

Note 3 – The non-refundable acceptance deposit will be applied towards the first tuition instalment.

BACHELOR OF SCIENCE IN NEUROSCIENCE STUDENT TUITION CONSULTATION REPORT

The Vice-President, Students Office, in partnership with the Faculty of Science, conducted a student consultation regarding the tuition proposal for the Bachelor of Science in Neuroscience. This report outlines the consultation process and summarizes student feedback including the student representatives' submission verbatim in Appendix 2.

Student Representative Bodies Invited to the Consultation

- Alma Mater Society (AMS)
- Science Undergraduate Society (SUS)

Mode of Consultation

The consultation consisted of an e-consultation. Student representative groups were invited to the consultation through email, and asked to distribute the invitation to their constituents as they felt appropriate. Student representative groups were also offered a face-to-face meeting to discuss the tuition proposal. A meeting was not requested by student representatives.

Basis of Consultation: The consultation was based on a tuition proposal and rationale document created by the Faculty. Please see Appendix 1 for the invitation and tuition rationale document.

Timelines: The e-consultation was conducted over the period of Monday, February 1st, 2021 to Wednesday, March 3rd, 2021.

Summary of Student Feedback: Submissions were received from the both the AMS and SUS. The verbatim submissions are in Appendix 2.

The Faculty responded to the question raised in the AMS submission and the response was deemed sufficient by the AMS. See Appendix 2 for a summary of the response.

Organization	Summary
AMS	<p>CLARIFICATION ON ADDITIONAL FEES FOR PRACTICAL EXPERIENCES “Within this program proposal, we would like further clarification on whether or not there will be additional fees for the practical experiences listed. Currently, these practical experiences include capstone projects, co-op terms, and community-based experiential learning opportunities as described in current program description. We would appreciate clarification that any of these additional fees are aligned with description on the UBC Academic Calendar for other adjacent undergraduate programs.”</p> <p>SUPPORT FOR THE PROGRAM “We commend the Faculty’s efforts in constructing a program that has been critical to the evolving fields offered at University of British Columbia, increasing accessibility to undergraduates who have a keen interest in neuroscience fields. We agree with the submission that this program will have considerable draw from the undergraduate student population and are looking forward to its inclusion to the opportunities available through the Faculty of Science.”</p>
SUS	<p>SUPPORT FOR THE PROGRAM “Everyone that has been consulted is in favour with the tuition rates proposed in the document presented.”</p>

No individual student submissions were received.

APPENDIX 1: INVITATION TO CONSULTATION AND TUITION RATIONALE DOCUMENT

Hello Georgia, Morgane, and Dayle,

There is a proposal by the Faculty of Science to create a new Bachelor of Science in Neuroscience.

In order to inform the program leads and the Board of Governors with regards to the **tuition proposal** for this program, the University is undertaking a consultative process to get your comments as student representatives, and provide an opportunity for students to provide individual comments on the tuition proposal if they wish. **Please note: the scope of this consultation process is limited to the tuition proposal.**

The consultation will consist of:

1. e-consultation: Please find attached a document which outlines the details of the tuition proposal, including:

- an overview of the program,
- the student consultation that has happened to date,
- the tuition rationale for the program, and
- the proposed tuition.

Please share the document and this email as you see appropriate. **Comments on the tuition proposal and student organization submissions can be provided confidentially to Tlell Elviss – Senior Program Strategist, Vice President Students Office (tlell.elviss@ubc.ca).**

2. Face to Face/Zoom meeting: If requested by student representatives, we can arrange a face-to-face/Zoom meeting with the program leads regarding this tuition proposal. Please advise as soon as possible if you would like us to arrange a meeting.

THE CONSULTATION PROCESS WILL END ON WEDNESDAY, MARCH 3RD, 2021.

Confidentiality

Comments will be collected by the Vice-President Students Office, and only analysts within that office will know the identity of individual students submitting comments. At no time will anyone outside of the Vice President Students Office know the identity of individual students who submit comments to this consultation. Your comments will only be used for the purposes of the tuition consultation.

Comments from individual students will be stripped of any identifying information to ensure confidentiality, but otherwise will be provided to the responsible program leads and Board of Governors verbatim.

Comments received from student organizations will be reported as coming from those organizations, and provided to the responsible faculty and Board of Governors as received. There will also be a summary report of the consultation developed for the Faculty and Board of Governors.

Please let me know if you have any questions about the process.

Thank you,

Tlell

Tlell Elviss BSc | MA ([She](#), [Her](#), [Hers](#))

Senior Program Strategist

Vice President, Students Office

The University of British Columbia | Vancouver Campus | Musqueam Traditional Territory

NEW PROGRAM TUITION CONSULTATION Faculty of Science – Bachelor of Science in Neuroscience

PROGRAM OVERVIEW

Neuroscience has been a research area within UBC for at least 6 decades. Currently, there are over 110 research faculty members at UBCV who either self-identify as being neuroscientists or are involved in neuroscience-related research (see neuroscience.centreforbrainhealth.ca/members-neuroscience). Neuroscientists at UBC represent over 13 departments from the Faculties of Medicine, Science, and Arts. Laboratory and teaching areas are located across the Point Grey campus and at Vancouver General Hospital.

Since 1974, there has been an undergraduate Bachelor of Science (BSc) program in Behavioural Neuroscience (formerly titled 'Biopsychology'). This program has been very popular with students (as evidenced by the high entrance averages and number of applications per year), but seats have been limited--with not more than 100 students entering the program per year (the program only allowed the entry of 50 students per year up until 2018W). The BSc in Behavioural Neuroscience is offered by the Faculty of Science, but administered by the Faculty of Arts, Department of Psychology.

The Faculties of Arts, Science, and Medicine are proposing to create a BSc. in Neuroscience, which will replace the existing BSc in Behavioural Neuroscience. This new Neuroscience program would involve the creation of several second- and third-year 'core concept' courses that would be required of all Neuroscience students. In order to take those core courses, students would declare Neuroscience as their major at the end of the first year of their BSc. degree. Students will have the option to select from two areas of emphasis: cellular and molecular neuroscience or behavioural and cognitive neuroscience. Additional areas of emphasis will be added in future years.

The rationale for such a new program includes:

1. Addressing the absence of an undergraduate Neuroscience program despite considerable growth in this field of Science over the past 5 decades. Most research-intensive universities have an undergraduate program in Neuroscience or something comparable.
2. Addressing the results of a 2019 large-scale formal survey, that indicated that a majority of current students and alumni would have been 'likely' or 'very likely' to choose to major in neuroscience over their current major.
3. Increasing demand for an undergraduate education at UBC in general, through the offering of a program in Neuroscience, which we anticipate would have considerable draw.
4. Supporting the neuroscientific research being carried out by myriad faculty members spanning multiple Faculties (e.g., Arts, Science, Medicine).
5. Strengthening UBC's reputation by offering an undergraduate program in Neuroscience that would both compliment the existent graduate program in Neuroscience and also broaden the impact of UBC as a leader in the field of Neuroscience.

The program is focused on graduating students with a solid foundation in neuroscience theory and research, strong practical research and lab skills, and well-developed soft skills (including critical/creative thinking, writing, and mentoring). With a curriculum that encourages student-directed research experiences, and builds up to capstone and co-op experiences, the program will provide students with ample opportunity to apply their knowledge and gain practical experiences. These include: 1) a third-year neuroscience lab course that will provide students with a wide range of modern neuroscience research techniques; 2) community-based experiential learning opportunities in a fourth-year seminar course on Neuroscience ethics and society; 3)

directed studies with Neuroscience faculty in a wide range of areas from pure wet lab research, to working with clinical populations, to technology development, etc.; 4) co-op terms with industry partners; and 5) a fourth-year capstone course. Undergraduate Neuroscience students take many different pathways upon graduation, including: graduate school in Neuroscience; advanced/professional degrees in related fields; medical school; and jobs in educational settings, hospitals and other healthcare settings, industrial and government research and development facilities, and government and regulatory agencies.

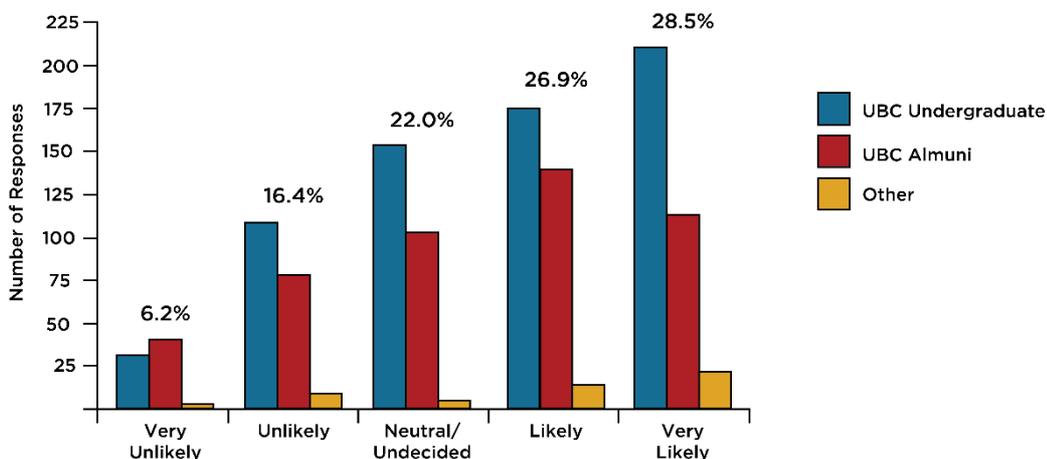
Pending approvals, the program will admit its first cohort of students in September 2022. The cohort sizes for 2022W and 2023W will be 150 students per year. Thereafter, the cohort sizes will be capped at 200 students per year. Anticipated time for completion of the BSc in Neuroscience is the same as for most BSc programs: 32 months (8 terms) of full-time study (i.e., approximately 15 credits per term).

STUDENT CONSULTATION DURING THE PROGRAM DEVELOPMENT PROCESS

Student engagement in neuroscience and enthusiasm for a neuroscience undergraduate major is significant. In 2017, the executive members of the UBC Neuroscience Club, a student-led initiative for students interested in Neuroscience, administered an informal survey to their 127 members (both alumni and current students): 80% of respondents would have chosen/would choose a neuroscience major if one had been available, even in place of the current behavioural neuroscience program. Only 1% of respondents felt the behavioural neuroscience major in its current form was sufficient. Nearly half of the respondents felt that the neuroscience courses currently offered at UBC are inadequate, and over three-quarters felt that current courses do not comprehensively cover all relevant/necessary topics. The proposed curriculum will address most of these concerns.

Inspired by the informal survey conducted by the UBC Neuroscience Club, UBC launched a large-scale survey in 2019 to assess interest in an undergraduate neuroscience program. Of the 1,198 students and alumni that responded to the survey (6% response rate), 94.8% of current students and 93.6% of alumni either strongly supported or supported the development of the proposed program. Moreover, 56% of current students and 53% of alumni, when asked “How likely is it that you would have chosen to major in Neuroscience over your current major, had the option been available to you?”, indicated they were very likely or likely to have chosen to major in Neuroscience had the option been available (see figure below).

How likely is it that you would have chosen to major in Neuroscience over your current major, had the option been available to you? (n = 1,198)



Frequent themes from respondents included:

- Remarks that they or their peers had created their own “Neuroscience degree” via the Integrated Sciences specialization (“*It’s about time! Half the kids in Integrated Science do it to create a neuroscience program*”)
- Remarks that an undergraduate Neuroscience degree would better equip students for graduate school (“*Having this program would not only have given me better preparation for post-graduate training but would have appealed to my interests more than any other program currently offered*”)
- Enthusiasm for the interdisciplinary approach of the program (“*I really like the idea of a multidisciplinary degree [it seems very appropriate for the subject matter] and I think with some thought put into how to create a complementary course selection, it could be very successful!*”)
- Enthusiasm for a broader degree than current programs offered (“*It provides a much more broad area of study than the current major in Behavioural Neuroscience and would suit the interests of a variety of students quite well*”)
- Enthusiasm around co-ops/lab work/experiential learning (“*I could definitely see the benefit of implementing a dedicated neuroscience program, especially with Co-op / summer research programs.*”)
- The value of the degree in light of societal and technological advances (“*We need even more programs like these that are more specialised for the job market and most importantly real world applications of sciences for critical domains like Neuroscience. These are where the funding dollars and breakthroughs will be in the next 10-20 years...*”)

TUITION AND FEES RATIONALE

In the 2020/21 academic year, tuition fees per credit for the program (consistent with other faculty of Science programs) are:

- Domestic students: \$183.56
- International students: \$1,358.84

These fees are subject to increases as approved by the Board to remain consistent with tuition rates for the Bachelor of Science leading up to the program’s launch in 2022/23. These figures lead to annual tuitions of approximately \$5,506.80 for domestic students and \$40,765.20 for international students for the 30-credit course load.

The program budget and financial modelling was completed in collaboration with the Provost’s Office Strategic Decision Support (SDS) team. Considerations influencing the proposed tuition include:

- Selecting a financial model that generates sufficient tuition revenue to cover the incremental costs of the program
- Costs include teaching, program administration, program operations (including lab coordination, capstone/directed studies coordination and support), and technical support

University	Program	Tuition per credit (CAD, AY 2020/21) (Domestic/International)*
UBC	BSc in Neuroscience	\$183.56 / \$1,358.84
Simon Fraser University	BSc in Behavioural Neuroscience option	\$195.88 / \$979.24
University of Toronto (Scarborough), ON	BSc Neuroscience	\$203.33/ \$1900.67

University of Alberta	BSc (Honours) Neuroscience	\$189.76/ \$771.88
McGill University, QC	BSc Neuroscience	\$87.43 (Québec), \$272.88 (non-Québec Canadian)/ \$1521.88
Dalhousie University, NS	BA Neuroscience BSc Neuroscience	Arts: \$270.10/ \$706 Science: \$306.40/ \$742.3 <i>*Estimate based on full course load. International student differential of \$6538.5/term of 9+ credits.</i>
McMaster University, ON	B.Sc. (Honours) Neuroscience	\$201.4/ \$1187.78
University of Calgary, AB	B.Sc. Honours in Neuroscience	\$192.1/ \$672.4
Carleton University, ON	B.Sc. Neuroscience, Combined Honours	\$202.23 / \$1215.23 <i>*Note: Course credit structure is different (courses are 0.5 credits). This number reflects the approximate equivalent of 1 credit at most institutions (where typical course = 3 credits).</i>
University of Lethbridge, AB	B.Sc. in Neuroscience	\$165.8/ \$584.2
Western University, ON	B.Sc Program in Neuroscience	\$ 201.67/ \$1117.53
Brock University, ON	B.Sc. Neuroscience	\$ 202.98/ \$929.52

**Note: Tuition estimates are based on full-time enrollment, for students starting in 2020/21, for first year (where numbers vary across these variables).*

PROPOSED TUITION AND FEES

Program Description: Bachelor of Science in Neuroscience

Anticipated Start Date: September 2022

	Domestic	International
Tuition fees per credit – Note 1	\$183.56	\$1,358.84
Application fees (undergraduate) – Note 2	\$71.75	\$120.75
Non-refundable acceptance deposit – Note 3	\$500.00	\$1000.00
Other faculty and course fees	N/A	N/A

Note 1 – Proposed tuition reflects approved 2020/21 tuition for the Bachelor of Science program and will be subject to increases as approved by the Board to remain consistent with the Bachelor of Science program leading up to the program’s launch.

Note 2 – This is the current fee for the 2021W application cycle and is subject to increases as approved by the Board.

Note 3 – The non-refundable acceptance deposit will be applied towards the first tuition instalment.

APPENDIX 2: STUDENT SUBMISSIONS & FACULTY RESPONSES

Submission from the AMS.



**TUITION CONSULTATION FOR THE NEW BACHELOR OF SCIENCE IN
NEUROSCIENCE PROGRAM
Submission to the Faculty of Science**

March 3, 2021

Dear BSc Neuroscience Program Leads and Board of Governors,

Thank you for the opportunity to consult on the new BSc in Neuroscience program being developed out of the Faculty of Science. We commend the Faculty's efforts in constructing a program that has been critical to the evolving fields offered at University of British Columbia, increasing accessibility to undergraduates who have a keen interest in neuroscience fields. We agree with the submission that this program will have considerable draw from the undergraduate student population and are looking forward to its inclusion to the opportunities available through the Faculty of Science.

In consultations with the Science Undergraduate Society, this program is of great interest to the current executive staff. Many community members are looking forward to offering this program as an option for incoming science undergraduate students. Within this program proposal, we would like further clarification on whether or not there will be additional fees for the practical experiences listed. Currently, these practical experiences include capstone projects, co-op terms, and community-based experiential learning opportunities as described in current program description. We would appreciate clarification that any of these additional fees are aligned with description on the UBC Academic Calendar for other adjacent undergraduate programs.

We believe the inclusion of the Bachelors of Science in Neuroscience will provide a strong foundation for individuals interested in graduate research in medicinal fields as well as technical experience in pharmaceutical and biotechnology fields. Once again, UBC would prove its advanced work in supporting the needs and requests of undergraduate students by adding this program. We look forward to what is to come from this proposal and will follow up with any further questions as needed. We appreciate the opportunity to give feedback on this proposal.

Sincerely,
Georgia Yee

Faculty Response to the submission from the AMS.

Dear Georgia:

Thank you for taking the time to complete a tuition consult for the new neuroscience program. I would like to address your query about whether there will be additional fees associated with the capstone projects, co-op terms, and community-based experiential learning opportunities. No additional fees will be associated with the capstone projects or community-based experiential learning opportunities. Co-op fees will be the same as for other co-op programs at UBC Vancouver (see <http://www.calendar.ubc.ca/vancouver/?tree=14,296,0,0>).

Please do not hesitate to reach out if you have any additional questions or concerns.

Best wishes,

Steven J Barnes

Associate Professor of Teaching
Associate Head, Undergraduate Affairs
Department of Psychology | UBC

Submission from the SUS.



UBC Science Undergraduate Society
Chemistry/Physics A Building
A150-6221 University Boulevard
Vancouver, B.C. V6T 1Z1
www.sus.ubc.ca | info@sus.ubc.ca

March 3, 2021

RE: Tuition Consultation for the New BSc Neuroscience Program

Dear Neuroscience Steering Committee and UBC Board of Governors,

Thank you for including the Science Undergraduate Society in your tuition consultation for this exciting new BSc program. This program proposal has been generally well-received by the members of the Science Undergraduate Society.

During my own consultation process, I checked in with the following groups:

- SUS Academic Experience Working Group
- SUS Academic Standing Committee
- SUS President and Executive, Shovon Das and team
- SUS Behavioural Neuroscience Councillor, Kaye Chan
- Several Behavioural Neuroscience students in the SUS Academic portfolio/department
- UBC Neuroscience Club (they are conducting their own consultation process, so I will not be speaking on behalf of them)

Everyone that has been consulted is in favour with the tuition rates proposed in the document presented.

Again, we would like to thank you for giving us the opportunity to speak on behalf of science students. We are looking forward to seeing this program come to life in the coming years.

On behalf of the UBC Science Undergraduate Society,



Dayle Balmes
Vice President Academic
UBC Science Undergraduate Society