



SUBJECT	Tuition Bachelor of Science in Cellular, Anatomical & Physiological Sciences, UBC Vancouver
SUBMITTED TO	Finance Committee
MEETING DATE	June 14, 2023
SESSION CLASSIFICATION	Recommended session criteria from Board Meetings Policy: OPEN
REQUEST	APPROVAL REQUESTED 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 Cellular, Anatomical & Physiological Sciences of \$194.78 per credit for domestic students and \$1,543.19 per credit for international students, in alignment with other Faculty of Science programs for 2023-2024, effective immediately, subject to increases as approved by the Board of Governors.
LEAD EXECUTIVE	Gage Averill, Provost and Vice-President Academic, UBC-Vancouver
SUPPORTED BY	Simon Bates, Vice-Provost and Associate Vice-President Teaching and Learning <i>pro tem</i> Bhushan Gopaluni, Vice-Provost and Associate Vice-President Faculty Planning

PRIOR SUBMISSIONS

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

EXECUTIVE SUMMARY

The Department of Cellular and Physiological Sciences (CPS), in the Faculty of Medicine, is proposing the development of a new 120-credit Majors program, offered in partnership with the Faculty of Science, in Cellular, Anatomical and Physiological Sciences (CAPS). This new program would complement the existing Honours specialization. External reviews of the Department have strongly recommended a Major option in human health and disease open to a larger number of students. Not all students interested in studying in this field want or need an Honours program and students who want to study CAPS, but are not admitted to the highly competitive Honours specialization, are left with no comparable option. A broad survey of undergraduate students in the Faculty of Science, and of CAPS undergraduates and alumni, agreed: 75% of the respondents strongly agreed/supported the Major with 372 of 495 indicating they were very likely or likely to have applied to this option.

Following approval of the program by the UBC Vancouver Senate in May 2023, the request for approval of the Bachelor of Science in Cellular, Anatomical and Physiological Sciences was forwarded to the Learning & Research Committee under the Committee's June 2023 agenda. Pending approval from the Board of Governors, the program will admit its first cohort of students in September 2024.

In the 2023-2024 academic year, proposed tuition fees for the program are \$194.78 per credit for domestic students and \$1,543.19 per credit for international students. The specialization can be completed in four full-time academic years (eight semesters) plus an optional 12- or 16-month co-op placement for those who are accepted into the co-op program. The co-op is expected to delay graduation by one year. There are no additional fees for the specialization and the proposed tuition is consistent with other programs in the Faculty of Science (which will serve as the program's faculty home). These fees are subject to increases as approved by the UBC Board of Governors.

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 13, 2023 to March 13, 2023. A submission was received from the AMS, who is supportive of the program as proposed.

Our program design has been informed by evidence-based pedagogies to meet the needs of students, the University and the nation. In doing so, we align and engage with a number of strategic priorities as identified in UBC's Strategic Plan:

- [Strategy 11: Education Renewal](#) and [Strategy 12: Program Redesign](#): Program curriculum spirals from second through fourth year, emphasizing key concepts throughout but with increasing levels of complexity, using evidence-informed pedagogies that engage student curiosity and initiative, and are intended to bring the students progressively closer to achieving well-defined course- and program-level learning outcomes.
- [Strategy 13: Practical Learning](#): The program includes opportunities for students to learn a variety of techniques in physiology that will then be applied practically as a research project proposal that the students design, conduct, analyze and interpret the results and submit a written report. This same experiential learning is also incorporated into a number of fourth year courses and targets the critically important scientific skills of hypothesis generation, experimental design, data analysis and writing. It also targets project management, identified by our industry survey as an important workplace skill.
- [Strategy 14: Interdisciplinary Education](#): In many peer programs, physiology is most often a program that is separate to anatomy or cell biology. This program combines these disciplines reinforcing the foundational principle that structure and function are inseparable from the micro- to the macro-scopic, and are critical in combination when considering advances in the field of human health and disease.
- [Strategy 15: Student Experience](#): To help ensure students are engaged, feel supported and feel part of the program, CPS will begin each academic year with a Departmental Welcome Event, which will include an open Q+A forum and poster presentations from graduate students and postdoctoral fellows. CPS will encourage the development of an undergraduate wing of the Cellular and Physiological Sciences Graduate Society, [CPhysG](#), to provide a greater sense of community, to develop connections and to advocate on the undergraduates' behalf.
- [Strategy 4: Inclusive Excellence](#): CPS has a particularly strong committee, [REDI](#), with a mandate to advocate for respect, equity, diversity and inclusion in all of our activities. The committee's recommendations for [teaching](#), [research](#), [awards](#) and [hiring](#) were adopted with the unanimous support of our faculty members. REDI committee members will have poster presentations at the annual welcome gatherings to ensure the students are aware of, and engaged with, their responsibility to ensure that everyone is treated with dignity and respect. There is student membership on our REDI committee, and the undergraduates will elect their representative to sit on this important committee.

There is an enormous gap in the training and availability of Indigenous health care providers, particularly from the Inuit community and from those with status, that must be addressed. We have therefore begun a collaboration with the director of UBC's undergraduate medical education admissions committee and with the leaders of UBC's [Indigenous Pathway](#). The purpose is to provide Indigenous students with a direct pathway from high school, through a B.Sc. and into medical school. We wish to specifically inspire and provide a path to Indigenous students who are called to healing, but face significant barriers in overcoming obstacles on the road to achieving that dream. Promising discussions have just begun, but there is great enthusiasm and the will to succeed from all partners. Future discussions are being planned, and must include other Indigenous leaders and elders.

APPENDICES

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

Tuition and Fee Assessment Details

Program Description: Bachelor of Science in Cellular, Anatomical and Physiological Sciences

Anticipated Start Date: September 2024

	Domestic	International
Tuition fees per instalment/credit – Note 1	\$194.78	\$1,543.19
Application Fees (Undergraduate) – Note 2	\$75.50	\$127.75
Supplemental Application Fees	\$0.00	\$0.00
Non-Refundable Acceptance Deposit – Note 3	\$500.00	\$1,000.00
Other Faculty and Course Fees	\$0.00	\$0.00

Note 1 – Proposed tuition is aligned with the Bachelor of Science program. Listed rates are as approved for 2023W and will be subject to annual increases as established by the university.

Note 2 – This is the current fee for the 2024W application cycle and is subject to annual increases.

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

BACHELOR OF SCIENCE IN CELLULAR, ANATOMICAL AND PHYSIOLOGICAL SCIENCES

NEW PROGRAM STUDENT TUITION CONSULTATION REPORT

The Vice-President, Students Office, in partnership with the Department of Cellular and Physiological Sciences (CPS), conducted a student consultation regarding a new Major specialization in Cellular, Anatomical, and Physiological Sciences (CAPS), complementing the existing CAPS Honours program. 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/zoom 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 13, 2023 to Monday March 13, 2023.

Summary of Student Feedback: Submission was received from the AMS. No submission was received from the SUS. The verbatim submissions are in Appendix 2.

No individual student submissions were received.

Organization	Summary
AMS	<p>Support for proposed program</p> <p>“The AMS is in favour of creating the proposed Major specialization. We believe that adding a CAPS Major to the Bachelor of Science program will increase access to education, as currently students interested in CAPS have no comparable option if they are not admitted into the Honours stream.”</p>

APPENDIX 1: INVITATION TO CONSULTATION AND TUITION RATIONALE DOCUMENT

*****This message is sent on behalf of Dr. Samantha Reid, Executive Director of the Office of the Vice President, Students*****

Hello everyone,

There is a proposal by the Department of Cellular and Physiological Sciences (CPS) to develop a new Major specialization in Cellular, Anatomical, and Physiological Sciences (CAPS), complementing the existing CAPS Honours program. The program will be offered in collaboration between the Faculties of Medicine and Science, with Science as the Faculty home.

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 and fees rationale for the program, and
- the proposed tuition and fees.

Please share the document and this email as you see appropriate. **Comments and student organization submissions on the tuition proposal can be provided to Irena Deretic – Administrative Coordinator, Office of the Vice President Students (vpsassist@mail.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 MONDAY MARCH 13TH AT MIDNIGHT.

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,

Samantha

Samantha Reid Ph.D. (she/her)
Executive Director

Office of the Vice President Students

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THE UNIVERSITY OF BRITISH COLUMBIA

NEW PROGRAM TUITION CONSULTATION

Bachelor of Science in Cellular, Anatomical and Physiological Sciences

PROGRAM OVERVIEW

Separate Departments of Physiology and Anatomy were established in the Faculty of Medicine in 1950 to teach these basic sciences to medical undergraduates. The Department of Physiology offered an Honours B.Sc., through the Faculty of Science beginning in the early 1950s, while the Department of Anatomy offered courses in human anatomy and histology but never developed a formal undergraduate degree program. Recognizing the potential for synergy, the departments merged in 2004 forming the Department of Cellular and Physiological Sciences (CPS) within the Faculty of Medicine. This has created a vibrant and multi-disciplinary research community with expertise in the fundamental mechanisms regulating human health through development and aging, and the mechanisms of disease, including but not limited to, neurodegeneration, diabetes, cardiac disease, and cancer. CPS is seeking to develop a new Major specialization in Cellular, Anatomical, and Physiological Sciences (CAPS), complementing the existing CAPS Honours program. The program will be offered in collaboration between the Faculties of Medicine and Science, with Science as the Faculty home.

The proposed Major is unique in integrating multiple disciplines, previously taught separately, with relevance to research approaches in human health and disease. These primarily include our department's historical focus on cell biology, anatomy and physiology, but now also incorporate those aspects of molecular biology, genetics and computational biology that are increasingly being used to perform research in the area of human health and disease. Through the Faculty of Science, CPS currently offers an exclusive and highly competitive CAPS Honours specialization.

The proposed curriculum for the Major is spiraled in order to reinforce and add complexity to topics as well as scaffolded to ensure contextual understanding and improve student academic independence over time. The program is grounded in cell biological, anatomical and physiological aspects of human health and disease, but integrates aspects of genetics, molecular biology and computational approaches where they are pertinent to modern research methodologies as applied to human health, disease and therapeutics. In second year core CAPS courses, CAPS 205 and CAPS 206, students will be able to describe foundational principles that survey cellular and physiological systems in humans. These will be complemented with required courses in genetics, molecular biology and biochemistry to provide students a foundation for our third year offerings. In the third year, our core CAPS courses provide deeper insight into:

- (i) How multiple organ systems are integrated to generate coherent physiological responses to daily stressors as well as chronic disease states (CAPS 305);
- (ii) How disease states can arise from aberration in genetic, molecular and cellular systems at the cellular level (CAPS 306);
- (iii) Modern technologies used to advance our understanding of normal and disease states as well as the model systems (invertebrate to human) used to advance knowledge in this area (CAPS 310); and
- (iv) Provide a detailed understanding of human anatomy (CAPS 391).

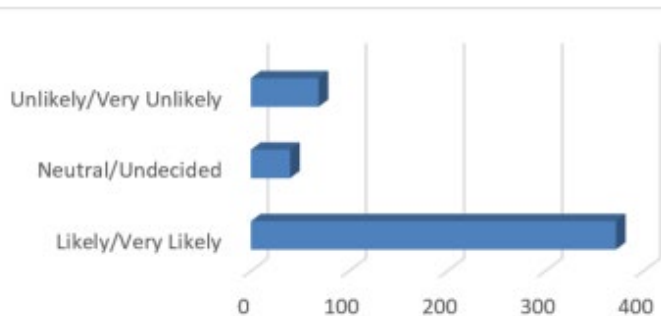
Fourth year comprises a selection of lecture and lab courses in which students can choose to specialize in a range of integrated physiological systems and/or cellular level analyses of common and rare human conditions. The courses include both classical, and new, model systems used to enhance our understanding of human disease and the development of new therapeutics. With the proposed creation of the Major's program, the Department is proposing 7 new courses: 5 required and 2 electives. Six of the new courses will

be available to students enrolled in other Science programs and all 5 required courses would form part of the new Major. The existing Honours program will also be updated to include these 5 new required courses.

STUDENT CONSULTATION DURING THE PROGRAM DEVELOPMENT PROCESS

Currently, in collaboration with the Faculty of Science, CPS only offers an Honours degree in CAPS. This is an unusual situation. Most research-intensive universities in North America offer a Major option in a comparable program. Not all students interested in studying in this field want or need an Honours program. Students who want to study CAPS but are not admitted to the highly competitive Honours specialization are left with no comparable option. A survey of undergraduates in the Faculty of Science, current CAPS Honours students and alumni was completed in December 2019. Of the 495 respondents, 74% strongly agreed/supported the creation of the proposed new Major; 264 current students and 108 alumni were very likely and likely to have selected the CAPS Major, had the option been available.

In response to the question, “How likely is it that you would have chosen to major in Cellular and Physiological Sciences had the option been available to you?”, the 481 responses we received were divided into three categories.



The overwhelming majority of the respondents, 372 (77.3%), were either likely or very likely to have selected CAPS as a major. This demand exceeds by ~15X the number of students in the Honours specialization (which admits approximately 25 students).

Many of the respondents (50%) reference the theme of accessibility and opined that a Major program would make CAPS courses and content available to a wider student population:

“Currently CAPS has become this exclusive program, but all students should deserve to major in physiology if it interests them!”

“Be more open and accepting to other students. Less competitive and cutthroat program,”

Several students specifically indicated that they would have taken the Major if it was available:

“Didn't apply to CAPS honours program as thought it was too competitive, if there was a mainstream CAPS major, would have definitely applied!”

“CAPS honours program offers and focuses on human anatomy courses that no other major does. It would be a great idea for more people to access information on these topics”

In addition to the survey, the Department hired undergraduate students in our Honours specialization to provide input on the course content, the pre- and co- requisites and the academic spiral.

The development of the Major is a high priority for the Department. It has been recommended in successive department reviews, with the latest recommending: *“That CPS and University commit to the development and implementation of a CAPS Major program. This would give greater exposure of the discipline amongst the undergraduate students and recognition of other possible graduate career choices.”*

TUITION AND FEES RATIONALE

The 120-credit program will enroll up to 120 domestic and international students annually. The specialization can be completed in 4 full-time academic years (8 semesters) plus an optional 12 or 16 month co-op placement for those who are accepted into the co-op program. The co-op is expected to delay graduation by 1 year.

There are no additional fees for the specialization and the proposed tuition is consistent with other programs in the Faculty of Science. In the 2023/2024 academic year the tuition per credit will be:

Domestic: \$194.78 per credit
International: \$1,543.19 per credit

These fees are subject to increases as approved by the UBC Board of Governors. The program anticipates launching in September 2024.

Tuition at comparator Canadian programs

Institution	Program	Domestic Tuition	International Tuition
UBC	Major in Cellular, Anatomical and Physiological Sciences	\$194.78 per credit (2023/24 rates)	\$1,543.19 per credit (2023/24 rates)
Alberta	Honours in Physiology Honours/Specialization in Cell Biology	\$6,517.20 <i>(based on 2 terms, 2022/23 rates)</i>	\$31,895.40 <i>(based on 2 terms, 2022/23 rates)</i>
Calgary	Bachelor of Health Sciences	\$6,597.60 <i>(based on 2 terms, 2022/23 rates)</i>	\$24,408 <i>(based on 2 terms, 2022/23 rates)</i>
McGill	Major in Physiology Major in Anatomy and Cell Biology	\$291.01 per credit (2022/23 rates)	\$1,846.31 per credit (2022/23 rates)
Toronto	Major in Physiology Major in Cell and Molecular Biology	\$6,280 <i>(based on 2 terms, 2022/23 rates)</i>	\$58,210 <i>(based on 2 terms, 2022/23 rates)</i>

PROPOSED TUITION AND FEES

Appendix 1 – Tuition and Fee Assessment Details

Program Description: Bachelor of Science in Cellular, Anatomical and Physiological Sciences

Anticipated Start Date: September 2024

	Domestic	International
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Note 1 – Proposed tuition is aligned with the Bachelor of Science program. Listed rates are as approved for 2023W and will be subject to annual increases as established by the university.

Note 2 – This is the current fee for the 2024W application cycle and is subject to annual increases.

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.



March 13th, 2023
UBC Board of Governors

Re: Bachelor of Science in Cellular, Anatomical and Physiological Sciences

Dear members of the UBC Board of Governors,

This submission is being made on behalf of the Alma Mater Society (AMS) of UBC Vancouver in response to the request for feedback on the proposal by the Department of Cellular and Physiological Sciences (CPS) to create a new Major specialization in Cellular, Anatomical, and Physiological Sciences (CAPS) under the Bachelor of Science program.

The proposed Major will complement the existing CAPS Honours program, broadening the scope of opportunity students of the Bachelor of Science have to pursue CAPS studies. It will integrate multiple existing disciplines and be able to incorporate increasingly used aspects of molecular biology, genetics, and computational biology that relate to research in the area of human health and disease.

The AMS is in favour of creating the proposed Major specialization. We believe that adding a CAPS Major to the Bachelor of Science program will increase access to education, as currently students interested in CAPS have no comparable option if they are not admitted into the Honours stream. When asked in consultation with the CPS Department, 77.3% of undergraduate students in the Faculty of Science responded that they would have likely or very likely selected CAPS as a Major specialization if it was offered. The new Major will admit 120 students, in comparison to the Honours program, which only admits 25 students. The CPS Department also demonstrates that there will be no additional fees for this specialization and proposes a tuition plan that is consistent with other programs in the Faculty of Science.

The AMS would like to sincerely thank the Department of Cellular and Physiological Sciences (CPS) for their commitment to ensuring that student voices are heard. We hope to see this continue and look forward to working with UBC to make education more accessible to students. We also appreciate the Board's consideration of this submission.

Sincerely,

Anisha Sandhu

VP Academic and University Affairs Alma
Mater Society