

Applicant: Callum Philip Julian Fraser (47244033)

Program: M.Sc. in Genome Science and Technology (VGMMSC-LE)

Entry period: September 2024

Application comments:

No comments available

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Application form
Resume
Statement of Interest/Intent
Transcripts & Diplomas – Unofficial
eReference (eRef) Responses
Reference Letter
AVAILABLE FOR USE

FRASER, CALLUM PHILIP JULIAN ()

47244033

Degree Selection

Submission Date: 02/Dec/2023

Campus	Program (VGMMSC-LE)	Academic Year	Term	Term Start
Vancouver	M.Sc. in Genome Science and Technology	2024-2025	W1	Sep 2024

Source of Interest

How did you find out about UBC?
Web Search

Personal and Contact Details

Student Number		Family Name (Surname)		Preferred Name
47244033		FRASER		
Title	Given Name	Middle Name	Former Family Name (Surname)	
MR	CALLUM	PHILIP JULIAN		

Date of Birth	Gender	Country of Birth	Country of Current Citizenship
30/Mar/2001	Male	Canada	Canada
Dual Citizenship	Primary Spoken Language	Other Spoken Language	Visa Type
	English		

Address Line (1 & 2)			
12971 SIXTH LINE			
City	Province, State or Region	Postal or Zip Code	Country
LIMEHOUSE	ON	L0P1H0	Canada

Day Telephone Number	Evening Telephone Number	Email Address
4165008194		callumpfraser@gmail.com

Do you identify yourself as an Aboriginal person of Canada?
No
Do you identify yourself as a Racialized person?
No

Academic History

- Applicant indicates that they have only attended post-secondary institution(s) other than UBC.

Queen's University at Kingston

Institution Country:	Canada
Start Date:	01/Sep/2019
End Date (or Expected End):	30/Apr/2023
Program of Study:	Life Sciences
Credential Status	Conferred / Complete
Date Conferred:	30/Jun/2023
Credential Received:	Bachelor's
Awards & Honours received with this degree:	Dean's Honour List
Required to withdraw:	No
Self Reported GPA:	
Used for Basis of Admission to UBC:	Yes

GPA Calculations Summary

Calculation Name	Purpose	Date of Calculation	Minimum GPA Req'd	GPA Calculation	GPA Rank	Meets Progm Requirements	Meets UBC Requirements	First Class Standing?
Life Sciences	Admissions	11/12/2023		4.1		Yes	Yes	Yes

- No **UBC** academic history found for this student number (47244033)

Funding

Standard Questions

Primary Funding

SOURCE of the support	
DOLLAR amount	
Includes TUITION fees?	
WHEN the support will commence	
WHEN the support will end	

SOURCE of the support	RESP funds, additional allocated savings, work-study or RA/TA opportunities and external support.
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Please indicate the SOURCE(S) of any awards, scholarships, sponsorships or fellowships for which you have applied or will apply.	external scholarship competitions, explore need/merit-based grants and funding.
Please indicate the Canadian Dollar amount PER YEAR of support applied for.	indeterminate
Please indicate the NUMBER OF YEARS of study this support would cover.	indeterminate
If you do not receive this financial support, will you be able to attend.	Likely
How do you plan to fund your studies?	RESP funds, additional allocated savings, work-study or RA/TA opportunities and external support.

Experience & Interests

Standard Questions

Areas of Interest

Faculty Members

Brooks-Wilson, Angela
Hoodless, Pamela
Robinson, Wendy P
Bohlmann, Jorg

Please provide a brief statement of your academic and/or professional goals and how these align with this graduate program.

Please describe any research and/or work experience (including publications, etc.) you've undertaken that is relevant to your proposed field of study.

In my 4th year at Queen's, I was fortunate to conduct a research project evaluating localization patterns of a herpes simplex type 2 tegument protein, pUL21, to endogenous cellular proteins to better understand pUL21's functionality and role in viral proliferation. To evaluate whether LAP2B or emerin was involved in recruitment of pUL21 to the inner nuclear membrane of host cells, I performed a series of synthesized dicer-substrate small interfering RNA (DsiRNA) knockdown studies in a maintained cell line of HaCaT cells. The opportunity of this lab immersed me in a setting that required me to further my skills and knowledge and allowed me to observe additional techniques used by my supervisor and others in the lab.

This research position expanded my technical knowledge and observations on several processes extending to protein modification, plasmid construction, serial dilutions and viral protein transfection/ infection experiments. Aside from this, I also developed numerous hard skills critical to working in microbiology, further detailed below:

DsiRNA Knockdown series - Outsourced custom designed DsiRNA directed at LAP2B, or emerin, was used to transfect HaCaT cells growing on standard 6-well 35mm dishes. A series of preliminary experiments were conducted to better consider variable such as DsiRNA concentration, cell growth and optimal cell lines for experimentation.

pUL21-EGFP construction and co-transfection - Following extensive technical research and review of the construction of an EGFP bound pUL21 expression plasmid, I ran a series of co-transfection experiments to determine optimal plasmid concentration and incubation periods, as well as to evaluate the localization of the protein to the nuclear rim.

Maintenance of cell lines - HeLa, 293T, and HaCaT cells were maintained on 150mm culture dishes in a Dulbecco Modified Eagle Medium supplemented with 10% fetal bovine serum in a 5% CO₂ environment at 37°C. I worked with my supervisor to determine optimal conditions for cell growth under variable stress factors, as well as optimal confluency for transfection intervals.

SDS-page/western blot - I performed numerous western blots throughout the research position to determine and confirm level of target protein silencing, and successful transfection of various cell lines.

Immunofluorescence microscopy - HaCaT cells seeded on glass - bottom dishes with respective DsiRNA and expression plasmid were washed and stained with primary and secondary antibodies. Following their preservation, the samples were imaged using either a Nikon Eclipse TE200 inverted fluorescence microscope, or with an Olympus FV1000 confocal laser scanning microscope using an oil immersion objective lens. This allowed for the identification of any altered localization patterns of the viral tegument protein in cells that had a silenced endogenous protein.

Overall, the findings of my study suggested that LAP2B and emerin, while prime candidates due to their proximity to pUL21 revealed through proximity-dependent biotin identification studies during primary envelopment, did not show significant evidence for mediating the recruitment of pUL21.

The time spent in this lab overall strengthened my skills and technical knowledge for use in a lab that is relevant to the field of genetic technologies and science.

Further laboratory experience includes the various general, organic, and biological chemistry labs and associated courses I excelled in during my time at Queen's.

Program-Specific Questions

Briefly discuss your background in life sciences, including academic, work or other experiences that may assist the admissions committee. Please limit your response to one page.	My background in life sciences encompasses my entire undergraduate degree, extending from classes on general biology and biochemical knowledge, to genomic analyses and evolutionary genetics. I have listed key courses of interest below: Biology of Cells & Organisms Molecular Biology Diff & Integral Calculus Introductory Physics Human Anatomy and Mammalian Physiology Organic Chemistry Microbiology and Immunology General Statistics Integrated Life Sciences Lab – Statistical Analysis Fundamental, Drug & Environmental Pharmacology Cardiovascular Sciences Health Ethics Law & Policy Mendelian and Molecular Genetics Sex and Evolution Biology Analytical Genomics Evolutionary Genetics Beyond this, I would like to emphasize the impact of health ethics, law, and policy on applications to my work at Kingston General Hospital in my time as a hospital screener. Working in the healthcare industry, I gained valuable appreciation for the importance of health care and medical administration.
Briefly discuss your background in quantitative sciences (math, statistics, computer science, engineering, physics) including academic, work or other experiences that may assist the admissions committee. Please limit your response to one page.	My background in quantitative sciences has a baseline comprised of core courses developing a foundational knowledge of differential calculus, physics, and applicable statistics in general chemistry, all of which I excelled at. Beyond this, I further developed my skills and knowledge of statistical analysis through general statistics, and an integrated life sciences lab on the physiology and pharmacology of cardiorespiratory sciences and neuroscience. This, combined with independent study for my research position and course work in cardiovascular sciences further developed my skills in acquisition and evaluation of data and their associated methods.

Additional Questions

Standard Questions

Please discuss any other information you feel would be important to the Admission Committee in evaluating your application. If you feel that your credentials and any other information you have already provided on this form or will be submitting in support of your application represents you fairly, you should feel no obligation to write anything further here.

The final topic I will discuss in more detail here is my leadership roles and experience with high-stakes situations. Over the past year, I have excelled in the role as a commissioner within the undergraduate student government at Queen's, the AMS (Alma Mater Society), during which I have continued my studies while working full time. This role has granted me the opportunity to work with numerous university admin, external stakeholders, and work as an advocate for student interests in financial and logistical operations of university affairs. My position here is accredited to my continued passion and experience in leadership positions, namely as an executive chair who oversaw the first post-pandemic Arts and Science orientation at Queen's, which comprised an incoming class of about 3000 students over the course of a week. This being the largest fully student-run orientation program in the country, it shows my dedication and commitment, as well as critical thinking and leadership abilities. More than anything else, my time in these roles has led me down a path of education on equity work, and dismantling systemic barriers faced by marginalized persons. The events I worked on as an orientation chair, and before that an orientation coordinator, focused on providing a safe, welcoming environment to incoming students where they were free to express themselves and build a strong, supportive community. Further my events incorporated components of equity, diversity, acceptance, inclusivity, and Indigeneity. All this is to say, what makes me an ideal candidate for this program beyond a practical approach, is my commitment to encouraging and celebrating change and the dismantlement of destructive or restrictive barriers still embedded in much of our society.

I thank you for considering my application.

Referee 1

Name	Bruce Banfield
Job Title / Occupation	Professor
Institution / Company / Organization	QUEEN'S UNIVERSITY, DEPARTMENT OF BIOMEDICAL AND MOLECULAR SCIENCES
Type of Reference	Academic
Address	18 STUART STREET ROOM 741 BOTTERELL HALLKINGSTON ON Canada K7L 3N6
Referee Email / Website	bruce.banfield@queensu.ca https://dbms.queensu.ca/faculty/bruce-w-banfield
Telephone #	(613) 533-2459
Notes to Referees	Hi Dr. Banfield, thank you again for agreeing to be a referee of mine. Responses are due on December 9th.

Referee 2

Name	Jenn Stephenson
Job Title / Occupation	Associate Dean (Academic)
Institution / Company / Organization	QUEEN'S UNIVERSITY, FACULTY OF ARTS AND SCIENCE
Type of Reference	Professional
Address	94 UNIVERSITY AVENUE KINGSTON ONTARIO Canada K7L 3N6
Referee Email / Website	jenn.stephenson@queensu.ca https://www.queensu.ca/artsci/about-us/contact-us/dr-jenn-stephenson
Telephone #	(613) 533-2467
Notes to Referees	Hi Jenn, thank you again for agreeing to be a referee of mine. Responses are due on December 9th.

Referee 3

Name	Lyn Parry
Job Title / Occupation	General Manager
Institution / Company / Organization	ALMA MATER SOCIETY OF QUEEN'S UNIVERSITY
Type of Reference	Professional
Address	146 STUART STREET KINGSTON ONTARIO Canada K7L 2V8
Referee Email / Website	gm@ams.queensu.ca
Telephone #	(613) 463-9285
Notes to Referees	Hi Lyn, thank you again for agreeing to be a referee of mine. Responses are due on December 9th.

Callum Fraser

12971 Sixth Line
Limehouse, ON L0P1H0
(416) 500-8194
18cpjf@queensu.ca

EDUCATION

BScH., Specialization in Life Sciences – Biomedical Discovery Stream *June 2023*
Queen's University, Kingston, ON

HONOURS

Dean's Honour List *Winter 2020, Summer 2021, Winter 2022, Winter 2023*

RESEARCH EXPERIENCE

Research Position in Herpes Simplex Type 2 (HSV-2) Virology Lab *Fall 2022 - April 2023*
Banfield Lab, Queen's University

The research project focused on evaluating localization patterns of a HSV-2 tegument protein pUL21 in proximity to cellular proteins to determine their candidacy as pUL21 recruitment mediators. Methods surrounded a series of transfection and DsiRNA-mediated knockdown experiments followed by imaging to reveal nuclear rim localization patterns.

RELEVANT COURSEWORK

Biology of Cells & Organisms
Molecular Biology
Diff & Integral Calculus
Introductory Physics
Human Anatomy and Mammalian Physiology
Organic Chemistry
Microbiology and Immunology
General Statistics

Integrated Life Sciences Lab – Statistical Analysis
Fundamental, Drug & Environmental Pharmacology
Cardiovascular Sciences
Health Ethics Law & Policy
Mendelian and Molecular Genetics
Sex and Evolution Biology
Analytical Genomics
Evolutionary Genetics

EMPLOYMENT

Campus Affairs Commissioner *May 2023 - Present*
The Alma Mater Society of Queen's University Inc.

This full-time position held as an active student comprises a managerial role in the senior management team at the university student government. Primary objectives included the use of computer software in updating a student portal for event sanctioning and risk assessment, and

active communication with all stakeholders within university risk and safety and our insurance broker on the approval status of student and member events.

- Oversee harm reduction events targeted at advocacy for student voices at Queen's.
- Oversee the finances and executive members planning and facilitating orientation for international and exchange students.
- Manage the planning and upkeep of the student special events portfolio, targeted at collecting data from the student population to better target funded initiatives that suit their needs.
- Collaborate with commissioners to help facilitate equitable operations while attempting to address social issues and institutional barriers students have faced.

Queen's ASUS Orientation Chair *November 2021 – October 2022*

Queen's University Arts and Science Undergraduate Society

Present the scheduling and programming of academic, cultural, fundraising, and social activities associated with orientation to the university administration, amongst other governing bodies.

- Plan and carry out the logistics of a 3000 person orientation week, alongside a team of four other individuals.
- Hire, delegate tasks to, and support my team of 7 Orientation Coordinators.
- Incorporate aspects of equity, diversity and Indigeneity in events, providing a safe space for all students.

Access Control Screener *September 2021 – July 2022*

Kingston General Hospital

Involved in the screening of patients, staff, visitors and caregivers and proper maintenance of COVID-19 safety protocols.

- Worked in a team to help develop and advance an efficient and safe screening process while educating visitors on the importance of safety measures and awareness.
- Worked one-on-one with patients in certain departments suffering from mobility or other concerns related to their admission to the hospital.
- Worked with staff and patients in the Emergency Room, along with Cancer & Dialysis.

Greenhouse Worker *May 2021 – July 2021*

Sheridan Nurseries

Plant care and warehouse maintenance alongside a team of experienced botanists trained in the care and upkeep of exotic plant species and mitigation of disease.

- Responsible for order preparation and shipping.
- Further developed organization, time management, endurance/strength, and independent work.

Library Assistant *October 2017 – August 2019*

Town of Halton Hills

Responsible for shelving materials, assisting patrons and general upkeep of the facility.

Opportunities presented themselves in assisting in programming targeted at educational courses for local underprivileged youths and additional volunteer work within the organization.

LEADERSHIP ROLES

Undergraduate Representative for the Vice Provost's Advisory Committee for Promotion of the Arts and Convocation Advisory Committee *May 2023 – Present*

Queen's University

Through the Alma Mater Society I was appointed as the acting board member for two committees directly under university officials. In the Vice Provost's Advisory Committee for Promotion of the Arts, a selected group of representatives work through applications for the distribution of various grants that aim to promote community involvement, equitable causes and appreciation for the arts. As a member within the convocation advisory committee, I act as a representative for undergraduate student voices in the decisions being made for the upcoming convocation periods.

- Meet with additional student representatives from faculty societies to inform and educate.
- Advocate for the wants and needs of students in the decisions being made surrounding the allocation of student funds.

Event Advisory Working Group *May 2023 – Present*

Alma Mater Society, Queen's University

Acting student and organization representative from the Alma Mater Society working to design a universal policy governing insurance, and risk/safety requirements for events run by external stakeholders and student groups across undergraduate and graduate programs.

- Actively communicate with and contribute to policy updates with Queen's Risk and Safety, event services and various stakeholders.
- Advocate for student voices in the creation of policy.

Member of the Sexual Violence Prevention and Response (SVPR) Committee *May 2023 - Present*

Alma Mater Society, Queen's University

Member alongside community and university stakeholders including directors of the SVPR Office, Vice Provost and Dean of Student Affairs, Student Experience Office Director of Student Life, among others.

- Actively engage in conversations and decisions surrounding university policy on sexual violence and crucial resources.
- Work to dismantle issues plaguing our local community and educational institution.

Orientation Coordinator *November 2020 – September 2021*

Responsible for planning and facilitating orientation week events.

- Manage and personally design the Welcome Forum and Campus Equity Resource Event for incoming students.

Orientation Leader *March 2020 – September 2020*

Responsible for executing orientation week events and personally mentoring incoming students.

- Leadership role in guiding incoming students through the transition to Queen's University.

Canadian Association for Research in Regenerative Medicine (CARRM) Executive Member

Take part in executive planning of events and fundraisers for the foundation, while hosting events centred around the education and awareness of regenerative medicine.

REFERENCES

Bruce Banfield – Research Project Supervisor

- bruce.banfield@queensu.ca

Arielle Baguio – ASUS Orientation Co-Chair

- 19avb@queensu.ca

Reema Babu – Kingston General Hospital Manager

- reema.babu@kingstonhsc.ca

Victoria Mills – Vice President of University Affairs, *Direct Report at AMS*

- vpua@ams.queensu.ca

Lyn Parry – General Manager of the AMS

- gm@ams.queensu.ca

Molly Raffan – Student Life Director of the Student Experience Office

- molly.raffan@queensu.ca

To Whom It May Concern:

I am writing today to express my sincere interest in pursuing a Master's of Science in Genome Science and Technology at UBC. With a strong academic and technical background in the field and passion for the work being done by staff and departments of the school, I have found myself eager to contribute to the rapidly advancing research and work that is being done at UBC.

At Queen's University, I specialized in Life Sciences with a focus on the biomedical discovery stream, emphasizing my study of physiology, microbiology, genetics, and analysis alongside the core courses of my program. The time spent here has continuously expanded my interest in the biomedical field and has honed my skillset to work in collaborative environments on initiatives that go beyond in exploring novel techniques that incorporate the research and the analysis being done through accredited organizations. The early years in my program led me to taking classes of interest on mendelian genetics, and further genomic analysis and long-term variability between species throughout time and taxa. Collectively, my academic journey has fueled my desire to explore genomic technologies, their broad mechanisms, and the potential for addressing complex biological questions.

In my fourth year at Queen's, I secured a research position in the lab of Dr. Bruce Banfield, a virologist studying the functional proteins housed by members of the alphaherpesvirus sub-family, with a focus on herpes simplex type 2 (HSV-2). While the position drew my attention for the complexity of viral assemblage and functionality in host cells, what I walked away from this position with was a curiosity for specific genetic variability that dictates protein folding and changes in molecular interactions. Overall, this curiosity, combined with my coursework, drove me to explore programs in genetic technologies and genome science.

Beyond my academic career, I was driven to partake in several extracurricular leadership roles, and most recently a full-time managerial role planning and overseeing risk mitigation, and student advocacy work on campus. My time with the Alma Mater Society allowed me to develop a passion for equity work and has immersed me in a position that allows me to advocate for causes near and dear to students. These so far have included the housing crisis, food insecurity and violence on campus.

What draws me to the UBC Master of Science in Genome Science and Technology, among the program's reputation for having a plethora of opportunities within the Michael Smith Laboratories, is the opportunity to work with staff and their projects that explore my areas of interest. Pamela Hoodless, for example, is involved in marvelous studies that explore epigenic modification in the pathogenesis of liver disease and function along with classical embryologic development. With her focus on molecular engineering and genomic technologies, this is just one example of the work being done at UBC that I would like to contribute to. In line with this, the

research of Angela Brooks-Wilson intrigues me – her work examining target loci and their association with the development of cancers, as well as general longevity and telomere variance is a topic I would very much like to explore further. The brilliant minds that work in this field are part of what primed my interest, but the true selling point is the GSAT rotations. While from what I understand this opportunity is not available to all applicants, I feel the need to express my interest in it. The GSAT rotations ultimately set this program apart for me in terms of interest – it allows for true interdisciplinary work that spans beyond the confines of other programs and offers the opportunity to expand my knowledge and skillset to help accomplish my overall academic, and professional goals.

Going beyond my appreciation for the area of research, the opportunities listed here align with my long-term professional goals. In third year of my undergraduate program, I took two classes that remarkably complimented one another – integrated life sciences and analytical genomics. The prior exposed me to a series of laboratory techniques and physiology labs, where the raw data we collected tested our comprehension and problem-solving abilities in using statistical analysis. The following semester, analytical genomics introduced me not only to the history of high throughput technologies, but also the extensive databases and techniques compiled over decades to better explore genomic structure. I excelled in this class in part thanks to the skills targeted in the life science course. Although ambitious, the multidisciplinary approach of this program provides me the confidence that I may further apply my skills to explore genomic trends of disease, and remediating technologies and treatments. Specifically, my long-term goal is to assist in the development of techniques to detect and treat hereditary disease.

To conclude, my academic journey at Queen's immersed me into a world that developed my passions, knowledge, and applicable skillset in a laboratory setting, but further spanned beyond simply the academic. My extracurricular work in leadership across disciplines drove my interest and passion for equity work, social justice and accommodating practices that transcend into my hopes and aspirations for research. The UBC Master of Science in Genome Science and Technology stands out as the ideal platform for me to further cultivate my expertise and contribute meaningfully to the rapidly advancing field, while incorporating an equitable, driven mindset in working towards applicable treatment options and studies. I am enthusiastic about the prospect of integrating my skills and furthering my knowledge as I contribute to the diverse environment of UBC, where I believe I can have a meaningful impact on the work being done in genomic sciences. Thank you for considering my application.

Sincerely,

Callum Fraser

Name: Fraser, Callum Philip Julian
Student ID: 20157449
OEN: 383540952

Degrees Awarded

Degree: Bachelor of Science (Honours)
Degree Honours: with Distinction
Plan: Specialization in Life Sciences
Sub-Plan: Option in Biomedical Discovery - Stream
Confer Date: 06/01/2023

----- Undergraduate Record -----

Academic Program History

06/10/2019: Bachelor of Science (Hons.) Active in Program
Arts and Science

05/27/2020: Bachelor of Science (Hons.) Active in Program
Specialization in Life Sciences

07/13/2022: Bachelor of Science (Hons.) Active in Program
Specialization in Life Sciences
Option in Biomedical Discovery - Stream

03/14/2023: ASC Non-Degree Active in Program
Arts & Sci - Post Degree Stds

05/30/2023: Bachelor of Science (Hons.) Completed Program
Specialization in Life Sciences
Option in Biomedical Discovery - Stream

2019 Fall

Course	Description	Units	Grade	Points
BIOL 102	Intro Biology of Cells	3.00	A	12.0
CHEM 112A	General Chemistry	0.00	NG	0.0
CLST 102	Intro to Greek Civilization	3.00	A	12.0
MATH 121A	Diff & Integral Calculus	0.00	NG	0.0
PHYS 117A	Introductory Physics	0.00	NG	0.0
Term GPA	4.00	Term Totals	6.00	24.0

Queen's University Excellence Scholarship

2020 Winter

Term disrupted by COVID-19: <http://www.queensu.ca/registrar/transcripts/legends>

Course	Description	Units	Grade	Points
BIOL 103	Intro Biology of Organisms	3.00	A	12.0
CHEM 112B	General Chemistry	6.00	A+	25.8
GEOL 106	Enviro Geol & Natural Hazards	3.00	A+	12.9
MATH 121B	Diff & Integral Calculus	6.00	A+	25.8
PHYS 117B	Introductory Physics	6.00	A+	25.8
Term GPA	4.26	Term Totals	24.00	102.3

Dean's Honour List

2020 Fall

Course	Description	Units	Grade	Points
ANAT 100	Anatomy of the Human Body	3.00	A+	12.9
BCHM 218	Molecular Biology	3.00	A-	11.1
BIOL 205	Mendelian + Molecular Genetics	3.00	A-	11.1
CHEM 281	General Organic Chemistry I	3.00	A	12.0
PHGY 215	Princ of Mamm Physiology I	3.00	A+	12.9
Term GPA	4.00	Term Totals	15.00	60.0

2021 Winter

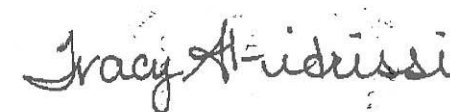
Course	Description	Units	Grade	Points
ANAT 380	Clinically Relevant Human Anat	3.00	A	12.0
CHEM 282	General Organic Chemistry II	3.00	A+	12.9
MICR 271	Introduction to Microbiology	3.00	A	12.0
PHGY 216	Princ of Mamm Physiology II	3.00	A	12.0
STAM 200	Intro to Stats	3.00	B+	9.9
Term GPA	3.92	Term Totals	15.00	58.8

2021 Summer

Course	Description	Units	Grade	Points
PSYC 100	Principles of Psychology	6.00	A-	22.2
Term GPA	3.70	Term Totals	6.00	22.2

Dean's Honour List

2021 Fall



Queen's University Grading Scale
Effective May 1, 2011

Letter Grade	Grade Points	Notes	*Percentage Conversion
A+	4.3		90 - 100
A	4.0		85 - 89.9
A-	3.7		80 - 84.9
B+	3.3		77 - 79.9
B	3.0		73 - 76.9
B-	2.7	Min. passing grade in Graduate Studies	70 - 72.9
C+	2.3		67 - 69.9
C	2.0		63 - 66.9
C-	1.7	Min. passing grade in Medicine and Nursing	60 - 62.9
D+	1.3		57 - 59.9
D	1.0		53 - 56.9
D-	0.7		50 - 52.9
F	0.0	Failure	0 - 49.9
P		Pass; no grade assigned	
FR		Failure with review; grade will be revised	
CR		Credit	
IN		^Incomplete	
GD		Grade Deferred	
NG		+Not Graded; first term course of multi-term courses	
AU		Audit	
TR		Transfer credit, no grade assigned	
DR		Course dropped	
NW		Not Written (Applicable prior to May 1, 2011 only and counts as failure)	

^Lapses to failure after one term (120 days)
+ First term of multi-term course denoted by 'A' in course number; second term denoted by 'B' in course number.

Faculty of Education Grading Scale
Effective May 1, 2013

Letter Grade	Grade Point	Percentage Conversion	Descriptor
A+	4.3	90 - 100	Outstanding
A	4.0	80 - 89	Excellent
B	3.0	70 - 79	Very Good
C	2.0	60 - 69	Adequate
D	1.0	50 - 59	Marginal
F	0.0	0 - 49	Failure
P			Pass; no grade assigned. Reserved for PRAC courses only or as approved by the Dean.

Continuing Teaching Education Grading Scale

Letter Grade	Grade Point	*Percentage Conversion
A+	4.3	90 - 100
A	4.0	80 - 89.9
B+	3.3	77 - 79.9
F	0.0	0 - 76.9

Faculty of Law Grading Scale

Letter Grade	Grade Point	Notes
A	4.0	Exceptional
A-	3.7	Excellent
B+	3.3	Very good
B	3.0	Good
B-	2.7	Satisfactory
C+	2.3	Fair
C	2.0	Adequate
D	1.0	Marginal
F	0.0	Failure
P		Pass

Credit Unit Conversions

Faculty of Engineering and Applied Science	
Units prior to May 1, 2011	Credit Units, as of May 1, 2011
36	3.00
42	3.50
45	3.75
48	4.00
54	4.50
72	6.00

School of Nursing	
Units prior to May 1, 2011	Credit Units, as of May 1, 2011
1 - 7	1.50
8 - 14	3.00
15	4.50
16 - 26	6.00
27	9.00

Transcript Notations Glossary

Unit	The term "unit" refers to credit units. Generally, a one-term course is worth 3.0 credit units. Variations may occur as dictated by course requirements and workload, and as approved by Faculty Boards.
NEP	Not Eligible to Proceed
OEN	Ontario Education Number
RTW	Required to Withdraw
*Percentage Conversion	Used for determining grade points for marks prior to May 1, 2011
The absence of a grade indicates a course in progress.	
As of May 1 2011, all existing student numbers were changed from seven to eight digits with the addition of a zero (0) as the first digit of the student number.	

More information on the Queen's University transcript and historical transcript legends can be found at:
<https://www.queensu.ca/registrar/academic-info/grades/official-gpa-scale>

Name: **Fraser, Callum Philip Julian**
Student ID: **20157449**
OEN: **383540952**

Course	Description	Units	Grade	Points	Course	Description	Units	Grade	Points
BCHM 310A	General Biochemistry	0.00	NG	0.0	BIOL 335	Limnology & Aquatic Ecology			
BIOL 369	Sex and Evolution	3.00	A	12.0	ENGL 100A	Introduction to Literary Study			
LISC 391	Integrated Life Sciences Lab	3.00	A	12.0					
MICR 360	Immunology	3.00	B	9.0					
PHAR 370	Fundamentals of Pharmacology	3.00	A+	12.9					
Term GPA	3.83	Term Totals	12.00	45.9					

2022 Winter

Course	Description	Units	Grade	Points
BCHM 310B	General Biochemistry	9.00	B-	24.3
BIOL 331	Analytical Genomics	3.00	A+	12.9
PATH 310	Introduction to Pathology	3.00	A	12.0
PHAR 380	Drug & Environmental Tox	3.00	A+	12.9
Term GPA	3.45	Term Totals	18.00	62.1

Dean's Honour List

2022 Fall

Course	Description	Units	Grade	Points
CRSS 454	Cardiovascular Sciences	3.00	A	12.0
DDHT 459	Principles of Drug Discovery	3.00	A+	12.9
LLCU 200	Semiotics: Interpret the World	3.00	A+	12.9
MICR 499A	Research Proj. Microbiol/Immun	0.00	NG	0.0
Term GPA	4.20	Term Totals	9.00	37.8

2023 Winter

Course	Description	Units	Grade	Points
ENSC 315	Global Food Security Agricult	3.00	A-	11.1
IDIS 373	Health Ethics, Law, and Policy	3.00	A+	12.9
MICR 499B	Research Proj. Microbiol/Immun	12.00	A	48.0
Term GPA	4.00	Term Totals	18.00	72.0

Dean's Honour List

2023 Fall

Cum Totals 123.00 123.00 485.1

----- End of Transcript -----

Queen's University Grading Scale
Effective May 1, 2011

Letter Grade	Grade Points	Notes	*Percentage Conversion
A+	4.3		90 - 100
A	4.0		85 - 89.9
A-	3.7		80 - 84.9
B+	3.3		77 - 79.9
B	3.0		73 - 76.9
B-	2.7	Min. passing grade in Graduate Studies	70 - 72.9
C+	2.3		67 - 69.9
C	2.0		63 - 66.9
C-	1.7	Min. passing grade in Medicine and Nursing	60 - 62.9
D+	1.3		57 - 59.9
D	1.0		53 - 56.9
D-	0.7		50 - 52.9
F	0.0	Failure	0 - 49.9
P		Pass; no grade assigned	
FR		Failure with review; grade will be revised	
CR		Credit	
IN		^Incomplete	
GD		Grade Deferred	
NG		+Not Graded; first term course of multi-term courses	
AU		^ Audit	
TR		Transfer credit, no grade assigned	
DR		Course dropped	
NW		Not Written (Applicable prior to May 1, 2011 only and counts as failure)	

^Lapses to failure after one term (120 days)
+ First term of multi-term course denoted by 'A' in course number; second term denoted by 'B' in course number.

Faculty of Education Grading Scale
Effective May 1, 2013

Letter Grade	Grade Point	Percentage Conversion	Descriptor
A+	4.3	90 - 100	Outstanding
A	4.0	80 - 89	Excellent
B	3.0	70 - 79	Very Good
C	2.0	60 - 69	Adequate
D	1.0	50 - 59	Marginal
F	0.0	0 - 49	Failure
P			Pass; no grade assigned. Reserved for PRAC courses only or as approved by the Dean.

Continuing Teaching Education Grading Scale

Letter Grade	Grade Point	*Percentage Conversion
A+	4.3	90 - 100
A	4.0	80 - 89.9
B+	3.3	77 - 79.9
F	0.0	0 - 76.9

Faculty of Law Grading Scale

Letter Grade	Grade Point	Notes
A	4.0	Exceptional
A-	3.7	Excellent
B+	3.3	Very good
B	3.0	Good
B-	2.7	Satisfactory
C+	2.3	Fair
C	2.0	Adequate
D	1.0	Marginal
F	0.0	Failure
P		Pass

Credit Unit Conversions

Faculty of Engineering and Applied Science	
Units prior to May 1, 2011	Credit Units, as of May 1, 2011
36	3.00
42	3.50
45	3.75
48	4.00
54	4.50
72	6.00

School of Nursing	
Units prior to May 1, 2011	Credit Units, as of May 1, 2011
1 - 7	1.50
8 - 14	3.00
15	4.50
16 - 26	6.00
27	9.00

Transcript Notations Glossary

Unit	The term "unit" refers to credit units. Generally, a one-term course is worth 3.0 credit units. Variations may occur as dictated by course requirements and workload, and as approved by Faculty Boards.
NEP	Not Eligible to Proceed
OEN	Ontario Education Number
RTW	Required to Withdraw
*Percentage Conversion	Used for determining grade points for marks prior to May 1, 2011
The absence of a grade indicates a course in progress.	
As of May 1 2011, all existing student numbers were changed from seven to eight digits with the addition of a zero (0) as the first digit of the student number.	

*More information on the Queen's University transcript and historical transcript legends can be found at:
<https://www.queensu.ca/registrar/academic-info/grades/official-gpa-scale>*



DAN SCHOOL OF DRAMA
AND MUSIC

99 University Avenue
Queen's University
Kingston, Ontario
Canada K7L 3N6

Saturday, 9 December 2023

To the members of the selection committee,

I am writing this letter in support of the application by Callum Fraser to the M.Sc. in Genome Science and Technology at University of British Columbia. In my role as Associate Dean (Academic) in the Faculty of Arts and Science at Queen's University. One of the things that falls under my portfolio is oversight of the planning of Orientation activities by student leaders. In Arts and Science, under the leadership of the Head Gael, there are four Orientation Chairs. This is how I met and worked with Callum Fraser over the period of March to September 2022.

As Orientation Chair, Callum led a team of 7 "OC's" who led a team of 250 "Gael's." This team then organized 6 days of activities for approximately 2500+ incoming first-year Queen's students. This is a logistical project on an immense scale. Orientation at Queen's is entirely student-run. (My role is advisory.) The planning and execution of activities is guided by core values mandated by Senate: "to make students feel welcome," "to ensure a smooth transition to university," "to foster a strong and inclusive community," and "establish a solid foundation for a successful university experience." The over 20 separate activities include a welcome from the Dean, presentations, campus and Kingston tours, fundraising activities, club showcase in the park, as well as social events including First-Year Olympics, movie night, and a semi-formal dance. To say that this is a complex, challenging, and high-stakes undertaking is an understatement. I will also note that 2022 was the year that Orientation events returned to being in person after an online hiatus during COVID. Under Callum's leadership, the events for which he was responsible during the 2022 iteration of Orientation Week ran smoothly and without incident. Overall, the week was a success.

Throughout the planning process, Callum often joined my regular meetings with the Head Gael. Orientation events have a long history and are hard to innovate. I was particularly impressed by Callum's desire to re-invent a couple of the typical events. His focus was on greater inclusivity, moving away from the events as 'competitive' and toward thinking about them as collaborative. To give an example, an event that previously was a running scavenger hunt across campus was reframed as a campus tour of important locations that new students need to know. Callum considered what the key learning outcome of the event was intended to be and reshaped it to emphasize that focus and removed the aspects that were barriers to participation.

Overall, I was impressed by his calm, professional demeanour. He was always optimistic and unflagging in his energy. I think the achievement of devising, planning, and executing an event on this scale, while at the same time maintaining high academic standards, speaks volumes about Callum's potential as a graduate student and future leader in his field.

DAN SCHOOL OF
DRAMA AND MUSIC

I recommend him to you enthusiastically and without reservation. I have no doubt that Callum will thrive in his studies and be an asset to your program. Please do contact me if you have further questions.

A handwritten signature in black ink, appearing to read 'J. Stephenson', with a long, sweeping horizontal line extending to the right.

Dr Jenn Stephenson
Professor, Dan School of Drama and Music
Associate Dean (Academic), Faculty of Arts and Science
jenn.stephenson@queensu.ca

December 5, 2023.

Graduate Admissions Committee
M.Sc. in Genome Science and Technology
The University of British Columbia



DEPARTMENT OF BIOMEDICAL
AND MOLECULAR SCIENCES

Botterell Hall, Stuart Street
Queen's University
Kingston, Ontario
Canada K7L 3N6
www.queensu.ca

Re: Mr. Callum Fraser, B.Sc., applicant

Dear Admissions Committee,

I am writing in support of Mr. Callum Fraser's application to your graduate program. I have known Callum since February of 2022 when we met to discuss the possibility of him joining my group for his 4th year research project in the 2022/2023 academic year. My first impression of Callum was that he was very bright, an above average student and keen on studying the cell biology of virus/host interactions. Callum was very engaged during our discussions of potential research projects and asked insightful questions that revealed an excellent understanding of biological systems at a level I rarely encounter in third year undergraduates. Additionally, Callum "interviewed" with two of my graduate students who both had positive impressions of Callum. Prompted by our interactions, I offered to host Callum's fourth year project in my laboratory where he was supervised by a Ph.D. student in my lab, Safara Holder.

Callum worked hard on his project during the 2022/2023 academic year where he investigated the role of several cellular inner nuclear membrane proteins in the early stages of herpes simplex virus (HSV) assembly. This project required that Callum learn how to grow and maintain human keratinocytes in culture, introduce expression plasmids into these cells by transient transfection, perform siRNA-mediated gene knockdown experiments, measure protein expression by western blotting, and visualize protein localization in cells by confocal microscopy. Callum is a quick study and skillfully learned how to perform these techniques. Callum was well-organized, planned his experiments in advance and did not hesitate to ask questions of myself, Safara, or senior laboratory personnel when he had questions. Callum has a pleasant demeanour, was always willing to help out his colleagues, and got along well with others in the lab. Callum's undergraduate thesis was well written and his oral presentations on his work were well prepared and delivered. Callum has excellent written and oral communication skills.

Academically, Callum is an excellent student. Callum's cumulative GPA is 3.94/4.3 and was placed on the Dean's Honour List every year of his undergraduate career.

In sum, Mr. Fraser shows great promise for a career in the biomedical sciences and is an excellent candidate for your graduate program. Your Institution will be fortunate to recruit him.

Sincerely,

A handwritten signature in black ink, appearing to read "BW B", with a long horizontal stroke extending to the right.

Bruce Banfield, Ph.D.
Professor of Biomedical and Molecular Sciences

This passport is valid for all countries unless otherwise specified. The bearer must comply with any visa or other entry regulations of the countries to be visited.

SEE OBSERVATIONS BEGINNING ON
PAGE 5 (IF APPLICABLE)

Ce passeport est valable pour tous les pays, sauf indication contraire. Le titulaire doit se conformer aux formalités relatives aux visas ou aux autres formalités d'entrée des pays où il a l'intention de se rendre.

VOIR LES OBSERVATIONS DÉBUTANT À LA PAGE 5 (LE CAS ÉCHÉANT)

Callum Fraser

Signature of bearer - Signature du titulaire



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PASSPORT
PASSEPORT

CANADA



Type/Type

P

Issuing Country/Pays émetteur
CAN

CAN

Passport No./N° de passeport

AT108856

Surname/Nom

FRASER

Given names/Prénoms

CALLUM PHILIP JULIAN

Nationality/Nationalité

CANADIAN/CANADIENNE

Date of birth/Date de naissance

30 MAR / MARS 01

Sex/Sexe Place of birth/Lieu de naissance

M OAKVILLE CAN

Date of issue/Date de délivrance

17 AUG / AOÛT 22

Date of expiry/Date d'expiration

17 AUG / AOÛT 32

Issuing Authority/Autorité de délivrance

GATINEAU

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