UNDERGRADUATE RESEARCH EXCELLENCE AWARDS 2019

UNIVERSITY OF THE FRASER VALLEY

Program

Welcome
Dr. Garry Fehr, Associate Vice-President
Research, Engagement, and Graduate Studies

Board Chair Remarks
Mr. John Pankratz, Chair, UFV Board of Governors

Provost & VP Academic's Remarks
Dr. Eric Davis

BC Graduate Scholarship Presentations

Dinner Buffet

President's Remarks
Dr. Joanne MacLean, President and Vice-Chancellor

Student Speakers
Ms. Emily Ross, Kinesiology, Faculty of Health Sciences
Mr. Fraser Forbes, Physics, Faculty of Science

Acknowledgement of Student Awards
Dr. Garry Fehr, Associate Vice-President

Awards Presentations
Jerri-Lynne Cameron, Director, Research Services
& Industry Engagement
Dr. Jacqueline Nolte, Dean, College of Arts
Dr. Alastair Hodges, Dean, Faculty of Health Sciences
Dr. Tracy Ryder-Glass, Dean, Faculty of Professional Studies
Dr. Lucy Lee, Dean, Faculty of Science

Closing Remarks

Welcome to the 2019 Undergraduate Research Excellence Awards Presentation

Tonight the University of the Fraser Valley is thrilled to present 38 students with research awards totalling over $27,000.

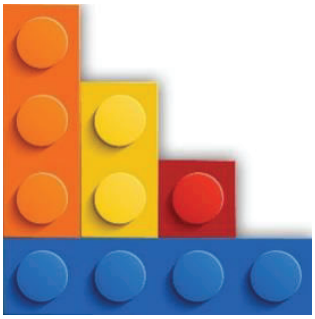
These students were nominated by faculty for exceptional research work, either as part of the UFV work study program, as research assistants, or for an outstanding research project as part of a course.

We also acknowledge the many students who received prestigious awards from UFV, the Ministry of Advanced Education, Skills & Training, federal granting agencies, and other external organizations.

Congratulations to all the students whose participation in research helps them build amazing experiential learning into their education. Connecting knowledge, skills, and experience with creative minds stacks up to a solid foundation!

With more than 15,000 students attending UFV this year, these awards represent only a small portion of the research and other experiential learning activities which students are involved in that build their UFV education.

> *Creativity is intelligence having fun.*
>
> Albert Einstein



University of the Fraser Valley is located on the unceded territory of the Stó:lō peoples. We gratefully acknowledge our ability to live and work on the traditional territory.

Student Speakers

We are delighted to have two student speakers this evening selected from our Student Research Day MicroLecture presenters.

Emily Ross

This past semester I completed my Bachelor of Kinesiology degree with a minor in Biology. During my studies, I spent 2 years as a Supported Learning Groups Human Anatomy Leader, and 1 year as Supported Learning Groups Mentor. I also tutored with the Academic Success Center for 2 years and served as a student ambassador and panelist for various on-campus events. For this work I received the Teaching and Learning Centre Award for a Distinguished Student. And I am honoured to be the 2019 recipient of the Dean's Medal for the Faculty of Health Sciences.

Throughout my degree I was also able to participate in many off-campus endeavours. Volunteering as the Head Coach for the Chilliwack Division of Special Olympics Rhythmic Gymnastics, as well as a technical and execution judge for Special Olympics competitions, has been a highlight of these activities.

Presently, I am working as a healthcare research assistant for the Burnaby Research Institute. My eventual career goal is to work as a Family Doctor in the Fraser Valley. I am particularly interested in one-on-one patient care that facilitates the prevention of chronic disease, and I am excited to continue building on the skills I have gained during my time at UFV.

Fraser Forbes

I am graduating this June with a Bachelor of Science in Physics and the Engineering Physics Diploma in Mechatronics after 5 years at UFV.

My team and I received the Associate VP Research, Engagement, and Graduate Award for our efforts in the Student Research Day this year presenting our Underwater Remote Operated Vehicle.

I served as the Secretary of the Physics Students Association for my last 2 semesters, as well as the social media coordinator. (@UFVPSA on twitter, and UFV Physics Students Association on Facebook)

I have just started a 6-month contract working as a Manufacturing Assembler at FLIR Systems, Inc. (The worlds largest commercial thermal camera company). I will also be continuing to teach on Saturday mornings at Academie Duello, a historical European martial arts school in downtown Vancouver.

My hobbies include historical European martial arts especially the rapier and side sword, bagpipes, cycling, dungeons and dragons, and of course using my gathered knowledge of physics to over analyze systems that don't require it when nobody asked me to.

Fun LEGO fact: Six 2×4 LEGO bricks can be combined in more than 915 million ways

Ministry of Advanced Education, Skills, and Training
$15,000

The Ministry has awarded funding to provide competitive, merit-based graduate student scholarships. These scholarships will enable British Columbia institutions to attract and retain the best and brightest graduate students, and increase their ability to compete for students who are leaders in their field.

UFV is delighted to receive $75,000 from the Ministry, which was combined with matching funds from some of our loyal supporters, to provide ten $15,000 BCGS awards over the next two years.

We are honoured to award the first ever BC Graduate Scholarships to these five new Master's students:

Jennifer Ofeimu
Master of Education program

Nicole Joseph
Master of Education program

Stacey de la Ray
Master of Social Work program

Kristen Swallow
Master of Social Work program

To be confirmed
Master of Arts in Criminal Justice program

UFV gratefully acknowledges the contribution from the BC Ministry of Advanced Education, Skills and Training, as well as private donors, for funding the BC Graduate Studies Scholarships.

Canada Graduate Scholarships

Natural Sciences and Engineering (NSERC) & Social Sciences and Humanities (SSHRC) Research Councils of Canada
$17,500 awards

The objective of the Canada Graduate Scholarships-Master's Program is to help develop research skills and assist in the training of highly qualified personnel by supporting students who demonstrate a high standard of achievement in undergraduate and early graduate studies.

Many UFV undergraduate students receive these prestigious awards. This year we have confirmation of the following:

McKenzie Braley – (SFU)
Faculty Researcher: Lesley Jessiman

LEGO has essentially taken the concrete block, the building block of the world, and made it into the building block of our imagination.

Ayah Bdeir
Lebanese Canadian, MIT, CEO littleBits

NSERC Undergraduate Student Research Awards (USRA)

$4,500 Awards

These national awards are meant to stimulate interest in research in the natural sciences and engineering. They allow students to gain valuable research experience that complements their studies by working full time for a term with a nationally recognized UFV faculty researcher.

Additional funds are provided by the faculty researcher's grant.

Nicole Schurink, Physics
Faculty Researcher: Lin Long

Kaden Ray, Physics
Faculty Researcher: Derek Harnett

Eryn Braley, Biology
Faculty Researcher: Lucy Lee

Brenna Hay, Biology
Faculty Researcher: Lucy Lee

Kyla Woelk, Chemistry
Faculty Researcher: Noham Weinberg

Dustin Hurrell, Chemistry
Faculty Researcher: Linus Chiang

Cassandra Shewchuk, Geography
Faculty Researcher: Olav Lian

UFV gratefully acknowledges the support of the Tri-Council Granting Agencies (SSHRC, NSERC & CIHR) through their Research Support Fund and financial contributions to the UFV Research Office.

Student Presentation Grants

Oh the places they go!

In addition to the awards mentioned here, the Research, Engagement, & Graduate Studies office provides travel grants to students presenting their research at professional conferences. In 2018-19, 31 students were provided up to $1,500 each to present at conferences across Canada, throughout the USA, and internationally in places like Vienna, Amsterdam, and Wales.

Our amazing students are often the only undergraduates presenting at the conference, and they get to connect with leading researchers in their field of study. They report that the experience was life changing and the highlight of their time at UFV, building on their education with real world experience.

UFV Student Research Day Awards

Each year UFV Research Services invites undergraduate student researchers to showcase their work by participating in a fast-paced 2-minute MicroLecture, a poster presentation, or both. More than 100 students connected at this lively interactive event and competed for scholarship awards of $200.

Engagement in research and events such as this can help students obtain scholarships, awards, and graduate school positions. It also contributes to UFV's strategic goal of providing "the best undergraduate education in Canada."

UFV Student Research Day Awards

Daniel Driedger - Chemistry
Award: President's
A Convenient and Rapid Synthesis of Difluoroalkyl Ethers from Thionoesters using Silver (I) Fluoride
Faculty Supervisor: Cory Beshara

Harinder Sahota – Biology
Award: Provost & Vice-President Academic
Water Quality Testing Using Polymerase Chain Reaction
Faculty Supervisor: Stephen Thomas

Donovan Toews, Emily MacMillan, Ian Toohey, Lise Nehring, Mika Sevcik - Geography
Award: Vice-President, Students
City Landscape Usage on Dissolved Organic Matter along Willband Creek, Abbotsford, BC
Faculty Supervisor: Steven Marsh

Allan Les, Ford McMahon, Simeon Gellert - Business
Award: Vice-Provost & Associate VP Academic
Crime Rates in Canada
Faculty Supervisor: David Dobson

Samim Azami, Kyla Woelk, Daniel Driedger, Daylan Pritchard - Chemistry
Award: Associate VP Research, Engagement & Graduate Studies
Computational Drug Design: Building Molecules that Dock to an Artificially Constructed Building Site of the Penicillin G Antibiotic
Faculty Supervisor: Noham Weinberg

Caroline Duncan - Psychology
Award: Dean, College of Arts – Social Sciences
Loneliness, Resilience, and Cognition of Older Adults
Faculty Supervisor: Lesley Jessiman

Cassandra de Jong – Visual Arts
Award: Dean, College of Arts - Humanities
Mind Maintenance
Faculty Supervisor: Grace Tsurumaru, Tetsuomi Anzai

Christine Drew - Nursing
Award: Dean, Faculty of Health Sciences
Exploring the understanding and comfort levels of nursing students with Medical Assistance in Dying (MAiD)
Faculty Supervisors: Shelley Canning

Shayne Oberhoffner - Biology
Award: Dean, Faculty of Science
Synthesis of sulforaphane (1-isothiocyanatio-4-methylsulfinylbutane) and evaluation of antimicrobial properties in-vitro
Faculty Supervisor: Stephen Thomas

Kate McIntyre, Elizabeth Froc, Alex Pongracz, Ranvir Bhangu, Samanyu Jain - Business
Award: Dean, Faculty of Professional Studies
Ensuring Abbotsford Air Show Sponsors See a Positive Return on Investment
Faculty Supervisor: David Dobson

Shelby Klassen, Sara Grant, Jade Sherwood, Adam Colman - Agriculture
Award: Dean, Faculty of Applied & Technical Studies
Weed seed survival following feeding by goats and sheep
Faculty Supervisor: Renee Prasad

Logan Dyble, Malek Alame, Assaf Al Ajlan, Ty Loeppky - Business
Award: Associate VP Research, Engagement & Graduate Studies
The Successful Factors of Crowdfunding
Faculty Supervisor: David Dobson

Ajeet Klaer - Biology
Award: Associate VP Research, Engagement & Graduate Studies
The role of non-toxic substances in earthworm extraction & the distribution of native versus invasive earthworm species & gregarine parasites in the City of Abbotsford
Faculty Supervisor: Sharon Gillies

Fraser Forbes, Rebecca Gourde, Xinhao Xie, Julia Wosnack – Physics
Award: Associate VP Research, Engagement & Graduate Studies
Sink or Swim, an Underwater ROV
Faculty Supervisor: Lin Long

Erin Haan - Communications
Award: Associate VP Research, Engagement & Graduate Studies
Framing of the Trade Renegotiation between Canada and US
Faculty Supervisor: Marcella LaFever

Visit ufv.ca/research/events/ to see photos of Student Research Day and videos of the student MicroLectures including our two student speakers!

UFV Undergraduate Research Excellence Award Recipients

Community Service Research

Taylor Chapman, Cassandra Shewchuk, Adam Gough, Andrew Schulz - Geography

Indigenous Research

Lisa Wolgram – Social Work

Jesse Tremblay – Economics

Industry Engagement Research

Shayne Oberhoffner – Biology

Tyler Henderson, Simon Frackiewicz, Matthew Logan – Business

Hans-Georg Worms, Brett Russell, Nelson Spies, David Friesen – Physics

College of Arts

Rebecca Wissink – Anthropology

Natasha Knight - Communications

Olivia Marty – Criminology & Criminal Justice

Karan Vij - Economics

Taylor Doak-Hess - English

Sterling Ray – Global Development Studies

Emily Clarke - History

Kyle Rehdner – Philosophy

Julie Morden – Political Science

Caroline Duncan - Psychology

Kelsey Block – Sociology

Shan Dhaliwal – South Asian Studies

Great things are done by a series of small things brought together.

Vincent Van Gogh

Faculty of Health Sciences

Kenton O'Donnell - Kinesiology

Christine Drew - Nursing

Faculty of Professional Studies

Kim Abram - Adult Education

Harjot Kaler, Hayata Kimura, Christopher Sonea - Business

Uliyana Kubasova – Computer Information Systems

Faculty of Applied & Technical Studies

Sara Grant – Agriculture

Faculty of Science

Eryn Braley - Biology

Kaeden Teindl - Chemistry

Cassandra Shewchuk – Geography & the Environment

Taylor Chapman, Cassandra Shewchuk, Adam Gough, Andrew Schulz

Geography

Faculty Supervisors: Mariano Mapili, Gloria Burrows, Larissa Horne
Community Partners: Nicole MacDonald, Allison Pye, Alison Martens - City of Abbotsford **Award:** $250 each

Taylor: I am a third year Bachelor of Arts student working towards becoming a graduate of the new Environmental Studies Program. UFV has given me the opportunity to explore my interests, discover my true passions, and allowed me to build meaningful relationships with many of my peers and professors, which will help open doors for me in the future. The community service research with the City of Abbotsford this semester has helped me decide to work in the field of urban environmental sustainability after I graduate, with hopes to work with cities like Abbotsford in creating a more environmentally-conscious future for generations to come.

Cassandra: I am graduating next year with a BSc Honours in Physical Geography and a GIS Certificate. UFV has made my university experience more than I could ask for, as it gave me ample opportunity to connect with my peers and professors, which opened me up to the research I have completed and employment I have achieved.

After I graduate, I wish to explore different types of employment in the geoscience genre to gain more experience and inspiration before I attend graduate school. Although, I do wish to continue in the geology exploration field, as the earth has a fascinating geology and processes.

Adam is an international student from Clackmannanshire, GB and has returned to the UK after studying communications at UFV for a term.

Andrew will be starting his third year at UFV towards a Bachelor of Science.

Improving composting in multi-family dwellings, Abbotsford, BC: Education means engagement

A community service research was carried out at the La Galleria and The Argyle, to assist the City of Abbotsford determine strategies of increasing resident participation in waste sorting for composting in multifamily dwellings. Community engagement through interviews with residents, distribution and analysis of resident surveys, and four waste audits before and after an educational material intervention consisted our research methodology.

Our community research project revealed barriers to composting in multifamily dwellings including resident demographics, convenience, and garburator availability.

Fun LEGO facts:
1,300 LEGO pieces are made per second, 78,000 per minute and 4,680,000 per hour.

The word "LEGO" is a fusion of the two Danish words "leg" (play) and "godt" (good).

There are over 400 billion LEGO bricks in the world. Stacked together, they are 2,386,065 miles tall, which is ten times higher than the moon.

Indigenous Research

Lisa Wolgram

Social Work

Faculty Supervisor: Adrienne Chan **Award:** $1,000

Lisa is graduating from the Teacher Education Program and has worked as a research assistant on a CIHR funded project with Dr. Adrienne Chan since October 2017. She helped with literature-reports search and review, and has worked in the planning and feedback of the project team involvement with Sq'ewlets Nation and Stó:lō Nation and engaged in activities with youth as part of the three-year project for youth suicide prevention and assisting in the subsequent documentation for the funder. Her role has been as a support person to the Indigenous youth and our communities Sq'ewlets Nation, Sema:th Nation, Mission Friendship Centre, Seabird Island Band, Stó:lō Nation, and most recently Yakweakiwoose Nation.

Land Based Resiliency for First Nations Youth

The land-based resiliency research team has used a number of different approaches to engage youth in land-based activities. Some of these activities have included an outdoor camping trip, day hikes, as well as workshops and events related to the Stó:lō seasonal calendar.

Considerations for future assessments of activities and events supported by the land-based resiliency research team include the following: create a range of interview questions and processes which are developmentally appropriate for youth ages nine to twenty-five; conduct feedback sessions, interviews or take note of anecdotal comments at the beginning, end, and throughout the duration of the event or activity; and, offer a range of methods for participant responses - oral, written, artistic.

Going forward, the development or rediscovery of an Indigenous, specifically Stó:lō, approach to assessment, based on Indigenous ways of knowing, doing, and being would support the delivery and analysis of future interviews and surveys which aim to ascertain the effectiveness of processes of youth resiliency in land-based activities and events.

Indigenous Research

Jesse Tremblay

Economics

Faculty Supervisor: Bosu Seo **Award:** $1,000

Jesse: I am graduating from the economics program this June; afterwards, I will be continuing my education at Simon Fraser University where I have been accepted for a Master of Arts in Economics. Throughout my time at UFV, I was able to develop my research skills and have done several research projects both alone and collaboratively. This project was my favorite and it allowed me to further gain insight into the state of the on-reservation population in British Columbia.

The determinants of relative household income for on-reserve communities in British Columbia, Canada

This study uses data from the 2016 Canadian Census to examine the current state of on-reserve populations in British Columbia. I compare on-reserve populations to non-Indigenous populations within the same regional district. Afterwards, I divide reservations into three geographical regions to encapsulate the differences that exist within the province. Then I use regression analysis to find the determinants of household income in each region.

Each region has distinct characteristics, but an income gap is found in all of them. While reservations on Vancouver Island are found to be the most successful compared to other reservations in British Columbia, despite their young age, I find that they make just 80% of the income that non-Indigenous populations make. For the province overall, this gap stands at 71%.

Industry Engagement Research

Shayne Oberhoffner

Biology

Faculty Supervisor: Stephen Thomas **Award:** $1,000
Industry Partner: Dr. Jichul Bae, Agassiz Research & Development Centre

Shayne: I am finishing my fourth year of the Bachelor of Science Program, majoring in Honours Biology while pursuing a Molecular, Cellular, and Genetics Concentration and a Co-Op Designation. I will be gaining work experience over the next two semesters with the Co-Op program before graduating in the Winter 2020 Semester. Completing my research semesters this year has ignited a passion for research and discovery that I aim to build on in graduate studies and a career that focus on the microbial and immunological aspects of human health.

Synthesis of Sulforaphane (1-isothiocyanato-4-methylsulfinylbutane) and Evaluation of Antimicrobial Properties *in-vitro*

Sulforaphane is a sulfurous compound found in Daikon radish and related vegetables. Naturally, it is used as a protective compound to fend off pathogens and insect herbivores. We were able to evaluate existing chemical extraction procedures, hoping to reduce the amount of waste produced. Ultimately, were able to adapt existing synthesis procedures to create a new model that produced 100% pure compound, while using a petroleum waste product as a starting material. This also lays groundwork for the unprecedented creation of sulforaphane analogues with even more potent characteristics.

Compared to traditional antibiotics, there is little known about the effects or mechanisms of sulforaphane against different species of bacteria. We were able to determine some baseline test data against six species of pathogenic bacteria, finding that it had inhibitory properties to varying degrees against four of the six tested species.

Industry Engagement Research

Tyler Henderson, Simon Frackiewicz, Matthew Logan

Business

Faculty Supervisor: David Dobson **Award:** $350 each
Industry Partners: Jim Reith and Dave Reith, Abbotsford International Airshow

Tyler: I am currently a student athlete playing on the men's varsity soccer team and a 4th year student in the BBA program with a major in Marketing at UFV. I am planning to complete my last semester in the Fall of 2019. After I graduate I am excited to travel for a few months before I pursue a Sales and Marketing job. This research project has truly opened my eyes as to how beneficial conducting an economic impact study can be for a company. I would like to thanks my partners, Simon and Matt as well as our supervisor David Dobson for his continued support this semester.

Simon: I am a 4th year student in the BBA Program in Marketing at the University of the Fraser Valley. I seek to use my time at UFV as a tool in getting me closer to my dream job of working in the video game industry in a marketing capacity. This research opportunity has been an excellent way to sharpen my data gathering and analysis skills. These are skills which I will use in my field of work in the future when it comes to understanding a market based on collected data. My experience working with the AIA, Professor David Dobson, and my colleagues has by far been my most memorable academic project to date.

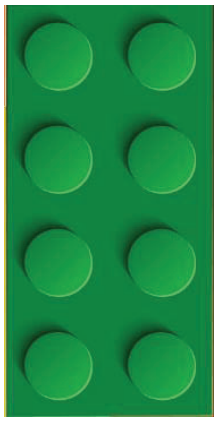
Matt: I am currently in my fourth year here at UFV and I am in the Bachelor of Business Administration, majoring in Accounting. I plan to be graduated by May of 2020 with hopes to complete my CPA as well as my CFA. This project allowed for a fantastic experience to work with a major event like the Abbotsford Airshow and provide me with a better insight on how substantial an economic impact has on a specific area. This has been one of my favourite projects thus far at UFV as it is something local, and is an event I have attended myself for many years.

Economic Impact of the Abbotsford Air Show

We, as a group, wanted to quantify the economic impact in dollars that the Abbotsford Airshow provided to the Fraser Valley. In order to identify the key factors in what drives the economic impact of the Abbotsford Airshow, we held a focus group over the phone in order to better understand the customers' experiences and where they were spending their money.

Following that, with the help of the fantastic staff at the Airshow, they set up a survey for us to collect data on over 3000 individuals who have attended past events. This helped us better determine the customers' spending habits as well as amounts spent. We then analyzed the information and narrowed down the spending to five major categories: fuel, accommodations, restaurants/food, shopping, and spending at the airshow itself. One of our limitations was not being able to get exact spending figures, so we utilized spending ranges and separated our data into three possible ranges: conservative, moderate, and aggressive spending.

With the conclusion of our report we found the category with the highest economic impact was fuel expenditure and we provided some recommendations for the Abbotsford Airshow to utilize in hopes to help with future sponsorships and/or more local funding.



I believe it is also important to learn (or be around) things like music, art, philosophy, linguistics, and math including logic; any of which could help improve one's being an excellent programmer/problem solver/thinker and to have a more global perspective on things. The ultimate goal would be that of teaching one how to think (design).

Margaret Hamilton, Apollo Software Engineer, Awarded Presidential Medal of Freedom
LEGO "Women of NASA" Minifigure

Industry Engagement Research

Hans-Georg Worms, Brett Russell, Nelson Spies, David Friesen

Physics

Faculty Supervisors: Lin Long, Jeff Krahn, Avner Bachar
Award: $250 each
Industry Partner: Yahoel Van Essen, Eleos Robotics

Hans: Working on this project has allowed me to combine, apply, and develop all the skills that I learned in the Engineering Physics Diploma program. When I was offered the opportunity to join the Roboweeder project, I was quick to join as I wanted the opportunity to connect with industry and expand my network. Our team's project performance and attendance at the BC Tech Summit 2019 has resulted in various job offers for our team. I plan to attend UFV for another year to complete my BSc in Physics, moving into a career in engineering after that. In the long run, my goal is to focus on designing and innovating automated production processes. I believe that the future of most manufacturing will be automated over the next decades, and I want to be at the forefront of this upcoming fourth industrial revolution.

Brett: is in the Bachelor of Science degree program majoring in Physics/Engineering.

Nelson: After this year in the Mechatronics program, I am excited to exercise the engineering skills I learned in this project with a summer Co-op job. During the summer I look forward to hanging out with friends and practicing music. I plan to finish my Physics degree next year at UFV and continue exploring engineering and lab work.

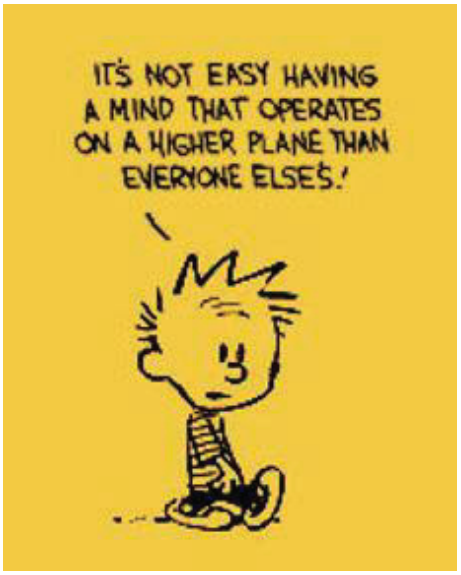
David: I recently graduated from UFV with a bachelors of science in physics and engineering physics diploma in mechatronics. From here, I plan to obtain the Engineer in Training title by completing a few more requisite courses and writing the Fundamentals of Engineering exam. At the same time, I want to work in engineering and robotics while moving closer to those goals. Working on the Roboweeder project has opened my eyes to how fun and exciting team-oriented engineering projects can be, and I want to continue in that direction.

Roboweeder: An Application of Mechatronics

Our project was in collaboration with an industrial robotics design firm, Eleos Robotics. The overall goal of the project was to create an autonomous robot to eradicate weeds. The robot would achieve this using a microwave emitter at the end of an arm. Our team was assigned the task of developing the arm control system for maneuvering the microwave emitter to the desired position. This included researching many methods of control until we found the best option. We implemented the system into the robot, then tested and fine-tuned our controls.

The other task was to develop a power supply system to operate the microwave emitters. The power supply requirements were that it should deliver 4000 Volts at about 5500 Watts. Since an electrical system with these characteristics is considered dangerous, our team took a careful approach in designing it.

After many hours of research, several suggestions in a feasibility report were made to Eleos Robotics about how they could proceed with such a system.



Rebecca Wissink

Anthropology

Faculty Supervisor: Nicola Mooney **Award:** $1,000

Rebecca: I am graduating this year having completed my BA with a major in both Anthropology and Sociology, and a minor in Media and Communications. Culture is my love, particularly popular culture and what media texts tell us about our culture.

I have been accepted to Queen's for an MA in Cultural Studies. It is my goal to compete my PHD and become a Professor.

I never expected to love research the way I do, but UFV's focus on research and the support of the Professors has allowed me to learn this about myself – in fact, this entire degree has been a learning experience, and not just of the academic material!

I am intrigued by identity practices and how people navigate their lived realities. Research allows us to hear and make sense of people's stories. If we take the understanding we gleam from research and use it to give voice to the human experience I think we can foster connection and compassion for each other. I see this as the strength of the humanities.

The Heroine's Journey: Women's Ritual Travel in Contemporary Popular Feminism

This research project emerged from my experiences and observations of women's solo travel. My research analyzed narratives of women travelling alone in a physical, emotional, and spiritual wilderness via five texts by popular feminist writers. I found that the writers used travel as a means of creating rites of passage for themselves: experiencing and writing about travelling alone enables women to understand themselves, and collectively, these authors extol the spiritual and personal gains realized via travel. The data suggests that a solitary quest for contemplation is a form of new-age spiritual pilgrimage that responds to a lack of normative ritual for women's life passages, particularly those around loss and changing social roles. As these women underwent their heroine's journeys, they wrote of experiencing crippling grief, exalting joy, vulnerability, humility, freedom, and yet constraint. In the space of travel, they learned, transformed, and ultimately created new identities – laying out a path for future heroines on future journeys.

Natasha Knight

Communications

Faculty Supervisor: Marcella LaFever **Award:** $1,000

Natasha: I am a third-year student in the Bachelor of General Studies Program minoring in Business and Communications. I have previously completed a Social Services Diploma and a Professional Communication Essentials associate certificate. I plan to apply this degree towards a project management or human resources related position in my future career.

Engaging in this research project has allowed me to enhance my education in terms of gathering information in a variety of forms and taking a hands-on approach to research. This allowed me to gain more insight on the kinds of reports written in a business setting and has advanced my skills.

Fitness Apps at a Glance: A comparison of how developers use communication strategies to motivate and engage consumers

My project topic stemmed from an underlying passion for health and fitness. Since health and fitness has become a popular trend in today's society, I decided to compare five health and fitness apps to see which apps best motivated its users and kept them actively engaged. I searched for the highest rated health and fitness apps through Google and the Apple Store. The final list included MyFitnessPal, Fooducate, Fitness point, Nike Training Club and 8fit Workouts & Meal Planner.

The report reinforced that not all fitness apps are operated the same and some do not motivate consumers as well as others. I was able to differentiate each app and determine which apps provided easy navigation techniques, provided useful information to the consumer, and used motivational features to keep the consumer engaged.

While none of the five apps were difficult to navigate and provided a variety of useful information, two were superior in providing motivational strategies. Both of these apps had social networking techniques. MyFitnessPal allowed you to add friends to motivate you along your journey and share your logs with them. Fooducate had a platform similar to Facebook in which users could post anything motivational such as progress photos, healthy recipes, and inspirational quotes, to name a few. Having these kinds of features in an app is something that will keep the consumer engaged and wanting to use it more and more. Not only do they get to learn about health and fitness, they get to connect with others who are going through similar journeys.

Olivia Marty

Criminology & Criminal Justice

Faculty Supervisor: Kim Polowek **Award:** $1,000

Olivia: I am graduating with a Bachelor of Arts in Criminal Justice Honours. I have applied to law school and I'm hoping to begin in the fall. In the final year of my university career I worked on this research project, as well as obtained a position as a research assistant at UFV. I am proud of the work I've done and how I'm able to contribute new knowledge to help positively grow the criminal justice system towards being more trauma-informed.

Moving Towards a Trauma-informed Justice System

The study focuses on the current level of knowledge of university students studying in related fields to the criminal justice system. More specifically, the study sought how much students knew about trauma and trauma-informed approaches because the Canadian Justice System is becoming more trauma-informed so it's important to ensure future criminal justice workers are knowledgeable on this topic and are open to moving in this direction.

The primary findings of the study were that students are more knowledgeable on the topic of trauma and trauma-informed approaches than predicted. Most participants disagreed with common myths about trauma indicating that they had enough knowledge to know the statements were inaccurate.

In addition, it was found that students who had experience working in the field also had received training on how to be trauma-informed which indicates that the system is ensuring staff are well equipped and knowledgeable on being trauma-informed.

Karan Vij

Economics

Faculty Supervisor: Bosu Seo **Award:** $1,000

Karan: I am a fourth year Science student at UFV. I took an economics course to simply acquaint myself with the economy and to learn how it plays out in our daily lives. It really arose my curiosity about many things that affect the global economy, so I started taking other economics courses to learn more. It also gave me a chance to apply my computer science background to many economics' models, especially in the labor-market and decision-making areas.

This topic has always intrigued me. Studying economics at UFV arose my curiosity about this subject even further. So, when I got a chance to read about this topic in detail in the labor economics course, I decided to study minimum wages as my project. Findings in that course became the foundation of a bigger research project during my independent studies course and resulted in this research paper.

Analysis of Canadian minimum wage hikes and the corresponding unemployment trends: A three-province study - BC, AB, ON

There is little consensus in the world of economics as to how minimum wages affect employment. It is a highly contested and polarizing political topic. Some studies state that increasing minimum wages can adversely affect employment, some have suggested that minimum wage hikes can even have small positive effects on employment. Other studies do not find any statistically significant link between minimum wages and employment.

We analyzed minimum wage and unemployment data from three Canadian provinces of Alberta, British Columbia, and Ontario from the year 1976-2018. No significant relationship between minimum wage hikes and unemployment rates was found. Effects on unemployment were found to be as likely to be positive as negative. Excluding the recession periods, the effects on employment seemed to be more positive than negative, however, not in a significant way. We found that unemployment rates were largely determined by some larger economic factors rather than the minimum wage.

Taylor Doak-Hess

English

Faculty Supervisor: Nadeane Trowse **Award:** $1,000

Taylor: I am currently completing my BA in English Honours with an extended minor in Sociology. My goal upon completion of my BA is to move on to a Master's program and further pursue my research on the role of language in the maintenance of structural inequality.

This research project was inspired by my involvement in queer communities and was enthusiastically encouraged by my supervisor; it has since developed into a multidisciplinary interest in discourse analysis, gender politics, and social inequality that I intend to expand upon in my graduate studies.

"Dangerous Language": Deviantization, Linguistic Normativity, and Queer Erasure in the Singular "They" Controversy

In recent years, myriad discussions have taken place regarding the acceptability of genderless pronouns as personal identifiers. While some academic sources state that the singular forms of "they," "them," and "theirs" are historically-rooted and grammatically acceptable alternatives to gendered pronouns such as "he/him/his" and "she/her/hers" (Bodine; Brinton and Arnovick), others assert that these pronouns are unacceptable due to factors such as linguistic ambiguity and subject-verb agreement (Kearns et. al. Salembier). However, analysis of public discourse and mass media reveals that rejections of the singular "they" are not strictly based on grammatical acceptability; they are, in fact, rejections to the trans and nonbinary individuals who have adopted singular "they" pronouns for personal use.

This essay explores the complex intersections of gender, language, and identity politics as they relate to the deviantization of nonbinary and trans people. Analysis of controversies such as Jordan Peterson's rejection of nonbinary pronouns and identities reveal that the long-standing debate surrounding singular "they" is no longer relegated to the domain of grammaticality; instead, it is a mechanism that consistently deviantizes queer groups and individuals.

Sterling Ray

Global Development Studies

Faculty Supervisor: Robert Harding **Award:** $1,000

Sterling: I am graduating from UFV with a Global Development Studies degree and a Latin American Studies extended minor. I have loved pursuing research at UFV and intend to further my education and involvement in research through graduate studies. On my internship in Oaxaca, Mexico I conducted qualitative research on Indigenous narratives. This research led me to want to continue research in the area of Indigenous perspectives.

Working on Framing Emancipation in Indigenous Media with Dr. Robert Harding has allowed me to expand my knowledge and skills in research. This opportunity has strengthened my undergraduate experience and enabled me to access opportunities at UFV that will serve me well in my future educational goals

Framing Emancipation in Indigenous Media

Media informs much of how we understand the world around us. How media "frames" news stories about Indigenous peoples can greatly influence interpretations of how Indigenous communities live and think. This research examines news stories in Indigenous news publications and mainstream news publications. Using discourse analysis the project compares the framing of Indigenous views on land, self-government and child welfare with mainstream discourse on the same topics.

In connection to a similar research project conducted by Dr. Harding, this research reveals the stereotyping and biased language employed in mainstream news articles that address Indigenous issues. In addition to this, it demonstrates that Indigenous news sources utilize a much more varied range of sources, including Indigenous and non-elite sources as compared to mainstream media.

Emily Clarke

History

Faculty Supervisor: Robin Anderson **Award:** $1,000

Emily: I am currently working to complete my Bachelor of Arts Degree with a major in history and a minor in French. I plan on pursuing a career as a high school teacher and I hope to get into the Teaching program following my Bachelor's degree. This project has not only developed my research skills, in but it has also helped me discover my passion, and encourage further study in Indigenous and Canadian History here at UFV.

Kilgard: Abbotsford's Historic Communities

This project focused on choosing a smaller community within the City of Abbotsford that had not been researched, and uncovering the Indigenous foundations of settlement, early European settlement, important stories of the community past, surviving built heritage or important sites within the area, and connecting these finding to the City of Abbotsford's Community Plan. The area I chose was Kilgard, an Indigenous community located at the base of Sumas Mountain, just north of Highway 1. By conducting this research, I was able to uncover the origins of the Sema:th people, more specifically the people of Kilgard.

This research provided insight to an area that had in some ways been misunderstood or misrepresented in colonized history and will be extremely useful for those who are looking for information on the Kilgard area or to those who are conducting further research of their own.

Kyle Rehdner

Philosophy

Faculty Supervisor: Wayne Henry **Award:** $1,000

Kyle: Studying and researching political and ethical philosophy has been my primary undergraduate focus. This project can be seen as the culmination of that focus, as it brings together the ideas of some of the most important political and ethical thinkers of the Western tradition. I hope to go on to study law, and to further my philosophical education.

Drowning in the Rising Tide: An Argument for the Rights Approach

This project aims to examine the underlying justifications of market limitations. The writings of such foundational thinkers as John Locke, Adam Smith, and a particular reading of John Stuart Mill provide a basis for contemporary neo-liberal ideology, which supports maximally free markets. This position relies on a negative approach to rights and freedoms, which is to say, rights and freedoms that can be enjoyed simply through the absence of external restraint.

Neo-liberal ideology can be contrasted with a Kantian-based rights approach, which employs Immanuel Kant's practical imperative to justify the application of some inalienable, positive rights. The tension between these two views can be seen as resulting from two incommensurable conceptions of freedom, with neo-liberals accepting only negative freedom and rights theorists relying on positive freedom. Accepting the notion of positive freedom put forth by Isaiah Berlin could justify the use of rights and their market restrictions.

Julie Morden

Political Science

Faculty Supervisor: Hamish Telford **Award:** $1,000

Julie: My educational goals within political science have revolved around studying federal and provincial institutions of Canada and their effects on various social groups. Regarding career goals, I want to specifically work within healthcare on policy and administration.

Working with another faculty member, Dr. Fiona Macdonald, on research about medical errors and mistreatments as well as the classes I've taken with her addressing Indigenous politics, multiculturalism, as well as gender has opened my eyes to the inequities many Canadians face when seeking medical treatment. I want to be an active community member involved in municipal and provincial politics working with either Fraser Health or the Vancouver Island Health Authority on equitable and socially responsible healthcare policy.

The Northwest Territories: Economic Revitalization through Equalization

This project looks at the Territorial Financing Formula (TFF) and whether or not the current levels of TFF enables the Northwest Territories (NWT) achieve a higher degree of financial self-sufficiency. The report also addresses whether or not the NWT is able to meet the challenge of offering equitable opportunities to the territory's residents as constitutionally mandated.

Due to the nature of the NWT and operating a government up north with a diverse and dispersed population, the TFF has been unable to meet these unique needs despite funding increases the past two years. While the higher cost of running a government in the NWT is predictable, changing factors like human migration and a predicted decline of the diamond mining industry has threatened the NWT's ability to provide reasonably comparable services and grow in their economic development. Since 2013, the NWT has been able to administer and publicly manage its own land and resources, and 50% of resource revenues are not calculated from the TFF payment. Despite this allowance, the financial viability of the NWT depends on variable economic sectors and development as the TFF payments themselves do not adequately meet the government of NWT's unique challenges in providing services to its population.

Thus, this project concludes that the GNWT must continue to diversify and grow its economy due to the reality that the TFF is unlikely to be adjusted because of the political difficulty of equalization negotiation.

Caroline Duncan

Psychology

Project Supervisor: Lesley Jessiman **Award:** $1,000

Caroline: I chose this current research after reading the negative impact loneliness had on our ageing population and wished to identify the role resilience might also play in loneliness in older adulthood as this area of study had been a relatively neglected in the literature. I can say that carrying out this research alongside my advisor was the pinnacle of my academic career at UFV and consequently fueled my aspirations to follow a career path as a gerontologist.

I have recently been accepted as a Gerontology Masters student at Simon Fraser University commencing this Fall and plan to continue on to the doctorate level of study. I ultimately hope to use what I learn from future research to help improve the quality of life of our ever growing older adult populations.

Improving the Lives of Older Adults: An Examination of Loneliness, Resilience, & Cognitive Function

My study examined the relationships between loneliness, resilience, and cognitive function in older adulthood. An inverse relationship between social loneliness and resilience was observed, and the qualitative data revealed loneliness as a function of relationship losses, physical impairments e.g. hearing, relocation and a lack of access to age-specific programs. Notably, we found that participants who were divorced from their partners, experienced higher levels of emotional loneliness. Evidence of cognitive change associated with loneliness was also noted.

However, in general, it is worth remarking that cognitive function appeared relatively stable amongst the older adult participants, perhaps explained by the fact that a large sample of our participants were drawn from Elder College. Indeed, the World Health Organization has reported that life-long learning acts as a protective factor against age-related cognitive decline.

This research has important real-world implications such that resilience and life-long learning may help to offset loneliness amongst our older adult populations.

Kelsey Block

Sociology

Faculty Supervisor: Katherine Watson **Award:** $1,000

Kelsey: I graduated from UFV this past semester with my Bachelor of Arts. I have a major in Sociology with a social research concentration, and a minor in Anthropology. In the fall I will be starting my Master's of Sociology at the University of Victoria, where I hope to continue working on research surrounding topics of gender and sexuality. This project allowed me to gain a deeper understanding of the research process and apply it to a topic that is extremely meaningful to me.

Queer Experiences in Christian High Schools

I conducted an exploratory study that asks: How do LGBTQ individuals experience queerness within the context of Christian high schools in the Fraser Valley? Within this broad research question, some of the areas I focus on include how LGBTQ individuals interpret heteronormative sexual health education, how influential the role of religion is in the formation of their gender or sexuality, whether there were instances of bullying due to sexual/gender orientation and what impacts these had on the individuals, and whether there continues to be a code of silence surrounding queer sexualities and genders within religious high schools.

To answer these questions, I conducted 3 semi-structured interviews with individuals who identify as LGBTQ and have graduated from a Christian high school in the Fraser Valley between 2012 and 2017. Ultimately, this project's findings indicate that the participants' queer experiences in their Christian high schools are characterized by an overarching code of silence surrounding queer subjects, as well as themes of Institutional Heterosexism, Homophobia (or lack thereof), their Religious Identity, their Queer Identity, and the Conflict between the two identities. Additionally, the participants' recommendations for Christian high schools to improve the experiences of their queer students include Education, Representation, and Acceptance.

Shan Dhaliwal

South Asian Studies

Faculty Supervisor: Satwinder Bains **Award:** $1,000

Shan: I am currently a 3rd year BBA student majoring in Marketing at UFV, and a graphic design student at BCIT. After I complete my education, I am looking to get my MBA, and begin my career in marketing. The opportunity to do research at UFV on this specific subject really opened my eyes to critical race theory and how it can be used to unpack the true meaning behind comments made over social media around race.

An Analysis of Social Media Comments and Responses: 'We are Hockey'

This research reflects on some of the work of the South Asian Studies Institute (SASI) at the University of the Fraser Valley (UFV) in Abbotsford, using as a foundation Dr. Courtney Szto's dissertation (2018) on racism in Canadian Ice Hockey.

My investigation was centered through critical race theory around social media responses to the "We Are Hockey" exhibit curated by the SASI (2019). My work at the SASI as a Social Media Strategist helped uncover the responses made over various social media platforms. I used critical race theory to address whether those responses corresponded with white fragility and white privilege in response to the exhibit's work about racism faced by peoples of colour in the game of ice hockey.

The research unpacked and analysed the overt and covert connotations in public responses on social media.

Kenton O'Donnell

Kinesiology

Faculty Supervisors: Kathy Keiver, Alison Pritchard-Orr **Award:** $1,000

Kenton: I am proud to be graduating this year with my Bachelor of Kinesiology degree from the University of the Fraser Valley. I chose to conduct research under my professors because of the opportunity it provided me to apply everything I have learned throughout my four years in the Kinesiology Program. In addition to this, I have always had a passion for working with children with disabilities. I am currently in Antigua and Barbuda in the Caribbean as a part of a study tour offered at UFV where I work at a school for children with a wide range of physical and cognitive disabilities. Overall, this project has given me the necessary experience to succeed working in a health care setting after my Undergraduate Degree.

Fitness and Balance in Children with Cognitive Disabilities

Research shows that children with FASD have lower overall physical fitness when compared with typically developing children, which has implications for both current health status and later health outcomes such as increased risk of cardiovascular disease and obesity. This study examines the relationship between aspects of physical fitness and balance through an intervention program called FAST Club.

Our results show that children with confirmed or suspected FASD have significantly lower levels of physical fitness, such as speed, agility, and muscular strength and endurance, and a trend to perform worse on the balance proficiency test. It was found that there was a moderate to strong correlation between all aspects of physical fitness tested and the balance proficiency test.

These results suggest that balance proficiency may play a role in a child's ability to efficiently perform physical activities. Therefore, it was recommended that motor proficiency and balance interventions may be beneficial to improve levels of physical fitness in children with cognitive deficits. Other studies have also shown that increased levels of fitness are not only beneficial to general health, but cognitive functioning as well.

Christine Drew

Nursing

Faculty Supervisor: Shelley Canning **Award:** $1,000

Christine: I am graduating this spring with my Bachelor of Science in Nursing and will be starting my career working on both the maternity and surgical units at Abbotsford Regional Hospital. In the future I hope to specialize in labour and delivery, possibly furthering my education by completing the nurse practitioner program or a Master's degree.

This research project was completed as part of a directed study course and had a tremendous impact on my understanding the role research has in nursing. I chose this topic following the recent legalization of Medical Assistance in Dying (MAiD). I had noticed that there were many gaps in the research, specifically surrounding nursing and this new policy. As I learned more about this new law through my schooling, it became apparent that this was a highly controversial and ethical topic for nurses, and was largely impacted by personal values and beliefs. I also noticed that after receiving education about the topic, students' understanding and comfort level surrounding a patient requesting MAiD was impacted.

Exploring the understanding and comfort levels of nursing students with Medical Assistance in Dying (MAiD)

The goal of this research project was to identify the understanding and comfort levels nursing students had related to the topic of MAiD, and how end-of-life (EOL) education impacts this. Education regarding MAiD is essential in preparing nurses to care for and support a patient requesting MAiD. The student nurses' understanding and comfort levels with MAiD was influenced by their perception of the nurse's role, and related experiences and education.

All participants identified that communication was paramount to understanding the nursing role and impacted their comfort levels related to both their experience and education surrounding MAiD. Findings from the study determined that the majority of students understanding of MAiD increased after EOL education, however comfort levels remained low or unchanged. It is important that nurses reflect on their values and beliefs related to MAiD in order to provide impartial patient-centered care. These results draw attention to the need for better support, communication and education of nurses with respect to MAiD. Implications for practice from this study include the potential to positively impacting EOL care, and highlight gaps in nursing research surrounding the topic of MAiD.

Kim Abram

Adult Education

Faculty Supervisor: Seonaigh MacPherson **Award:** $1,000
Community Supervisors: Doug Mauger, Alison Brophey

Kim: I enrolled at UFV as a mature student with two goals: introduce theory into the practical applications of my work, and tie together into a credential numerous courses and certificates by completing my undergraduate degree in Adult Education. The opportunity to participate in research while at UFV was an experience beyond my expectations. Being mentored by Dr. MacPherson during the research project broadened my knowledge of adult education competencies and trends, and honed my research skills. Next, I will participate with the research team in presenting the research at the 2019 Conference of the Canadian Association for the Study of Adult Education. This is indeed an exceptional opportunity at the undergraduate level and I have UFV to thank for these experiences. This semester I will complete my BA in Adult Education with a goal to continue the transfer of my learning to the workplace and further studies in instructional design.

Core Learning Outcomes and Transfer Pathways in Adult Education

The purpose of the study was to identify undergraduate-level competencies transferring in adult education in Western Canada, with a focus on BC. The project began with a literature review of research on adult education competency frameworks. Next, we conducted an environmental scan to identify all undergraduate-level adult education and instructional skills programs at universities, colleges, institutes, and continuing education departments in BC, and two institutions in Western provinces that transfer into the BC system. After collecting program details, course requirements, and transfer histories of the credentialed programs, we conducted an adapted grounded theory analysis. We looked at the intended learning outcomes of each of the courses to detect key overlapping or distinctive terms, concepts, or ideas. This provided a clear set of core, supplementary, and outlier courses transferring in BC, as well as the kinds of outcomes associated with each of the core and secondary courses. Ultimately, we identified the adult educator credentials learners could attain, and mapped current transfer practices in and between post-secondary institutions at the undergraduate level that support or hinder the learning mobility of adult educators, and which impact the recognition and transfer of learning from informal and non-formal contexts into formal academic programs.

Harry Kaler, Hayata Kimura, Christopher Sonea

Business

Faculty Supervisor: David Dobson **Award:** $350 each
Industry Partner: Jim Reith and Dave Reith, Abbotsford Int'l Airshow

Harry: I have just completed my 3rd year of education in the BBA program, majoring in marketing. This project will be one of the great bright spots of my time at UFV, as it was not only educational, it was a hands on experience of how to conduct an economic analysis, as it was directly for a real client. I hope to enter the marketing field of business once I have completed my studies next year.
Hayata: I am a third year BBA student with a major in Finance and a minor in Economics. I am also a lead ground service agent at the Abbotsford International Airport. My goal is to study for a MBA in a competitive graduate school such as U of T, UBC or SFU. I believe this will provide me with more complicated and practical learning experiences as well as precious networking opportunities among students. I am an enthusiast of an airline industry with a keen interest in a security market as well.
Chris: I am a third-year student majoring in Finance as a part of the BBA program at UFV and I had the pleasure of being involved in the 'Business Research Methods' course that let us apply real research for real clients. I am still pondering what career suits me best, but as of now I find myself interested in stocks and financial advising. I am excited to be a part of the team that won the Undergraduate Research Excellence Reward 2019, and I hope that it helps our clients and researchers in the future.

Jet-powered Economy: Local Economic Impact of the Abbotsford International Airshow

Our goal for this project was to make an educated and reasonable estimation of how much direct and indirect economic impact the airshow supplies for the local area. With close connection to our clients, the management team of the airshow, we conducted a focus group, partook in a literature review, made a survey questionnaire, received and calculated the data, and finally prepared a research paper.

Our results show that, on average, the Abbotsford International Airshow makes a direct local economic impact of $4.25 million. Our clients will be using our research paper to gain sponsors for future airshows.

Uliyana Kubasova

Computer Information Systems

Faculty Supervisor: Gabriel Murray **Award:** $1,000

Uliyana: I am currently pursuing a Bachelor of Science degree in Computing Science with a concentration in Artificial Intelligence and Data Mining and a minor in Biology. I aspire to further my education with a Master's program conducting research.

Growing up trilingual, I was always fascinated by the different roles language plays in our everyday life. Engaging in research at UFV in the field of Natural Language Processing has allowed me to deepen my academic passions and to develop various skills, such as critical thinking and independent work, which will aid in all areas of my life.

Automatic Prediction of Group Performance and Participant Satisfaction

In this project, we focus on verbal and nonverbal features of small group interactions for the task of automatic prediction of group performance. To this end, we use a dataset, in which participants performed a winter survival task in groups of two to four and study group dynamics, such as decision-making performance, satisfaction, and leadership. Using machine learning models, we are predicting the group performance based on linguistic and speech features that were extracted from the conversations.

A key finding is that nonverbal speech features on their own are effective for predicting the success of a group interaction. However, there are various verbal features that can be used as significant predictors. In the future, we plan to analyze different parts of the conversation such as the first minute of the conversation. This knowledge could be useful for a virtual meeting assistant or a team coordinator to facilitate a group's performance.

Sara Grant

Agriculture

Faculty Supervisor: Renee Prasad **Award:** $1,000
Industry Supervisor: Rishi Burlakoti, AAFC

Sara has a previous BA in First Nations and Indigenous Studies from UBC, and will graduate this month from UFV's Agriculture Technology Diploma. She is currently working at the Ministry of Agriculture as a Plant Health Technician in Entomology.

The opportunity to do research through UFV has allowed Sara to further her career goals by gaining applied research positions in agricultural sciences and pest management.

Diseases of Brassica Vegetables in the Fraser Valley of British Columbia in 2018

The project "Diseases of Brassica Vegetables in the Fraser Valley of British Columbia in 2018" was a survey of disease symptoms on cabbage, kale, and cauliflower field vegetables in the Sumas Prairie of Abbotsford, BC, between May and September of 2018.

This research investigated the presence, timing, and severity of disease-causing agents on Brassica crops during the primary field growing season. Several species of pathogenic fungi as well as one genus of pathogenic bacteria were identified, and the results showed that fungal diseases were symptomatic earlier in the growing season than was previously understood.

These findings provide data for the ongoing development of disease scouting protocols and management strategies for Brassica vegetables in this region.

Eryn Braley

Biology

Faculty Supervisor: James Bedard **Award:** $1,000
Community Supervisor: Angela Bedard, BC Cancer Agency

Eryn: I am graduating with a BSc, Biology Major and a Cellular and Molecular Genetics concentration. Throughout my degree, I have had the incredible opportunity to be involved in several intensive research projects, which have included a collaboration with BC Cancer's Hereditary Cancer Program, molecular marine biology, wildlife conservation, and bioinformatics and genomics.

Engaging in research at UFV has allowed me to gain vital skills for my professional and academic future, such as critical thinking and independence. I chose to conduct my research in collaboration with BC Cancer due to my passion in cancer prevention and clinical genetics.

The role of sociodemographic factors in cancer genetic testing

Genetic carrier testing is an accurate and cost-effective method for identifying individuals at high risk for cancer. Knowing one's carrier status is important due to the steps that can be taken to catch cancer at an earlier stage or prevent it from occurring altogether.

Unfortunately, not everyone eligible for carrier testing gets tested. If we can understand the barriers to testing, we can develop strategies to overcome them and help more people get tested. We examine the association between ethnicity, an important but overlooked demographic factor, and testing uptake.

We have found that Indigenous individuals are underrepresented in the testing population. This is important due to the recent findings by BC Cancer showing that Indigenous individuals experience poorer cancer survival outcomes. From here, I hope to promote awareness of cancer care and screening in Indigenous communities, as a step towards improving cancer outcomes for Indigenous individuals.

Kaeden Teindl

Chemistry

Faculty Supervisor: Golfam Ghafourifar **Award:** $1,000

Kaeden: After completion of my bachelor of science degree later this year, I intend to study chemistry at the graduate level. I believe the practical experience gained during my research tenure at UFV, along with the insights provided by Dr. Ghafourifar, will prove invaluable in my future graduate studies.

To this point, my research at UFV has focused on developing analytical methods for the identification and quantification of proteins. This project attracted my interest as it presented a unique opportunity to interrogate the structures and properties of complex biomolecules while developing a practical analytical skillset.

Developing and Optimizing Immobilized Enzyme Reactors as Evaluated by HPLC Peptide Mapping

The structural complexity of proteins makes their quantification and identification difficult. Nevertheless, analysis can be expedited through protein digestion, wherein proteolytic enzymes cleave protein substrates into readily analyzable poly-peptides. However, the use of proteolytic enzymes in this capacity often contaminates the protein solution, this being due to self-digestion of the enzyme. In order to mitigate these effects, enzymes must be immobilized prior to their use in digestion procedures. This can be achieved through the fabrication of immobilized enzymes reactors (IMERs).

Broadly speaking, the focus of our research has been twofold: automating both the fabrication of IMERs and the analysis of protein substrates. By manipulating the programmable nature of capillary electrophoresis (CE) instruments, we successfully developed automated IMER fabrication methods. Moreover, these IMERs were seen to expedite analysis of large proteins by additionally automating efficient on-line digestion procedures. Peptide-mapping by High-performance liquid chromatography confirmed the utility of the fabricated IMERs.

Cassandra Shewchuk

Geography & the Environment

Faculty Supervisors: Olav Lian **Award:** $1,000
External Supervisor: Travis Ferby, BC Geological Survey, Victoria

Cassandra: I am graduating next year with a BSc Honours in Physical Geography and a GIS Certificate. UFV has made my university experience more than I could ask for, as it gave me ample opportunity to connect with my peers and professors, which opened me up to the research I have completed and employment I have achieved.

After I graduate, I wish to explore different types of employment in the geoscience genre to gain more experience and inspiration before I attend graduate school. Although, I do wish to continue in the geology exploration field, as the earth has a fascinating geology and processes.

Detecting porphyry Cu ± Mo ± Au mineralization using major oxides and pathfinder elements in subglacial till near Guichon Creek batholith, southcentral BC

Porphyry deposits are essential sources of Copper (Cu) and Molybdenum (Mo), and they account for >40% of the Cu mined in Canada. The Guichon Creek batholith located 54 km southwest of Kamloops, BC, hosts several porphyry centres, and smaller mineral occurrences. During glaciation, these mineralized sources were eroded, and commodity elements and minerals were transported down-ice in subglacial till as dispersal trains. By using evidence of ice flow direction, these dispersal trains can be tracked back up-ice to their bedrock sources, enabling the identification of new mineral sources.

The goal of this research was to analyze the spatial distribution, along with statistical analysis, of major oxides, major elements, and pathfinder elements, in subglacial till and assess if they can detect porphyry mineralization hosted by the Guichon Creek Batholith. It was shown that some major oxides and pathfinder elements, measured in subglacial till samples, can be used to detect porphyry mineralization associated with the Guichon Creek batholith. This data will be useful for exploration geologists when designing sample strategies and can be helpful in other areas that have not been explored for porphyry deposits.

THANK YOU!

Our students could not piece together their studies, work, and life without the unwavering support from family and friends. Like LEGO, your contribution to their goals links these important facets together and helps them build something amazing!

Special thanks to our incredible faculty and staff who are dedicated to mentor our students, guiding them in arranging the blocks of their education experiences in a unique and relevant way to elevate their aspirations.

When our students succeed, we all succeed!

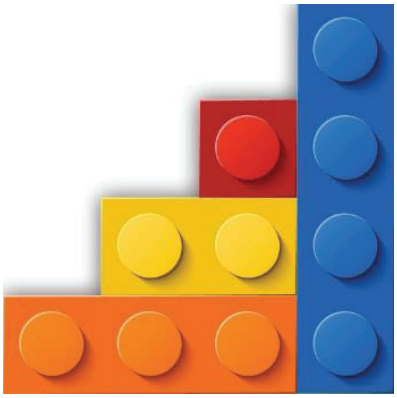
AND **...**a huge thank you to the **Quality Inn** for providing us with an amazing facility, great service and an outstanding buffet for this event since 2004!

Globally, children spend 5 billion hours a year playing with LEGO.

LEGO Fun Fact

Many creative people are finding that creativity doesn't grow in abundance, it grows from scarcity - the more Lego bricks you have doesn't mean you're going to be more creative; you can be very creative with very few Lego bricks.

Jorgen Vig Knudstorp (Danish Business)



The University of the Fraser Valley is a comprehensive, regional post-secondary institution that enrolls 15, 000 students per year. Nestled in the beautiful Fraser Valley just east of Vancouver, British Columbia, UFV has campuses in Abbotsford, Chilliwack, and Mission, a regional centre in Hope, and a growing presence in Chandigarh, India.

UFV focuses on teaching excellence with the highest priorities for research being to support the integration of research and scholarship in the student learning experience by nurturing exploration and inquiry through student research opportunities. Faculty, staff, and students are engaged in a significant number of research projects that both enrich the environment of the university and contribute to the development of the Fraser Valley region.

UNIVERSITY OF THE FRASER VALLEY