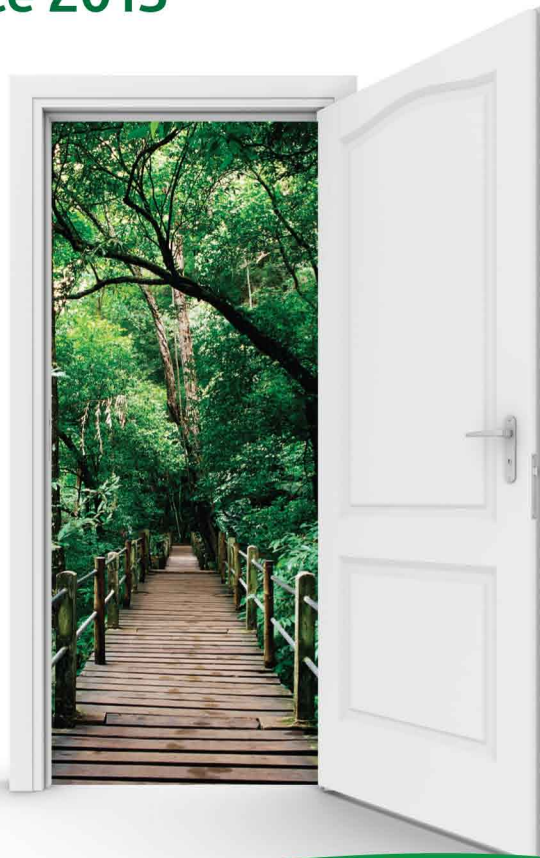


Opening Doors

Undergraduate Student Research Excellence 2013



Welcome to the 2013 UFV

Undergraduate Research Excellence Awards Presentation

Research activities enhance student learning and open doors to opportunities for their future education and careers.

Tonight the University of the Fraser Valley is proud to present 23 students with awards totaling over \$16,000.

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

This evening, we also acknowledge the many students who have received other prestigious awards from UFV and the federal granting agencies.

With nearly 16,000 students attending UFV this year, these awards represent only a small fraction of the research and scholarly activities in which students are involved.



Congratulations to all the students who have worked so diligently to produce award-winning research projects!

Special thanks to the family and friends who support our students with patience, encouragement and fuel for both body and car.

Your contribution to student success is immeasurable!



Program

Host

Dr. Adrienne Chan, Associate VP, Research, Engagement
& Graduate Studies

Welcome

Brian Minter, UFV Chancellor

Board Chair Remarks

Henry Jansen, Vice Chair, UFV Board of Governors

Dinner Buffet

VP Remarks & Introduction of Student Speakers

Dr. Eric Davis, Provost & Vice President Academic

Student Speakers

Shea Wind

Jessica Wind

Awards Presentations

Dr. Jacqueline Nolte, Dean, College of Arts

Dr. Rosetta Khalideen, Dean, Faculty of Professional Studies

Dr. Lucy Lee, Dean, Faculty of Science

Dr. Joanne MacLean, Dean, Faculty of Health Sciences

Acknowledgements of Other Awards & Closing Remarks

Brad Whittaker, Director, Research Services & Industry Liaison

National Awards

UFV is committed to providing the best undergraduate education in Canada. We seek to engage students actively in their education through a high level of interaction with faculty members. Providing local and international opportunities for practical experience, research, problem-solving and creative work, gives our students a definite edge.

We are pleased to recognize some of the students who have received prestigious awards at the national level.

Natural Sciences and Engineering Research Council (NSERC) Alexander Graham Bell - Canada Graduate Scholarship - \$17,500

Student researcher

Brandon Yanciw

Kelly McLeod

Sol Sun

Program

Chemistry

Physics

Psychology

Social Sciences and Humanities Research Council (SSHRC)

Joseph-Armand Bombardier Canada Graduate Scholarship - \$17,500

Student researcher

Taylor Stone

Kelly Hodgins

Jordan Todd

Program

English

Geography

Sociology

National Awards

NSERC Undergraduate Student Research Awards (USRA)

These awards allow students to gain valuable research experience that complements their studies by working full time for a term with nationally recognized researchers at UFV.

Additional funds are provided by UFV and researcher grants.

2013 Recipients - \$4,500

<i>Student researcher</i>	<i>Program</i>	<i>Faculty researcher</i>
Andrew Alexander	Biology	Lucy Lee
Karanjit Singh	Chemistry	Noham Weinberg
Brandon Yanciw	Chemistry	Noham Weinberg
Libby Griffin	Geography	Olav Lian
Jason Ho	Physics	Derek Harnett



UFV Awards

Each year UFV holds a research presentation and competition on Student Research Day. More than 50 students participated and either designed and displayed exceptional posters, or amazed us with their fast-paced microlecture presentations at the event.

Check out the video of the day at <http://www.ufv.ca/research/>

Poster Prize Recipients 2013

<i>Student</i>	<i>Program</i>	<i>Award</i>
Brandon Yanciw	Chemistry	Provost & VP Academic
Steve Clegg	Geography	AVP Research & Graduate Studies
Danielle Hamel Andrew Alexander Jessica Tennant	Chemistry	Vice Provost & AVP Academic
Ariel Brown	Geography	AVP Research & Graduate Studies
Paul Stephany	Geography	College of Arts
Kelly Hodgins	Geography	Faculty of Professional Studies
Paul Foth	Chemistry	Faculty of Science
Meagan Beatty	Chemistry	Faculty of Health Sciences

Microlecture Presentations may be viewed at:

http://stream.ufv.ca/onDemand/LectureSeries/UFV_StudentMicrolectures_20-March-2013.wmv

URE Award Recipients

College of Arts

Erin Hailstone	Communications
Nikki Dionne	Criminology & Criminal Justice
Paul Stephany	Geography
Sean Evans	History
Shea Wind	Indo Canadian Studies
Jessica Wind	Media Studies
Curtis Robinson	Philosophy
Elizabeth Ashton	Political Science
Sol Sun	Psychology
Angela Ostrickoff	Sociology

Faculty of Professional Studies

Rebecca Hamilton	Business Administration
Christopher Hargreaves	Business Administration
Tran Le	Business Administration
Anubhav Kansra	Business Administration
Prabhjot Virk	Business Administration

URE Award Recipients

Faculty of Science

Klair Phillipoff	Biology
Brandon Wiebe	Chemistry
Brandon Yanciw	Chemistry
Brendan Bulthuis	Physics
Jason Ho	Physics
Timothy Richards	Physics

Faculty of Health Science

Scott Bishop	Kinesiology & Physical Education
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Industry Liaison Research Award

Meagan Beatty	Chemistry
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Communications

Erin Hailstone

Erin recently completed her Bachelor of General Studies degree at UFV with a minor in Communications. She has been accepted into a graduate program at the University of Calgary in Educational Research, Adult Education - Work and Learning beginning this July. Erin's areas of interest include motivation in unionized settings, lifelong learning and workplace intercommunication processes. She gratefully shares the honor of this award with Dr. Linda Pardy who provided continual guidance, encouragement and direction throughout the research process.

Faculty Supervisor:	Linda Pardy	Award: \$1,000
Program Head:	Samantha Pattridge	

Positive Conflict? Promoting Appreciative Workplaces

Conflict costs organizations time and money, breaking down relationships and paralyzing communication. This research explores the possibility that workplace conflict can be used as a catalyst for growth and positive transformations within organizations.

Reframing conflict as a normal component of the workplace and using it as an opportunity to inquire deeply into their organizations can support creative growth, organizational learning, and cohesion. Appreciative Inquiry (AI) is an asset-based developmental approach that incorporates the power of positive images used to create the future.

AI has shown promise in assisting workplaces to transition through negative situations by positively "inquiring" into what is already working. In this study the "4-D" approach; Discover, Dream, Design and Destiny (or Deliver) is demonstrated as a way of viewing positive aspects often embedded in conflict. AI methods appear to strengthen the workplace and increase individual connectedness to the organization through inquiry and learning.

Criminology & Criminal Justice

Nikki Dionne

Nikki Dionne is a fourth year Criminology Degree student who is passionate about providing support for incarcerated people and their families. The research she has participated in has solidified her career goal to one that engages these families and raising awareness on their behalf. Nikki plans to complete her degree at UFV and then pursue a Masters in Criminology in an effort to provide the best support she can.

Faculty Supervisor:	Hayli Millar	Award: \$1,000
Program Head:	Irwin Cohen	

Best Practices to Improve Canada's Assistance to Children with Incarcerated Parents

The research team is made up of faculty from the School of Criminology and Criminal Justice and the School of Social Work, with Project Management occurring through the UFV Centre for Safe Schools & Communities.

A review of current literature examining Canadian practices in assisting children with incarcerated parents as well as comparisons of practices in other countries. In addition, general information requests are being sent to Canadian organizations (e.g., Governmental and non-governmental organizations) for the purpose of making recommendations on how the Fraser Valley can more effectively support children who have an incarcerated parent.

In early fall, an expert panel forum will be hosted to finalize recommendations and to provide an opportunity for participants to voice barriers regarding how the Fraser Valley (and Canada) can better support children with an incarcerated parent. This project is currently in the preliminary stages.

Geography

Paul Stephany

Paul has a long-time passion for working in environmental and social justice issues. His completion of the UFV Honours Geography program and his work with Dr. Ken Brealey in Indigenous mapping has given him the tools and experience necessary to work with First Nations groups throughout Western Canada, as well as providing the opportunity to travel to Tanzania – conducting mapping research in the informal settlements of Dar es Salaam. Paul and his family now prepare to begin a new adventure – Graduate studies at the University of Guelph. Paul's experiences at UFV are now helping him to begin telling a "new story" – one which he hopes will benefit marginalized groups across the world.

Faculty Supervisor: Ken Brealey Award: \$1,000
Program Head: Michelle Rhodes

Representations of Indigenous Territory: Mapping Blackfoot Oral Tradition using GIS

Land use and occupancy mapping has been used since the 1960s to settle Indigenous land claims. Developments in GIS technology have made this tool more applicable to social science and collaborative cultural revitalization within these communities. This Honours project was designed to map oral history and traditional territory of the Blackfoot in Alberta and Montana.

The Blackfoot, as with many Indigenous groups, have identified this use of mapping as a means to preserve the teachings of their elders and revitalize their communities. When GIS mapping of oral histories and sacred places is combined with multi-media presentations, their histories can become "living atlases" which preserve and protect the spaces most important to First Nations groups. This research has paved the way for not only future work with the Blackfoot, but upcoming graduate research in collaboration with the *Haisla* on BC's northwest coast.

"(We) are telling the story all wrong...now we must start all over again!"
Thomas King, *Green Grass, Running Water*

History

Sean Evans

"I graduated from UFV in December of 2012 with a Bachelor of Arts Degree in History and English, and am currently studying at SFU pursuing a Bachelor of Education Degree with a focus on curriculum design and certification as a teacher in BC. I decided to study at UFV because of the small class sizes and the courses offered in the History Department. What most impressed me was that I could pursue research as an undergrad student - and receive funding for this project. Through research I have learned many valuable critical thinking skills that I will take with me into a career in education."

Faculty Supervisor: Sylvie Murray Award: \$1,000
Program Head: Alisa Webb

A Southern Problem? Wartime Race Relations in Portland, Oregon

This paper tackles the debate about the relative role of personal prejudice and structural factors in shaping racial relations in the North. In an effort to correct the misleading perception that the North was less racist than the Jim Crow South, where legal segregation was systematic and overt, activists such as A. Philip Randolph in the 1940s and historians such as Thomas Sugrue and Martha Biondi more recently have emphasized the discriminatory policies and institutional practices that prevailed in northern metropolitan areas. This effort to establish that northern racism was structural, and not merely experienced or perpetuated through inter-personal relations, was and remains important. However it carries the potential of minimizing the role of individual prejudice in racial relations.

Through the examination of newspapers, oral history interviews, photographs, written accounts and archival records from the NAACP and the Urban League, this research paper emphasizes that both structural and personal acts have to be taken into account for a fuller understanding of the dynamic reshaping of racism in wartime Portland. This study also reveals that racist tensions and discrimination actually increased as a result of wartime changes. A further contribution of this work is to use the personal accounts of black and white Portland residents to foreground the human element that is so important in understanding both the perpetuation of structural racism, and resistance to it.

Indo Canadian Studies

Shea Wind

"I completed my Bachelor's degree with a History major and English minor in December of 2012, but I have more educational goals to achieve. This summer I am starting UFV's Library and Information Technology Diploma program with a records management concentration. I then plan on enrolling in the University of British Columbia's Master of Archival Studies degree to become an Archivist. Engaging in this research at UFV has given me invaluable experience in the type of work that I hope to do for my career."

CICS Director & Supervisor: Satwinder Bains

Award: \$1,000

Co-supervisor: Sharanjit Sandhra

White-Canada Forever: A Look Through the Eyes of the Vancouver Daily Province Newspaper from 1906-1915

"At the Centre for Indo-Canadian Studies I transcribed and thoroughly proofread over 200 news articles that were published in Vancouver's The Daily Province newspaper in the years 1906-1915. I also researched successful online cataloguing methods and developed a work plan for the following research assistants working on this project.

These articles are significant as they reflect the British Columbian point of view of the Indian pioneer in the early 20th century. Indian migration was often presented in The Daily Province as an 'invasion' that threatened the European civilization of the province. These articles cover a number of news stories that display attempts of British Columbians to repel Indian migration and the efforts of many Indo-Canadians to attain the rights that should have been guaranteed to them as British subjects."

Media Studies

Jessica Wind

"The first time I scoured the academic calendar in 2009, I knew I wanted to take Darren Blakeborough's course on *The Simpsons*. It took until the very end of my degree, but here I am, and it was well worth it. I am an English major with a concentration in Creative Writing, and a Sociology minor. After completing my Certificate in Extended Studies for English Honours next year, I plan to move on to a graduate degree (or two). It has become clear to me, thanks to this research project, that my future will contain both writing and media studies."

Faculty Supervisor:

Darren Blakeborough

Award: \$1,000

Program Head:

Stephen Piper

"I'm not a bloody jukebox." Shary Bobbins

Musical Parody in *The Simpsons*

"This project started out as a challenge. I was advised that I couldn't tackle parody without acknowledging Linda Hutcheon and Frederic Jameson's debate on postmodernism, something that I, at the time, was just hoping didn't end up on the final exam. It ended up that this debate provided the theoretical backbone necessary to discuss musical parody in *The Simpsons*.

My research considered three episodes that parodied popular American films from the 1960's. I deconstructed their meaning while determining that the viewer has a responsibility to seek out the meaning in ironic narratives in media.

This is significant to a society bent on consumption in that it acknowledges that as viewers we should attempt to engage with and critique media rather than blindly consuming it at face value."

Philosophy

Curtis Robinson

Curtis has just completed a Bachelor of Arts, with a major in Philosophy and an extended minor in Political Science. He has accepted a full scholarship from the University of Guelph in Ontario where he plans to complete a master's program in Philosophy. Eventually, he hopes to complete a doctoral program and teach Philosophy at the university level.

Faculty Supervisor:	Glen Baier	Award: \$1,000
Program Head:	Hamish Telford	

Heidegger's *Being and Time*: Introducing the Project

The research paper, "*Heidegger's, Being and Time: Introducing the Project*" is an exposition of the introductory arguments found in *Being and Time* where Heidegger outlines his fundamental ontological position through a repetition or reawakening of the question of 'Being'. The paper provides a thorough and detailed explanation of the assumptions that Heidegger makes and how these assumptions set the stage for Heidegger's existential-phenomenological treatment of the question of being.

This paper was completed as part of a directed independent studies course on *Heidegger's Being and Time*. *Being and Time* is considered by many to be one of the most important works in 20th century philosophy. It is also acknowledged to be one of the most difficult works to understand and interpret.

Political Science

Elizabeth Ashton

"I have deeply appreciated getting to do undergraduate research at UFV - I learned as much during the research process as I did in my official findings. The time and encouragement given to me by my professors has also been invaluable and humbling. I hope to be vitally involved in politics in the future and what I've learned at UFV has given me an excellent foundation for both future studies and a career in the political field."

Faculty Supervisor & Program Head:	Hamish Telford	Award: \$1,000
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Turned On and Tuning In or Dropping Out: An Investigation of Youth Political Engagement in the Fraser Valley

This study set out to try and determine what factors lead to political engagement or disengagement among youth. This study mixed traditional methods (surveys and interviews) with social media (Facebook) and electronic communication. Thirteen people participated in the study and were put into three groups based on their level of political engagement - super-engaged, engaged or disengaged.

In this study, the factors that seemed to lead to political disengagement were a high degree of distrust for political leaders and people, a low degree of civic literacy, and low levels of group or volunteer involvement. In contrast, the factors that appeared to have the greatest correlation to political engagement were civic literacy, group or volunteer involvement and a higher degree of trust in political leaders and people generally.

If there is a correlation between low levels of trust and political disengagement, as this study suggests, it may prove difficult to engage those people in the political process.

Psychology

Sol Sun

"My goal is to attain a PhD and become a researcher in the field of cognitive psychology/neuroscience. To this end, I will be attending graduate school at University of Toronto in September. Conducting research in the UFV psychology lab under the supervision of my advisor, Dr. Andrea Hughes, was absolutely critical to both gaining acceptance into graduate school, and acquiring the necessary skills to be successful in the future."

Faculty Supervisor: Andrea Hughes Award: \$1,000
Program Head: Zoe Dennison

Own-Race Bias for Faces: Social and Perceptual Mechanisms

The own-race bias for faces is the finding that superior recognition memory is observed for faces of one's own race relative to other races. Although this phenomenon has been reliably demonstrated across numerous contexts, its underlying mechanisms are still an area of contention in the literature.

Theories of perceptual expertise argue that an increased degree of contact with own-race faces increases holistic processing, leading to superior recognition. Conversely, theories of social categorization argue that in-group/out-group distinctions lead to the effect. Through a series of experiments, our results suggest that these two accounts may not be mutually exclusive; rather they are interactive in that social categories form the broader framework around which holistic versus featural perceptual styles may manifest.

Our research carries implications for models of face recognition and also for applied issues such as eyewitness testimony and the facilitation of diversity in communities.

Sociology

Angela Ostrikoff

"I am a 4th year Bachelor of Arts student with a Major in Sociology. After graduation I plan to continue to focus on gender inclusive, sex-positive sex education with youth and young adults and activism in the areas of sex worker's rights, sexual rights and LGBTQ rights. My research at UFV has given me the opportunity to explore areas of research that I am passionate about and develop these ideas into something I can continue in graduate studies."

Faculty Supervisor: Chantelle Marlor Award: \$1,000
Program Head: Stephen Piper

Look at Her! A Qualitative Study of Slut-Shaming and Gossip

“Look at Her! A Qualitative Study of Slut-Shaming and Gossip looks at the ways that gossip and slut-shaming work together to police and modify women’s behavior. Gossip is a method of conveying which behaviors are acceptable and unacceptable and who gets to gossip and who gets to be gossiped about; while slut-shaming is shaming women for their sexual bodies and their sexual behavior. Gossip provides a framework in which slut-shaming is acceptable and can be seen as *harmless*.

I conducted 3 interviews, in which the ways identified *sluts* were talked about, and analyzed the content on gossip website TheDirty.Com in order to see who was most talked about, who was identified as a *slut* and possible reasons why. I found that the majority of posts were about women and 100% of them contained slut-shaming, regardless of the content of the post, *sluts* were defined as exclusively female and individuals felt the permission to speak of them in derogatory ways since they had behaved in a way that needed to be corrected.

Slut-shaming is a very real way that women are limited and silenced in their sexual behavior and expression and gossip hides slut-shaming for what it is: the patriarchal suppression and regulation of female bodies and sexuality.”

Business Administration

Rebecca Hamilton, Christopher Hargreaves, Tran Le, Anubhav Kansra and Prabhjot Virk

Rebecca: “After graduating from UFV, I hope to find a career in finance concentrating in investments. I really enjoyed doing the research project and learned a lot about how to conduct proper market research. It was also very exciting to do the research for an actual client, who will possibly use the recommendations they received from us. I look forward to finishing up my last year at UFV, and seeing what the future holds.”

Christopher: “I am graduating in the summer with a major in business administration, concentrated in accounting with a minor in economics. I work at Naked Inc. in the pursuit of the CPA designation and furthering my education. Completing this research provided great insight into the marketing research profession and gave me valuable knowledge and experience by working with a real client.”

Tran: “I am a third year student in human resources, looking forward to develop my career into management or to work for the government. This research study not only enhanced my learning experience but also played such an important role in my career development.”

Anubhav: “I started my Bachelors in Business Administration from UFV, Chandigarh. I transferred to UFV, Canada in my 5th semester. At present, I am enrolled in the Accounting Majors for specialization with a BBA degree. My future education plans and goals are to complete my degree by 2014 and then look further to enhance my knowledge in accounting by becoming a Chartered Accountant.

The research project that we completed was a special experience because the professor gave us a real time project in which we had to deal the client and we had a limited time frame to work on the project.

I have learned a lot from my last two semesters at UFV, and I hope to do so in the future. I would like to say a special **THANKS** to my professor David Dobson and my team mates. Thank you for providing such an opportunity.”

Prabhjot: PJ began taking courses at UFV in 2008 and is currently a third year Bachelor of Business Administration student.

Business Administration, cont'd.

Faculty Supervisor:	David Dobson	Award: \$250 each
Program Head:	Don Miskiman	
Sevensoaks Liaison:	Tricia Dumouchel	

Cross Border Shopping Sevensoaks Shopping Centre

The purpose of this research was to provide insight into consumer preferences and habits about cross border shopping and shopping at Sevensoaks Shopping Centre. Information and data was obtained through the use of secondary research, a focus group and a survey questionnaire. These tools helped us to answer the questions that the client sought insight into. Primary data provided the backbone for the project which was obtained through the focus group and questionnaire. Statistical tests were used with the raw data to find whether there was any correlation between the questions posed in the questionnaire.

Through our analytics, we determined the overwhelming, primary reason that consumers traveled to the United States was because of the lower prices offered by retailers across the border. The secondary reasons were the near equal exchange rate on the Canadian and US dollars, the larger variety of stores and brands in the United States and the experience of going on a shopping trip. We also found that residents of Abbotsford, Mission, Langley and Chilliwack are all equally likely to travel to the US the same amount of times in any given month. Furthermore, residents of Langley were the largest average spenders in the US at \$183 per month, followed by Abbotsford residents at \$172.

After analyzing the data we collected, we recommended that Sevensoaks Shopping Centre should diversify its stores, create new promotions such as a scratch and win day, reach out to consumers with social media as well as creating a more child friendly environment to capture and entice consumers to shop within Abbotsford.

Biology

Klair Phillipoff

Klair will be graduating June 2013 with a Bachelor of Science, Major in Biology with a concentration in Ecology from UFV. She is pursuing graduate studies in environmental and resource management with the desire of earning Registered Professional Biologist designation. She credits her research experience at UFV for improving her scientific research abilities and providing valuable networking opportunities which will be essential for her future endeavours.

Faculty Supervisor: Vicki Marlatt Award: \$1,000
Program Head: Allan Arndt

Investigating Howe Sound Water Quality Post-Industrial Activity Using a Giant Kelp (*Macrocystis Pyrifera*) Toxicity Assay

This study examined the chronic toxicity of seawater collected from sites adjacent to historical mining and pulp mill operations to zoospores and embryonic gametophytes of Giant Kelp, *Macrocystis pyrifera*. Shore seawater samples were collected at Britannia Mine and Darrell Bay. Howe Sound was selected for this study due to the availability of historic intertidal biodiversity data along pollution gradients from the Woodfibre Pulp Mill and the Britannia Copper Mine. Dilutions of seawater collected from Britannia Mine and a single undiluted seawater sample collected from Darrell Bay were tested in the 48 hour Giant kelp Germination and Germ-Tube Growth Test Method (USEPA).

A significant decrease in % germination of gametophyte spores in a concentration dependent manner was observed for the Britannia Mine seawater dilutions tested compared to the control seawater sample. The undiluted Darrell Bay seawater sample also resulted in a significant decrease relative to the control seawater. These results support the previously established pollution gradients based on intertidal biodiversity surveys that indicated significant reductions in intertidal biodiversity near these pulp mills. In addition, these studies suggest that persistent water-borne contaminants associated with these historic industrial activities may be important factors impeding the recovery in biodiversity of these areas.

Chemistry

Brandon Wiebe and Brandon Yanciw

Brandon W: “I have been participating in research in the Molecular Modeling lab under the supervision of Dr. Noam Weinberg for the past two years. Molecular modeling combines two of my main interests, chemistry and computers, and as such I have very much enjoyed my time working for Dr. Weinberg. I hope to pursue a career in this field, and as such I am aiming to attend a graduate program once finished my Bachelor’s degree.”

Brandon Y has just graduated with a BSc in chemistry and biology. He chose UFV because of the convenient location and small class sizes. During his studies, he joined Dr. Weinberg's research group for computational chemistry and has appreciated the research that he has been a part of so far.

Faculty Supervisor: Noham Weinberg Award: \$500 each
Program Head: David Fenske

Parameterization of Classical Force Fields in the Context of High Pressure Calculations

Classical force fields provide a convenient and computationally inexpensive way to calculate the properties of a given molecular system. However, these force fields are only capable of describing molecules that have been parameterized. If one wishes to calculate the properties of a system that has either not been parameterized, or parameterized at a different set of conditions, then the properties of that system cannot be calculated.

This project aims to establish a convenient and accurate method of determining the parameters of a system at given conditions. This would allow us to calculate the properties of any system at non-standard conditions. Preliminary results show that we are able to accurately reproduce the liquid properties of many systems at standard conditions.

Physics

Brendan Bulthuis, Jason Ho and Timothy Richards

Brendan is a fourth year Bachelor of Science student, majoring in physics with a math minor. He has been a student at UFV since 2008 and has taken just about every physics and math course offered. Brendan received an NSERC USRA in 2012 which allowed him to focus a full term on doing research.

Jason has been involved in research opportunities at UFV since 2008, under the guidance and mentorship of Dr. Noham Weinberg. His introduction to the research at UFV began as part of a high school science project, done in collaboration with the Molecular Modelling lab at UFV. Since then, he has been involved with research in both the chemistry and physics departments, with publications in both disciplines. This summer he is continuing his research in particle physics, and come September he is pursuing a Master's degree in theoretical particle physics at the University of Saskatchewan.

Timothy is a fourth year physics major with long-term goals of pursuing a doctorate degree in physics and teaching at the university level. The opportunity to participate in physics research at UFV has helped Timothy build a strong foundation that he is excited to build upon in future years.

Faculty Supervisor &
Program Head:

Derek Harnett

Award: \$350 each

Physics, cont'd.

Using Laplace Sum-rules to Predict Ground State Masses of Hybrid Charmonium for a Variety of Quantum Numbers

Particle physics is a highly active field that investigates the fundamental building blocks of matter. In atomic theory, all matter is made up of collections of small constituents called atoms. Atoms consist of smaller entities commonly known as the proton, neutron and electron. Unlike the electron, the proton and neutron are made up of other fundamental particles called quarks.

Quantum Chromodynamics (QCD) is the mathematical theory that describes the interactions between quarks and other fundamental particles called gluons. Different combinations of quarks and anti-quarks create unique particles called hadrons. Most of the possible combinations, categorized as the baryons and mesons, have been identified in experiments. QCD theory allows for the existence of other combinations outside of the current model that have not been conclusively observed, such as structures known as quark hybrids.

Recent experiments have found particles that have characteristics that defy current explanation. To investigate the possibility that any of these structures may be a charmonium hybrid consisting of two charm quarks and a gluon, we used computational and analytic methods to predict the mass of the charmonium hybrid.

Kinesiology & Physical Education

Scott Bishop

"I initially began my undergraduate career playing football at Acadia University, but transferred back to Abbotsford and began attending UFV in 2008. Since this time I have had many great opportunities at UFV, such as being involved in the Student Learning Groups program, the 'Brain Gamers' club, and assisting the Abbotsford Heat with baseline fitness testing. Most recently, I have taken on a very prominent role in Dr. Gaetz's concussion management program, which has allowed me to develop my leadership skills while assessing musculoskeletal injuries and performing research related to concussion pathophysiology. I plan to further my research career by studying concussion pathophysiology at the University of Regina, after which I plan to attend a health-based professional graduate program."

Faculty Supervisor: Michael Gaetz Award: \$1,000
Program Head: Chris Bertram

Heart Rate Variability & Cardiac Regulation: Indexing Recovery Following Concussion in Male Youth Athletes

This research project used a cardiac biological marker to assess recovery from sport concussion in adolescent football players (mean age 13 years). The biological marker was Heart Rate Variability (HRV), which is the measurement of time between successive heart beats. This measurement can be transformed into an average beat-to-beat interval, as well as frequency range. The frequency ranges can be divided into 'low' and 'high' frequencies. Low frequency (LF) activity is linked with the sympathetic branch of the autonomic nervous system and high frequency (HF) activity represents the parasympathetic branch of the autonomic nervous system. Analysis of HRV frequency has been used to index recovery from brain injuries of varying severity including sports concussion. When gauging recovery from concussion, HRV frequency must be measured in a post-exercise setting.

The findings from this project support the use of HRV to index recovery from sport concussion. Concussed participants elicited a significant decrease in post-exercise LF values compared to healthy subjects. The results suggest that HRV may be a practical and inexpensive method to monitor recovery of frontal lobe regulation of autonomic nervous system following concussion.

Industry Liaison Research Award

Meagan Beatty

"Since last May I have been participating in synthetic research at UFV under the direction of Dr. Cory Beshara. Research has allowed me to grow in chemistry, to learn useful skills involving real-life problems outside of a classroom setting. The work I was involved in for Plastic2Fuel, co-supervised with Dr. Noham Weinberg, was a prime example of this: applying what I know to a problem of environmental and industrial interest, turning plastics into useable fuel oil. After graduation in April 2014, I hope to focus my passion for science, and chemistry in particular, at grad school in organic synthesis and/or organometallic chemistry."

Faculty Supervisor: Cory Beshara Award: \$1,000
Program Head: David Fenske

Plastic2Fuel (P2F)

Plastic2fuel (P2F) has designs on improving the local environment through the conversion of plastic waste products to fuel oil. Our research intended to mimic P2F's all-metal apparatus with a smaller glass apparatus that could be more easily manipulated for the purposes of measuring the various pyrolytic oils. An ability to accurately measure the products of the pyrolytic process will assist in the answering many of the questions P2F has: How big should a post-distillation scrubber be for a 1500Kg/hr scale feed-stock process, how much oil is expected to be produced, etc.

In order to keep the process as economically viable and technically versatile as possible P2F wanted to explore certain physical characteristics of mixed plastic wastes that may differ from the characteristics of virgin plastics. We performed some benchmark tests of: Melting point, and product distribution with a particular interest in gas production.

None of the data is meant to be rigorous—we would have needed access to a much larger-scale replica of the proprietary apparatus P2F is developing—but we are able to, along with P2F’s scale-up data: Prove the reliability and feasibility of the process, estimate thresholds for oil and gas production for a batch process, roughly translate our data to the feed-stock process to enable Plastic2fuel to build an apparatus that can handle the volume of products produced.

Special Acknowledgement

UFV and especially the Research & Graduate Studies department is pleased to welcome Dr. Adrienne Chan, newly appointed Associate Vice President of Research, Engagement & Graduate Studies.

Adrienne completed her doctorate of philosophy in Adult and Continuing Education in 2001 at the University of Kent at Canterbury. As a professor at UFV, she was a key player in developing UFV's graduate program in social work (MSW). She is the recipient of several national research grants and was nominated for UFV's research excellence award for 2012. She also received UFV's teaching excellence award in 2008.

UFVs First Postdoctoral Researchers

In 2012, UFV hired its first postdoctoral researchers, a big step in our university's "growing up" phase.

We are pleased to welcome

*Christina Neudorf
and
Denver Nixon*

UFV – 2012 Highlights

"At UFV we are committed to being a leader in our communities and providing the best undergraduate university education in Canada," said UFV president Mark Evered. "Looking back at the year 2012, we can find many encouraging and inspiring examples of how we are living and breathing those goals in every endeavour we undertake as a university."

UFV had major facilities open new doors in three communities in 2012:

- In Abbotsford, the university partnered with the city to create the UFV **Clearbrook Centre** on the lower floor of the Clearbrook library.
- The District of Mission invested \$500,000 to help fund the creation of a new graphic design lab at the UFV **Mission campus at Heritage Park Centre**, which opened in September.
- And in Chilliwack, UFV opened the long-awaited next phase of its **Chilliwack campus at Canada Education Park** in May. This \$44-million project was an extreme renovation a former military building into a bright and beautiful home for the Faculty of Health Sciences and other courses and programs offered in Chilliwack.
- Late in the year UFV also received its largest donation ever when **BMO Financial** gave its former building at Five Corners in downtown Chilliwack to the university. The Chilliwack Economic Partners Corporation pledged renovation funds that combined for a \$1.5 million gift.

Other achievements

- More than 2,000 students graduated from UFV at **Convocation** ceremonies in June held at the Abbotsford Entertainment and Sports Centre.
- Students excelled overseas, completing internships in Tanzania and India, and study abroad terms at partner universities. Business students at **UFV's Chandigarh, India**, location even got to meet PM Stephen Harper.

- Kinesiologist Joanna Sheppard once again took a group of students to **Antigua** to conduct physical education and life skills sessions for elementary school children.
- Closer to home, geography student Daniel Huesken and other students and alumni got to work with NASA scientists on a project at **Kelly Lake** in the BC Interior.
- Fine Arts students completed a **school mural** in Mission.
- Media and communications students shot a video about a project where **children dance with seniors** at a long term care home.
- Kinesiology and nursing students led **fitness activities for seniors** at a care home in Abbotsford.
- A group of biology students and faculty headed to field school in **Ecuador** this past summer.
- History students taking **Local History for the Web** built web pages about the Fraser Valley's experience of World War II.
- The UFV Teaching Excellence award went to Dr. **Sheryl MacMath** of Teacher Education.
- The inaugural Research Excellence award went to **Dr. Olav Lian** of Geography.
- Vice-Provost Peter Geller, an expert in the visual history of the Canadian North, helped resurrect and tour a 1919 film about the **Hudson's Bay Company** that had been forgotten in an archive in England.
- Hosted the premiere of *Tracks Across Sand*, a new DVD set by the university's Canada Research Chair **Hugh Brody**, about the #Khomani San and their land claims in South Africa.

Visit our website for more 2012 highlights:

<http://blogs.ufv.ca/blog/2012/12/2012-a-year-to-celebrate-at-ufv/>



Thank you for joining us to celebrate this special recognition of student achievements!

