



**Undergraduate
Research Excellence
Awards 2008**



Welcome to the 2008 UFV

Undergraduate Research Excellence Awards Presentation

Tonight the University of the Fraser Valley is proud to present
21 students with awards totaling over \$11,000.

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.

With more than 11,000 students attending UFV each year, these
awards represent only a small fraction of the research opportunities in
which students are involved.

The achievements of these students reflect UFV's commitment to
providing applied research opportunities that are
relevant to our local communities.

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

Special thanks to the family and friends of our students who support
them with funding, encouragement, late-night pizza and patience.
Your contribution is most appreciated!



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



April 21, 2008: Premier Campbell announced that UCFV will become
University of the Fraser Valley (UFV).
Watch our web site (www.ucfv.ca) for changes over the coming months.

Social Work and Human Services

Recipients: Kaillie Kangro & Nancy Larson

Kaillie Kangro will be graduating with a Bachelor of Social Work degree in June of 2008 and looks forward to working in the many areas that the profession offers, beginning with a position as a hospital social worker. She is extremely appreciative of all of the learning opportunities that were provided by UFV, most notably this research project working with Dr. Adrienne Chan.

Nancy Larson is currently in the fourth year of the Bachelor of Social Work degree having completed the Social Services diploma in 2006. As a part-time student, she is able to work part-time, pursue volunteer interests, and maintain a cohesive family life. This project has been an opportunity for deeper involvement with UFV, while building upon her social work knowledge working with a respected faculty member.

Faculty Supervisor: Adrienne Chan
Program Head: John Hogg

Award: \$500 each

Recognized for outstanding work on

Social Justice in Universities

This project examines the nature of social justice in universities across Canada. The research seeks to discover how Canadian academic institutions have conceptualized and demonstrated social justice. In-depth case studies of four of these universities were developed, with a focus on policy analysis and documentary analysis. The final stage of the research will involve in-depth interviews. The cases developed involved the examination of policies, documents, activities, and programs. An examination of community collaboration, relationships with ethno-racial communities, and Aboriginal communities provided particular insight in to the level of community engagement. By reaching out to community constituencies and by accepting the 'reaching in' from community sectors, the university demonstrates a level of engagement that may be positioned significantly to social justice. The results have implications for the governance of higher education institutions, university policies, and inclusion practices.

Program

Welcome

Yvon Dandurand, Associate Vice President
Research & Graduate Studies

Opening Remarks

Rob Nicklom, Chair, UFV Board of Governors

Dinner Buffet

President's Remarks

Dr. H.A. 'Skip' Bassford, UFV President

Awards Presentations

Wanda Gordon, Acting Dean of Science

Dr. Ian McAskill, Acting Dean of Professional Studies

Dr. Eric Davis, Dean of Arts

Dr. Dianne Common, VP Academic & Provost

Hosted by

UFV Research & Graduate Studies



Faculty Supervisor: Luanne Yellowfly Award: \$250 each
Program Head: Eric Spalding

Recognized for outstanding work on

Intensive Agriculture

The objective of the project was to select an environmental issue and research both the environmental impacts of the selected region and the cultural worldviews that justify the practices within the region. The issue this group selected was Intensive Agriculture. The group focused on the issue within Western Canada. They researched how unnatural inputs impact the environment in a negative and irreversible way. Culturally, they studied capitalism, individualism, Christianity, and other major beliefs in Western Canada. Through the project, the research group learned the significance of how cultural beliefs justify our practices, and that changing our habits means more than just changing our minds about how things should be. They learned that it is important to educate not only others, but ourselves on the importance of where food comes from. Through the comparative study in which a non-industrialized country and its practices were studied, the practices in Cuba showed them that it is possible to use little unnatural inputs and still be able to harvest large yields. Studying Cuba also revealed the importance of community gardens – creating local jobs with reasonable wages, lessening the distance food travels, using native crops, and other 'holistic' benefits.

Social, Cultural & Media Studies

Recipients: Nicole Elliot, Tristan Hall, Terri Loewen, Adam Rieu, Lucas Sherman, Jacquelyn Wise

Nicole Elliot is interested in becoming an elementary school teacher. She wants to raise children's awareness of how they can help others and achieve their dreams. She chose UFV because it was close to home, offered what she wanted, and has a great Teacher Education program.

Tristan Hall is in the Bachelor of Arts degree program, studying geography.

Terri Loewen is enrolled in the General Arts program.

Adam Rieu is working towards a Bachelor of Arts degree, majoring in geography, and wants to work in the environmental field. He is very interested in the 'holistic' farming done in Cuba, especially the community gardens.

Lucas Sherman is a first year student in the Bachelor of Arts degree program. He currently does respite care for high-risk criminal youth and is active in UFV Student Life. Lucas hopes to teach middle school and chose UFV because it is close to his home, affordable, and allows students to work on a personal and engaging level with their instructors.

Jacquelyn Wise's ultimate goal is to make a difference in the lives of the people she meets. She plans to obtain a Bachelor of Social Work degree with a Child Welfare Specialization. She chose to study here because UFV has programs available that other schools she attended did not.

This study was part of a group research project in Anthropology 268 Culture & Environment.

URE Award Recipients

Natalia Oliveira	Biology
Jennifer Gow	Business Administration
Jaimy Hutton	Business Administration
Jeffery Perkins	Chemistry
Christa van Klei	Chemistry
Essex Edwards	Computer Information Systems
Adele Mahaffy	Criminology & Criminal Justice
Jason Levine	Criminology & Criminal Justice
Sarah Elshout	English
Winter Moon	Geography
Anjuli Zukowski	History
James Inglis	History
Laurie Schulz	Indo-Canadian Studies
Nicole Elliott	Social, Cultural & Media Studies
Tristan Hall	Social, Cultural & Media Studies
Terri Loewen	Social, Cultural & Media Studies
Adam Rieu	Social, Cultural & Media Studies
Lucas Sherman	Social, Cultural & Media Studies
Jacquelyn Wise	Social, Cultural & Media Studies
Kaillie Kangro	Social Work & Human Services
Nancy Larson	Social Work & Human Services

National Awards

UFV provides students with valuable local and international research experience which serves them well in their graduate studies and careers.

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

NSERC Undergraduate Student Research Award

2008 Recipients - \$4,500

<i>Student researcher</i>	<i>Program</i>	<i>Faculty researcher</i>
Sarah Kirkoff	Physics	Dr. Derek Harnett
Terry Pilkington	Physics	Dr. Derek Harnett
Ashleigh Gilbert	Geography	Dr. Jonathan Hughes
Grahame Gielens (SFU)	Geography	Dr. Jonathan Hughes
Elna Deglint	Chemistry	Dr. Noham Weinberg
Jeffery Perkins	Chemistry	Dr. Noham Weinberg
Liam Huber	Physics	Dr. Noham Weinberg
Natashia Cox	Geography	Dr. Olav Lian
Winter Moon	Geography	Dr. Olav Lian

Indo-Canadian Studies

Recipient: Laurie Schulz

Laurie is a graduating student from the Bachelor of Social Work degree program. With a genuine interest in children and youth, she became interested in this project to explore the dynamics of families of a specific population. She is currently working in the field and is considering further education in counselling.

Faculty Supervisor: Adrienne Chan

Award: \$1,000

Program Head: Satwinder Bains

Recognized for outstanding work on

Indo-Canadian Families Project

This research is a comparative analysis of Indo-Canadian families and non-Indo-Canadian families in the Abbotsford region. The objective of this study is to identify the reasons why Indo-Canadian families come to the attention of the Ministry of Children and Family Development (MCFD) and to identify the interventions used. This particular research is part of a larger project initiated with the goal of serving the Indo Canadian population of Abbotsford with effective preventative services. Both quantitative and qualitative data has been gathered from 73 Indo-Canadian files and 84 non-Indo-Canadian files held by MCFD through the method of file reviews. Preliminary impressions of the data reflect domestic violence, alcohol use, and a lack of social support as significant factors to the involvement of Indo-Canadian families with child protection. Further analysis is currently being completed.

History

Recipient: James Inglis

James Inglis took on this research project as part of the History department's Applied Studies in History practicum. This project offered an opportunity to work with primary documents and examine the influence of the Great War on a small Canadian community. James is interested in finishing his degree in History at UFV and then applying to graduate school with a focus on 20th century military history.

Faculty Supervisor: Robin Anderson
Program Head: Robin Anderson

Award: \$500

Recognized for outstanding work on

The Abbotsford Post: Select Index 1914-1918

This project was designed to create a comprehensive tool to assist individuals in researching issues that impacted the lives of the residents of the area during the "Great War". The goal was to identify and index local war-related news stories, advertisements and other information that likely had a direct effect on the day-to-day lives of residents of Abbotsford and the surrounding areas. The completed index exists in both print and digital formats. While the index information is the same in both formats, the digital version of the index allows for computer searches. In addition, the digital version provides access to the images of articles referenced in the index, reducing the need to handle the original newspapers. This index provides the only known guide to *The Abbotsford Post* and should be of benefit to the further understanding of life in Abbotsford during the "Great War".

National Awards

NSERC Post Graduate Scholarships

2008 Recipients - \$17,300

<i>Student researcher</i>	<i>Program</i>	<i>Faculty researcher</i>
Colin More	Physics	Dr. Derrick Harnett
Essex Edwards	CIS	Dr. Noham Weinberg
Winter Moon *	Geography	Dr. Olav Lian

* Winter was the recipient of a special Alexander Graham Bell Scholarship worth \$17,500

AUCC Students for Development Internships

Students work on special projects in a foreign country for six weeks.

2008 Recipients - \$12,000

<i>Student</i>	<i>Program</i>	<i>Country</i>
Michelle Hoogland	Geography	Kenya
Satinder Sangha	Social Work	India
Baldeep Toor	Science	India

2007 Award Recipients

Sumeet Jammu	Criminology	India
Meggie Shields	Sociology / Anthropology	India

History

Recipient: Anjuli Zukowski

Anjuli is working towards completing a Sociology/Anthropology major as part of a Bachelor of Arts degree at UFV. After graduation she would like to take an internship position that would allow her to pursue a career that encompasses her interest in cultures and relationships within societies. Anjuli looks forward to utilizing the research and analytical skills she developed at UFV. The topic of her essay, "Exposing Myths: Slave Mothers and Children in the Antebellum Southern United States," was inspired after reading Harriet Jacobs' narrative *Incidents in the Life of a Slave Girl, Seven Years Concealed*.

Faculty Supervisor: Geoffrey Spurling
Program Head: Robin Anderson

Award: \$500

Recognized for outstanding work on

Exposing Myths: Slave Mothers and Children in the Antebellum Southern United States

Anjuli presents a comprehensive discussion of some of the myths surrounding the mother-child relationship among slaves in the antebellum southern United States. Although many slave owners perpetuated the idea that slave mother-child ties were weak, she argues that this view can be challenged, based on a close examination of various narratives of the time. In her paper, she examines the perspectives of slaveholders, slave mothers and their children, drawing in particular on Harriet Jacobs' *Incidents in the Life of a Slave Girl, Seven Years Concealed*, as well as on other accounts of the antebellum period. While Harriet Jacobs' slave narrative blatantly contradicts the slaveholders' myths, Anjuli incorporates evidence from other accounts on the nature of the slave mother-child relationship to broaden and balance her analysis. She also examines slaveholders' perspectives and actions to explore their prejudicial views and to see what led to their beliefs. Overall, the accounts of the antebellum period challenge the myths surrounding slave mothers and their children, showing that slave mothers did in fact care for their children and that the bond between them was strong.

Geography

Recipient: Winter Moon

Winter is graduating from UFV with a Bachelor of Arts Honours degree with a focus in Physical Geography. She looks forward to starting a Masters degree at SFU in the department of Earth Sciences in the fall of 2008. Winter is interested in glacial geology and geochronology, and will be fortunate to have access to the Luminescence Dating Lab at UFV to conduct her research.

Faculty Supervisor: Olav Lian
Program Head: Ken Brealey

Award: \$1,000

Recognized for outstanding work on

Genesis and Geochronology of a Key Pre-Olympia Glacial(?) Lithostratigraphic Unit in Southwestern BC

Natural exposures of Quaternary sediments can be found in many of the mountain valleys of the Fraser Lowland due to the incision of mountain streams into sedimentary fills. Within Lynn Valley, Lynn Creek has exposed peat and sand deposited during the latter part of the Olympia nonglacial interval, and these have been put into chronological context through the use of radiocarbon dating. Directly underlying these Olympia aged sediments is a sand and gravel (diamicton) unit thought to have been deposited during the penultimate Semihamoo glaciation, but because its age is well beyond the limit of radiocarbon dating (c. 50,000 years), and its glacial geology has never been studied in detail, it has never formally been identified as being glacial nor is its age known. The purpose of this research was to first reveal whether or not this diamicton unit is in fact glacial (e.g., glacial till) by performing facies and till fabric analyses, and second, to put it into geochronological context by dating quartz grains from within the unit using optically stimulated luminescence (OSL) dating. Based on the glacial geology of the unit and the OSL results, it appears that the diamicton unit was deposited during the Olympia nonglacial interval, and not the penultimate Semihamoo glaciation as previously suggested.

Biology

Recipient: Natalia Oliveira

Natalia has always loved Biology and chose UFV for her BSc Major in Biology because of its lab intensive education, smaller classes and great instructors. She enjoyed taking the molecular techniques course (BIO 403) with Dr. Steven Thomas, and decided to apply these techniques in a directed studies research project. Her ultimate goal is to obtain a PhD and to use what she has learned in a career in research.

Faculty Supervisor: Steven Thomas
Program Head: Barbara Moon

Award: \$1,000

Recognized for outstanding work on

Molecular Characterization of a Putative Na⁺ Coupled Multidrug Efflux Pump Gene, *ffrA*, from *Photobacterium Phosphoreum*

Multidrug (antibiotic) resistance is an increasing problem in infectious disease. In our studies a non-pathogenic bioluminescent marine bacteria known as *Photobacterium phosphoreum* isolated off the coast of BC was confirmed to possess genes (a Na⁺ coupled multidrug efflux pump (MDP) gene and a hemolysin gene) related to multidrug resistance and pathogenicity in bacteria such as *Vibrio cholerae*. Our study focused on the characterization of the MDP gene, *ffrA*, which belongs to a family of multidrug efflux pumps which have previously been shown to be involved in antibiotic resistance in pathogenic bacteria. This is the first time this set of genes has been reported in *P. phosphoreum* especially with respect to their position immediately downstream of the *lux* operon. The *ffrA* gene was sequenced and the sequence will be submitted for inclusion in the National Center for Biotechnology Information (NCBI) database. In addition the *ffrA* gene was cloned for expression of the FfrA protein in *Escherichia coli* with the intent of providing a new model for the study of the extrusion of clinically relevant drugs from pathogenic bacteria. This work may ultimately lead to a better understanding of multidrug resistance in bacteria.

Business Administration

Recipients: Jennifer Gow & Jaimy Hutton

Jennifer Gow graduates this June with a Bachelor of Business Administration degree with a concentration in marketing. She is looking to pursue a career in this field, so when the opportunity arose for this project it seemed like a great learning experience. The partnership between the classroom and a "real-world" organization made this project very relevant and exciting.

Jaimy Hutton is a UFV student in her third year working on a degree in Business Administration with a concentration in Marketing and a minor in Economics. She is the President of the Business Administration Student Association (BASA) at the university.

Faculty Supervisor: Mark Breedveld
Program Head: Mark Breedveld

Award: \$500 each

Recognized for outstanding work on

Business Connections Study: New Air Route Development in BC

This study determines the demand from business travelers for new air route development within BC by answering eight research objectives. The project uses a mixed-method approach consisting of a twenty-one question questionnaire that was distributed to two sample groups. Finally, several follow-up interviews were conducted to provide further insight into the project findings. The report was submitted and presented to the City of Abbotsford and the Abbotsford International Airport (YXX) and found that there is a large market for business travelers in BC and specifically in the Fraser Valley. In addition, this market is looking to travel to Vancouver, Kelowna, Victoria, Campbell River, Prince George, Kamloops, and Nanaimo for a price indicated in the report. Travelers in the Fraser Valley also prefer to fly out of YXX as their number-one choice and the report undeniably determines potential in the market for YXX to capitalize on business traveler demand and develop more air routes within the province. Following the presentation, YXX identified their intent to expand their air-routes specifically to Kelowna and Kamloops.

English

Recipient: Sarah Elshout

After completing her Bachelor of Arts degree at UFV, Sarah looks forward to acceptance into UFV's Teacher Education program, and to the prospect of a teaching career in which she can foster an appreciation for English literature. As a prospective teacher, she was particularly interested in the topic of "Eighteenth-Century Women's Education and *Tom Jones*". She enjoyed doing the research, and alongside a close reading of *Tom Jones*, was able to gain further insight into the educational restrictions women faced during the 18th century.

Faculty Supervisor: Jocelyn Coates
Program Head: John Carroll

Award: \$1000

Recognized for outstanding work on

Eighteen Century Women's Education & *Tom Jones*

In the project "Eighteenth-Century Women's Education and *Tom Jones*", Sarah examined Fielding's perspective on the education of women. Based on her research she argues that Fielding is progressive, but to a point. Throughout the plot, Fielding criticizes an educational system that merely focuses on a woman's outward beauty and fails to develop inward virtue and discretion. However, unlike some progressive individuals of the 18th century, Fielding does not advocate equality. Fielding's work *Tom Jones* still emphasizes support for a curriculum that maintains gender distinction and roles, and yet significantly reflects society's slow transition from accepting the classic role of women toward embracing a liberated notion of gender equality. Sarah believes that Fielding's work significantly reaffirms the important role that education played in women's liberation, and that education did, and continues to, open new windows of opportunity.

Criminology

Recipients: Adele Mahaffy & Jason Levine

Adele Mahaffy and Jason Levine are fourth-year students in the Bachelor of Arts degree, Criminal Justice program, and have worked on several criminology projects for the RCMP.

Faculty Supervisor: Darryl Plecas
Program Head: Martin Silverstein

Award: \$500 each

Recognized for outstanding work on

Kamloops 2008 Public Safety Survey

The survey is the second of two public surveys conducted by the University of the Fraser Valley for the Kamloops RCMP. The survey describes Kamloops residents' feelings about their own personal safety and the nature and extent of any victimization(s) in the most recent year. Conducted in March of 2008, the survey also sought to determine residents' level of satisfaction with the Kamloops RCMP. The survey involved mailing a questionnaire to 1070 randomly selected Kamloops residents, 42% of whom responded. Some highlights of the current survey findings (which were remarkably similar to the findings of the 2006 survey) are:

- Nearly all respondents reported feeling safe in their homes, neighbourhood, and community during the day and also at night.
- The vast majority of respondents reported that there was no change in their personal feelings of safety in either their neighbourhood or the Kamloops area compared to one year ago.
- Nearly one-quarter (23 per cent) of respondents indicated that they were victims of at least one crime in the community in the past year.
- Non-reporting of victimization to police was high, with 39% of those who were victimized in the past 12 months.
- Satisfaction with the Kamloops RCMP continued to be high.
- The majority of respondents rated local RCMP officers highly on virtually all of the nine qualities considered.

Chemistry

Recipient: Jeffery Perkins

Jeffery is currently working on his Bachelor of Science degree with a major in chemistry and a minor in computer science, and plans to graduate in the coming year. He is enjoying working in molecular dynamics and plans to continue this research in the future.

Faculty Supervisor: Noham Weinberg
Program Head: David Fenske

Award: \$500

Recognized for outstanding work on

Molecular Dynamics Study of Reaction Kinetics in Viscous Solvents

Dynamic effects of a solvent reducing the rate of chemical reactions because of the slow reorganization of the medium are not uncommon in high pressure systems where the viscosity of the solvent can increase dramatically. The nonequilibrium behavior of a rate constant at high viscosities is usually discussed in terms of one of two models, the Kramers-Grote-Hynes or Agmon-Hopfield model. In order to test which of the two models describes nonequilibrium kinetics better, Jeffery performed a series of molecular dynamic simulations of two model isomerization reactions in solvents of different viscosity. Molecular dynamics simulations were performed using the Gromacs package on computer clusters of the WestGrid network.

Chemistry

Recipient: Christa van Klei

Christa graduated from the Bachelor of Science degree program at UFV in April 2007. Since then she has almost completed teacher certification at SFU. Teaching biology and chemistry classes has allowed her to combine a passion for science with teaching.

Faculty Supervisor: Noham Weinberg
Program Head: David Fenske

Award: \$500

Recognized for outstanding work on

Evaporation Dynamics of Aqueous Nanodroplets

This project was a part of a more general study of the dynamics of crystallization of sodium chloride in levitating charged droplets. It has recently been established experimentally that sodium chloride crystals formed in charged droplets exhibit an unusual dome-shaped morphology, quite different from the regular cubically shaped crystals formed in neutral droplets. A difference in the rates of evaporation of charged and uncharged droplets has been suggested as a possible cause contributing to this unusual phenomenon. Christa therefore undertook a systematic molecular dynamics study of charged and neutral aqueous nanodroplets of various sizes containing sodium chloride solutions of various concentrations. The droplets were studied in vacuum, in inert atmosphere of argon, and in water vapor of different pressures. Molecular dynamics simulations were performed using Gromacs package on computer clusters of WestGrid network.

Computer Information Systems

Recipient: Essex Edwards

Essex graduated from the UFV Bachelor of Computer Information Systems degree program and spent the last year upgrading with additional math classes. He has enjoyed this project which combined computer science and chemistry. Essex won a URE award last year for research done on Evolving Virtual Creatures and has received an NSERC post graduate scholarship proposing to further that research. In September, he will be starting Computer Science graduate school at UBC.

Faculty Supervisors: Ora Steyn (CIS)

Award: \$1000

Noham Weinberg (Chemistry)

Program Head: Ora Steyn

David Fenske

Recognized for outstanding work on

Computer Simulations of Physico-Chemical Processes in Viscous Media

Essex developed algorithms and programs to process large molecular dynamics simulation output, and calculate reaction rates and produce potential energy surfaces. Development of the more advanced tools involved reverse engineering the functionality of a standard molecular dynamics program in order to extend its results. The programs were written in C++ and implemented on the WestGrid supercomputer network.



The University of the Fraser Valley (UFV) is a comprehensive university that enrolls more than 11,000 students per year and is larger than half the universities in Canada. Nestled in the beautiful Fraser Valley just east of Vancouver, British Columbia, UFV has campuses in Abbotsford, Chilliwack, and Mission; regional centres in Hope and Agassiz, and a growing presence in Chandigarh, India.

UFV focuses on teaching excellence, with the highest priorities for research being to support teaching and to address local issues and regional needs. 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.

