

Monthly Report to the Provost – Faculty of Science

The Faculty of Science (FoS) has the following to report for the month of **March 2020**:

Dean's Office:

COVID-19 caused serious changes to everyone's way of life and the FoS was also affected drastically. Many events were cancelled while some are still scheduled but as COVID-19 duration prolongs, things may change. Once again, UFV had promised to send one student to London, UK this summer (all expenses paid) to attend the 62nd London International Youth Science Forum <https://www.liysf.org.uk/>. But whether this becomes a reality depends on many factors that we have no control, so we try to follow the norm and if contrary, we will then need to adapt. In any event, we received six outstanding applications. Our top four finalists are **Annabelle Czihaly, Chandy Dancey, Connor Frey, and Heather Kelly**. They submitted their research presentations virtually and a final decision will be made by mid-April. The winner will hopefully, join 500 other leading young scientists from more than 70 participating countries this July 29th to Aug 12th if the event is held.

The Fraser Valley Regional Science Fair which was scheduled for April 2 and had excellent community support and increasing participants, had to be cancelled due to COVID-19. Science Fair Foundation of BC is launching a Virtual Science Fair to give students throughout BC and the Yukon the chance to showcase their amazing work since most did not have the opportunity to present at their respective Regional Science Fairs or at nationals since all events were cancelled.

Science Rocks! 2020 would have marked our 12th year offering week long day camps to kids from grades 4-7 through July and August. **Dr. Robin Endelman**, coordinator for this event had received many sponsorships and grants to run this year's camps and was already receiving many inquiries and registrations. However, based on UFV's summer term changes to all virtual delivery due to COVID-19, and considering the health and safety of our leaders and campers we felt it best to cancel for this year. We will regroup and focus on Science Rocks! 2021.

On March 4, we hosted Dr. Shannon Bard from Hemmera, an environmental consultancy company, as our GreenSpeak seminar presenter. She gave an interesting talk on "Coastal Scene Investigation" that detailed a long term study solving ecotoxicological issues along the Salish Sea.

Biology Department:

The Biology Department had a great showing at UFV's Virtual Student Research Day held on March 31. Sixteen biology students and their supervisors (**Drs. Alida Janmaat, Allan Arndt, Sandra Gillespie, Alan Reid, Carin Bondar, Lucy Lee, Justin Lee, Nathan Bialas and Sharon Gillies**) had the opportunity to showcase their research projects in 11 posters. The winners will be announced on April 3.

Dr. Carin Bondar, UFV Biology Adjunct Professor and Faculty of Science Communicator was invited to speak at the Green Party AGM held on March 4. She hosted an online Pandemic Q&A on March 27 that had over 9,400 viewers and nearly 150 questions and finished off the month as a guest on the 'Science Centric' podcast in New York City. <https://scienccentric.com/2020/03/sex-monogamy-with-biologist-carin-bondar/>

Several of our graduating students are achieving various milestones: **Aisa Dobie**, a fourth year Biology student and student rep in our faculty council was accepted into the Optometry program at the University of Waterloo, while **Shayne Oberhoffner**, will start a Masters of Science Program in immunology at Wilfrid Laurier University this fall.

Chemistry Department

The Chemistry Department had a record breaking showing at UFV's Virtual Student Research Day held on March 31. Twenty-one chemistry students and their supervisors, **Drs. Linus Chiang** and **Golfam Ghafourifar** had the opportunity to showcase their research projects in 21 distinct posters (12 from the Chiang group and 9 from the Ghafourifar group). This is an amazing training that these two labs have produced. Poster winners will be announced on April 3.

Chemistry students, **Kaeden Teindl**, **Hiroki Ueno** and **Warren VandeVen** submitted abstracts and were accepted to attend the 103rd Canadian Chemistry Conference and Exhibition in Winnipeg, Manitoba at the end of May. Unfortunately, as with other events, the conference has been canceled due to COVID-19. **Warren VandeVen** was also awarded a prestigious national Inorganic Chemistry Exchange award for the summer semester to conduct research with Prof. Saurabh Chitnis at Dalhousie University starting in May.

Dr. Noham Weinberg, has been invited to chair a session at the World Association of Theoretical and Computational Chemists annual meeting to be held in Vancouver Aug 16- 21. <https://www.watoc2020.ca/session-chairs>

Mathematics & Statistics Department

The Feb 29 Sq'ep held by members of the Math department, including Drs. **Kseniya Garaschuk**, **Stan Manu** and others, was a successful event. See <https://www.ufv.ca/math/fraser-valley-mathematics-education-sqep/>

This year's Math Contest had to be cancelled due to COVID-19.

Assistant Professor, **Vanessa Radzimski**, successfully defended her PhD thesis from the University of British Columbia on March 6. Congratulations Dr. Radzimski!

School of Land Use and Environmental Change (SLUEC)

SLUEC hosted the Pacific Regional Society of Soil Science and BC Institute of Agrologists joint annual meeting on March 7. Over 100 attendees participated in a day long event <https://www.prsss.ca/events/event/2020-spring-workshop-and-agm-soils-in-the-field/>. UFV participants included **Drs. Jonathan Hughes**, **Renee Prasad**, **Dieter Giesing** among various others.

Geography student, **Rebecca Atamanchuk** (supervisor: **Dr. Mariano Mapili**), had the opportunity to join the other 33 Science students who presented at UFV's Virtual Student Research Day held on March 31. The winners will be announced on April 3.

Dr. Afia Raja attended the Western Division Conference of Geographers in Prince George, March 13-15 with five of her students. It was a wonderful experience with lots of presentations, posters, field trips and networking.

On March 12, SLUEC's affiliate member, Dr. **Trevor Carolan**'s Environment Studies 410 class organized and hosted a special "Redefining Sustainability" learning event. Joining in were 45 visiting high-school students from the Chilliwack School District, under the supervision of **Ryan Pastorchik**, a UFV alumnus. The session began with a welcome by **Dr. Jonathan Hughes**, Director of the new School of Land Use and Environmental Change. They viewed *In a Sacred Way We Build*, a 30 min. documentary film that follows the design & construction of the first

sustainable housing development on a Canadian First Nations reserve at Seabird Island—a project with critical lessons learned for Canada’s Indigenous communities. Our special guest for the day was Architect Rob Sieniuc, whose design for the project incorporates elements from both traditional Indigenous design and modern Green technology in this innovative initiative between CMHC, Seabird Island First Nation, and the Dept. of Indian Affairs and Northern Development. The film captured the students’ attention, especially with its depiction of local landscapes and housing issues that they were familiar with. Pizza and soda refreshments were served, and UFV student guitarist and teaching-hopeful **Marlowe Ferris** played tunes while students settled in. Rob Sieniuc then spoke to our audience about the meaning of real Sustainability in the process of community and regional planning. Visiting students showed their pre-event preparation well by engaging in a very active Q & A session. A series of short presentations followed that the visiting students had worked on for the day addressing ideas of “Self and Place”, and after a look at the large poster mural they had created on local ecological issues, the two-hour event adjourned for a campus walking tour.

Sample List of Presentations/Publications (UFV student names underlined) by FoS personnel in past month:

Abstracts accepted at the Canadian Chemistry Conference & Exhibition (May 24-28) but cancelled due to COVID-19

<https://www.ccce2020.ca>

N. Weinberg, Pressure-Controlled Molecular Machines. CCCE 2020

J. Penner, D. Wilson, **J. Spooner**, **N. Weinberg**, Molecular Dynamics Calculations of Vibrational Spectra of Benzene at High Pressures.

K. Woelk, Z. Sentell, **J. Spooner**, **N. Weinberg**, Force Field Parameterization for High Pressure Calculations

G. Ghafourifar "Optimizing an Immobilized Chymotrypsin Reactor Fabrication Based on Obtained Peptide Maps Subjected to Principal Component Analysis " Abstract ID Number: 1046

Saniya Kaushal, **G.Ghafourifar**. Peptide Mapping of Casein: Investigating the Effect of Buffer on Chymotrypsin-Formaldehyde Immobilization. Abstract ID Number: 1525

Connor Frey, **G.Ghafourifar**. Controlling size and physical strength of immobilized chymotrypsin-formaldehyde particle and investigating its effect on protein digestion and peptide mapping using capillary electrophoresis. Abstract ID Number: 1360

Kajal Dhaliwal, **G.Ghafourifar**. Fabrication of an Immobilized Enzyme Reactor (IMER) Using Capillary Electrophoresis to Digest Casein. Abstract ID Number: 980

Kenneth Ku, **G.Ghafourifar**. Optimizing Immobilized Microfluidic Enzyme Reactor (IMER) Fabrication using Formaldehyde Immobilized Chymotrypsin based on Principal Component Analysis. Abstract ID Number: 425

Kaeden Teindl, **L. Chiang**: Effects of pendant phenol functional groups in the secondary coordination sphere on the electronic structure of electron rich, oxidized Ni-salen complexes

Hiroki Ueno, **L. Chiang**: Development of Cu-Salen complex with pendant phenol groups and its electrocatalytic efficacy in water oxidation

Warren VandeVen, **L. Chiang**: Development of Cu-pyridinedicarboxamide complexes as C-H bond activation reagents

Abstracts accepted at the Western Canadian Undergraduate Chemistry Conference (Apr 30 - May 2) but postponed due to COVID-19 <https://www.wcucc2020calgary.com/>

Jasdeep Gill, **Golfam Ghafourifar**. Optimizing Hemoglobin Digestion Using Chymotrypsin as Evaluated by Capillary Electrophoretic Peptide Mapping

Manjot Dhillon, **Golfam Ghafourifar**. Optimizing Chymotrypsin Immobilization to Study Biosimilarity of Human Growth Hormone Using Peptide Mapping

Abstracts accepted at the Gill Health Initiative meeting in Stirling Scotland (March 31 – April 3) cancelled due to COVID-19

Lee LEJ, Bols NC (2020) Use of fish cells lines as model systems.

Solhaug A, Gjessing M, Dahle M, Kristensen T, Ivanova L, Sindre H, Olsvik P, Nowak B, Slattery O, **Lee LEJ** (2020) Development of an in vitro model to study environmental factors influencing the gill epithelial function (GILLMODEL).

Book Review

Trevor Carolan: *Grand River Watershed: A Folk Ecology*, Karen Houle. Gaspereau Press. *SubTerrain*, #84, Spring, 2020. pp 85-86.