



## Climate Change Solutions Are Now Closer

Are you sitting down to read this issue of Science Matters while sipping a glass of Pinot Noir? Did you know that the grape that produces this delightful red wine is notoriously temperamental and thin-skinned? Did you know that increased temperatures are already starting to damage the pinot grapes in Oregon? Sadly, it's happening—those delicious berry flavours that many of us admire are dissipating as they cook in the sun.

What do threatened vineyards, rising sea levels, melting Arctic sea ice, Australian drought, shrinking alpine glaciers and four of BC's research-intensive universities have in common? Our changing climate. And we are doing something about it. The Premier of BC, Gordon Campbell, recently announced that the province will contribute \$94.5 million to create the Pacific Institute for Climate Solutions (PICS), an innovative amalgam of top physical and social scientists from UVic, Simon Fraser University, the University of British Columbia, and the University of Northern British Columbia who will work with NGOs, governments and the private sector to develop innovative approaches to climate-change adaptation and mitigation.

Hosted and led by UVic, the Pacific Institute for Climate Solutions will be supported by the largest single transfer ever to a Canadian university endowment fund: 90 million dollars. That sum will be supplemented in year 1 with a \$4.5 M operating grant that will provide an immediate kickstart to the institute's operations.

PICS has a direct, timely and sorely needed mission: to undertake research on, monitor, and assess the potential

impacts of climate change and to assess, develop and promote viable mitigation and adaptation options. With this goal in mind, the Institute will couple the expertise of climatologists, economists, chemists, climate modelers, ecologists, engineers, biologists, geologists, behavioural psychologists, geographers and oceanographers with the interests and insight of business and law schools, government ministries and industry. PICS will offer options that will help us adapt to the climate of the future and slow the pace of change.

And that's not all. PICS will offer short courses to business leaders, government, and non-government organizations. It will build capacity by supporting the next generation of graduate students. It will act as a knowledge hub and will actively promote technology development and transfer. In short, PICS will be a one-stop shop for informed climate-change information.

We salute the foresight and leadership shown by the Government of British Columbia in supporting an initiative as ambitious—and important—as PICS. Do stay tuned. We are already moving quickly on establishing the foundations of the Institute: advisory boards are in place, a physical home at UVic will soon be assigned, personnel are being recruited, and the key research questions are being formulated. With luck, we might even come up with a way to save our beloved Pinot grape.

For more information about PICS, please see  
<http://www.pics.uvic.ca>



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## Message from the Dean...

Canadian author and philosopher Manly Hall once said, "The end of science is not to prove a theory, but to improve mankind." I couldn't agree more. That is why the Faculty of Science strives to provide a science education of exceptional quality in order to give students the tools to create a better world.

Take Science Venture, a non-profit summer science camp for youth, aged five through 18. Seventeen years ago, UVic pioneered this program — the first of its kind in B.C. The camp exposes kids to hands-on projects, covering science, engineering, mathematics and technology.

Over the years the program has expanded, offering a plethora of summer camps at UVic, and an increasing variety of science outreach programs throughout the province. Most recently we have established summer camps on First Nation reserves on Vancouver Island.

Last summer we ran camps in the Kwakiutl and GwaSala-'Nakwakda'xw communities in the Port Hardy-Quatsino area, as well as in the Tsawataineuk community in Kingcome inlet and the Tsaxana community in Gold River. Such programs provide a wonderful way to engage the communities—not only do they bring hands-on learning directly to kids in a fun and engaging way but they bring science to their parents too. We've been extremely pleased at the enthusiastic response we've received from the families in these communities, and our hope is that they will encourage their children to pursue studies at our colleges and universities.

### In 2007, Science Venture:

- reached over 7500 youth through 315 exciting workshops;
- hosted 1327 campers at UVic, 40 of whom were supported by bursaries;
- engaged 421 youth in Aboriginal outreach programs; and
- hosted 148 girls in all-girls programs.

Manly Hall was right—improving humankind is an important objective for science. I'm very pleased that by capturing the fancy of our youngsters, our Science Venture staff and programs are contributing so robustly to that challenge.

Are you a Science Venture Alumni? Let us know—we want to hear your stories. Email us at: [sciealum@uvic.ca](mailto:sciealum@uvic.ca).

## Chemistry News: New Faculty and Positive Energy

Two more outstanding faculty members joined our team last summer. Irina Paci is a theoretician who uses sophisticated computer models to understand the self-assembly of molecules and Jeremy Wulff is an organic chemist who investigates compounds that inhibit, activate, or detect protein-protein interactions of medicinal importance. Jeremy was in fact an undergraduate student in chemistry at UVic who received his BSc in 1999 and went on to gain a PhD at the University of Calgary. He fondly remembers taking courses from Tom Fyles during his years here a decade ago.



Jeremy Wulff, Assistant Professor  
in Chemistry & UVic Alum, 1999

Other transitions included the arrival in December of Patricia Ormond, who will serve as the new Assistant to the Chair, and the retirements of Sandra Harris and Gerry Poulton after 19 and 37 years of service respectively. We already miss them greatly but know that they are very much enjoying their newly found and well deserved leisure time.

Staff and faculty received many accolades for teaching, research, and service during 2007. The department was also in the news: Robin Hicks and his team generated international excitement during February when their article, "High-temperature metal-organic magnets", was published in Nature.

The positive energy has carried forward to 2008. Curriculum renewal is ongoing and innovative, and we are continually providing new knowledge and technologies for our students. Research success in cutting-edge areas—such as organic magnetic materials, chemical biology, and supramolecular chemistry—continues to expand the boundaries of scientific understanding. On top of all of this, many of our synthetic research chemists will move in August into state-of-the-art new labs in the new Ocean, Earth and Atmospheric Sciences Building. There's a lot to look forward to!

For more information see: [www.chemistry.uvic.ca](http://www.chemistry.uvic.ca)

## In Memoriam

Members of the Biology Department are saddened by the recent passing of our good friend and colleague, Yousuf Ebrahim. For many years, Yousuf was a Senior Laboratory Instructor in Biology and he touched the lives of thousands of undergraduates who studied marine invertebrates. Yousuf's effectiveness as an educator lay in his recognition of the importance of enthusiasm and humour in teaching, the importance of experiential learning, and the educational value of the flora and fauna accessible within the intertidal zone of Vancouver Island.

Yousuf's boundless energy saw him offer many public outreach courses through Continuing Studies. He organized countless field trips for students of all ages to the Bamfield Marine Sciences Centre on the west coast of Vancouver Island that, for many, were a life changing experience.

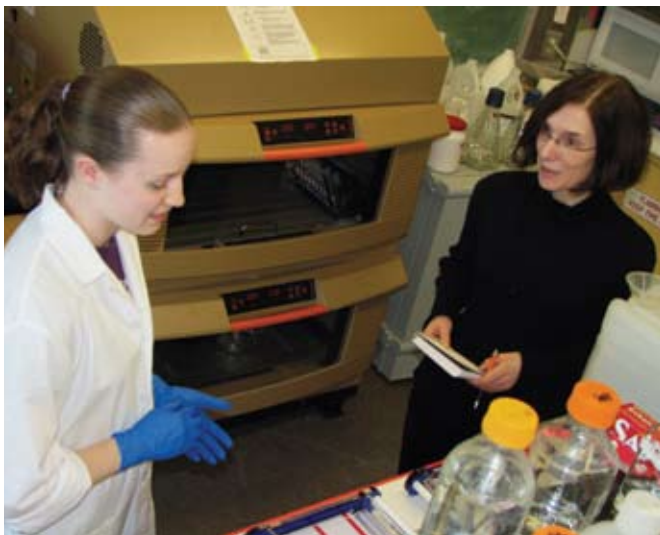
In recent years, Yousuf organized the International Field School for studying tropical biodiversity and field ecology in Malaysia. This enterprise, in cooperation with faculty from the Universiti Sains Malaysia, allows UVic students to experience tropical ecosystems and Malaysian culture. In recognition of his many fine contributions to the University of Victoria he was awarded a President's Distinguished Service Award in 2006.



UVic Photo Services

Yousuf's exhaustive knowledge of marine invertebrates, combined with a wonderful sense of humour, imperturbable temperament, graciousness and superb organizational skills gave us an individual who will live long in the hearts of all who knew him.

## A culture of success: Biochemistry and Microbiology Co-op



Rozanne Poulson talking with student, Caitlin Wright  
Photo: Melanie Higgins

From 2001 to 2007, annual placements in the Biochemistry and Microbiology Co-op have increased 64% over six years. During the past 10 years, the program has grown from the smallest of the University of Victoria co-op programs to the largest.

The wide variety and number of job opportunities give students an opportunity to sample and help chart future career paths. As undergraduate student Kevin Tam observed, "The co-op program has been the single-most influential experience of my undergraduate degree." And another undergrad, Candice Madalena, knows what it has done for her: "I will have no problem finding a job when I graduate."

We owe the success of this program to Rozanne Poulson, our co-op coordinator. Rozanne spots exceptional students and works tirelessly to recruit them. Her impact has been profound. One of her recruits, Christina Thomas, puts it this way: "One thing I find most impressive about Rozanne is her familiarity with every student in the program and every job on the database. There's no student that she doesn't know on a first name basis."

Rozanne completed her Ph.D. at the University of Wales and did post doctoral studies in the US and Australia. She was appointed at UBC as a Research Associate, and later MRC Scholar and Assistant Professor before joining UVic in 1977 as Administrative Officer in Biochemistry and Microbiology. In 1998, she became the Co-operative Education Coordinator and brought to the position experience in the classroom, first-hand appreciation of how research is done, and a firm understanding of industry.

Biochemistry and Microbiology places a great deal of emphasis on experiential learning and Rozanne helps make that happen. The enthusiasm of our students for the co-op program continues to grow. As Kara Bloomfield, a student in her final year observed, "Co-op has had an amazing influence on my confidence, not only in the academic arena, but in all areas of my life".

## Tom Fyles: Witnessing Growth



Tom Fyles, UVic Alum, 1977  
UVic Photo Services

The house in which Dr. Tom Fyles grew up backed onto Mt. Tolmie. The rural landscape that was later to become UVic and home to over 19,000 students was a simple "mud hole"; perfect accommodation for the shenanigans of young boys. Tom remembers when UVic was being constructed in 1963. "My friends and I used to take lumber that had been cast aside by construction workers and use it to build rafts down by the pond where the University Club is now."

The office that he sits in today as Chair of the Department of Chemistry resides in one of the first buildings (the Elliott) to be built on campus, and all around it the growth has been staggering. As of last December, 468 students had graduated in chemistry, and about 40 more will walk across the convocation stage this June. Compare that to 1974 when Dr. Fyles was completing his degree—there were two honours students, only 10 graduate students and 19 Faculty. Today we have over 800 students in introductory chemistry classes and still only 19 Faculty. Economists would describe that as a remarkable increase in productivity, but our chemistry professors would beg to differ! But despite burgeoning demands on their time, the faculty in Chemistry continue to offer an unparalleled education. Tom Fyles has helped to reinforce that excellence: in 2007, he received the Faculty of Science Outstanding Teaching Award.

These days, technology accounts for one of the greatest changes in pursuing a chemistry degree. More sophisticated tools and equipment are taking research in new and exciting directions. While some of Tom's six graduate students may be working on the same problems that he looked at during his PhD research, technological advances allow them to ask questions of greater scope and depth.

When asked, "What can you do with a chemistry degree?" Dr. Fyles' answer is, "What can't you do?" His career offers a perfect example. In 2007, he received the UVic Innovation and Development Corporation Entrepreneurship Award for his involvement in the commercialization of new technologies, a path that included co-founding Sensific Technologies, a successful UVic spin-off company that develops micro-sensors for measuring the chemical properties of solutions. Little did he realize forty-five years ago as he rafted on the ponds of the future UVic site that one day he'd be able to measure the oxygen content of the underlying water with a dime-sized sensor that he would build.

# Science Matters

## Building a high-speed network for High Energy Physics

Particle physics research generates data...lots of it, and UVic particle physicists are in the thick of it. Randall Sobie, an Institute of Particle Physics Research Scientist and Adjunct Professor in the Department of Physics and Astronomy, leads the UVic-based HEPNET/Canada, a consortium that oversees national and international high-speed computer networks used to support the data transmission needs of the Canadian High Energy Physics community.

HEPNET/Canada is now working with CANARIE and BCNET to build a dedicated computing backbone for particle physics. CANARIE provides the national research network for Canada and is funded by the federal government, while BCNET is the provincial research and education network supported in part by UVic.

HEPNET/Canada recently established a 5 gigabit/second dedicated link between the TRIUMF Laboratory in Vancouver and the CERN Laboratory in Geneva. CERN is host to the Large Hadron Collider (LHC) project that seeks to find the origin of mass that occurs in the universe in theory but is elusive in practice. A key component of the LHC, the ATLAS detector, was designed largely at UVic, and our physicists will now have direct access to the data stream that the detector will provide when the switch is thrown later this year.

Whether or not the mystery of the mass—thoughtcentre on a particle known as the Higgs boson—will be solved in the LHC experiment or not remains a point of intense anticipation.

TRIUMF, UVic and other institutes across Canada are establishing large computing facilities in order to analyse the ATLAS results. The data challenge is immense, and the new TRIUMF-CERN link will play a critical role in helping to meet it. UVic's central contributions in establishing such an important computing network—and in helping to find “the Higgs”—are widely recognized and contributed to CANARIE's decision to hold its Annual General Meeting (AGM) on the campus in June 2008.

## Announcements

Congratulations to everyone in Mathematics and Statistics for surviving the move! At the end of February, doors opened to the brand new Social Sciences and Mathematics Building (SS&M). It houses four academic units – Geography, Environmental Studies, Political Science, Mathematics and Statistics – and the Water & Climate Impacts Research Centre. In addition to offices, labs and classrooms, the building also contains the Social Sciences Co-op offices, the Math Assistance Centre, the E-learning systems group, and UVic Graphics and Photographic Services.



UVic Photo Services

## New Quarters for SEOS

Late summer will see SEOS physically united for the first time as faculty and staff move from six different buildings into the magnificent new Ocean, Earth and Atmospheric Sciences Building. And in another first, our teaching labs will be expanded and co-located with faculty and staff offices and new state-of-the-art research facilities. Our undergrads will no longer have the 20-minute dash to the Ian Stewart Complex to get to their labs on time!

SEOS has recently welcomed several new faculty members into our oceanography group. Dr. Kim Juniper's research focuses on the interaction of microorganisms with other components of the marine environment, in particular the benthic fauna. He holds a BC Leadership Chair in Marine Ecosystems and Global Change and is jointly appointed with the Dept. of Biology.

Dr. Roberta Hamme's research focuses on understanding what drives the oceanic and atmospheric cycles of gases such as carbon dioxide and oxygen. She is currently installing a new CFI-funded, high-precision mass spectrometer to measure a suite of inert and bioactive gases in seawater that she and her students collect from the Pacific Ocean, Labrador Sea and beyond. Dr. Jody Klymak, jointly appointed with the Dept. of Physics and Astronomy, is a sea-going physical oceanographer who studies turbulence and mixing in the ocean. Dr. Klymak, through CFI-funding support, recently acquired a Brooke Moving Vessel Profiler that can map physical and biological properties of the upper 250-m of the ocean while a ship is underway. This equipment allows for greater resolution of upper-ocean processes, such as mixed layer dynamics, fronts and eddies.

SEOS alumni are encouraged to stay in touch through the SEOS website which hosts a new Alumni Directory (<http://www.seos.uvic.ca/alumni>). We would love to hear from you!



Brenden Smith and Alanna Krepakevich  
Photo: Vera Pospelova

## Stay in Touch

Tell us where you are and what you are doing. Send us a photo and we'll print your bio in our next newsletter. Please email [sciealum@uvic.ca](mailto:sciealum@uvic.ca).

Our new Science Alumni Group has been initiated and is growing. You can also find us on Facebook when you search for University of Victoria Science Alumni.

Biochemistry 300. Did you love it? Did you hate it? Send us your Lab stories. Every entry will be entered into a draw and the winner will get their story published and receive a free UVic shirt.

## Hold the Date: Alumni Event: An Evening with Dr. Reg Mitchell

Thursday May 22, 2008 from 5:30 – 7:30pm  
Village Greens, Cadboro Commons

Dr. Reg Mitchell is as much a part of the University of Victoria Chemistry Department as the test tubes and Erlenmeyer flasks. Not only has he taught here since 1972, his exploits as the popular and zany Dr. Zonk are well known on campus and off.

Wine & Cheese reception to follow. Please RSVP to [sciealum@uvic.ca](mailto:sciealum@uvic.ca) by May 8



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