

CANADA'S WESTERN SCHOOLS AND THEIR PARTNERS RALLY TO CALL FOR INNOVATION

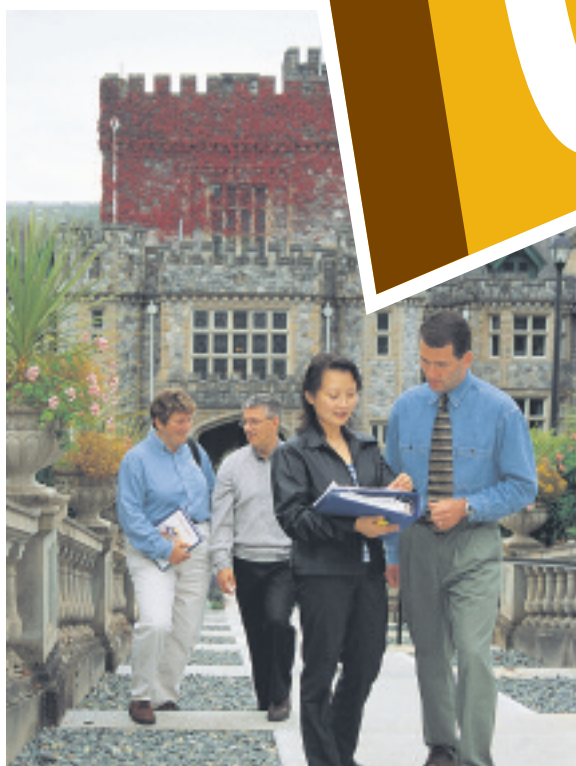
GO WEST

BY RANDALL ANTHONY MANG

The West is on a roll. The provinces of Alberta, B.C. and Saskatchewan are leading the nation in economic growth – and Western Canada's universities and other institutes of higher learning are answering a call for innovation. Through academic excellence, research and partnerships with industry, government and civic organizations, these institutes are building foundations of knowledge vital to local communities and critical to Canada's future competitiveness.

University of Regina president Robert Hawkins says, "If we really want to build a strong and sustainable economy, we must diversify. Universities are key to that. The contributions we make are helping put our economy on a broad-based, sustainable footing as we move to the future."

University of Manitoba president Emöke Szathmáry passionately espouses a similar view. "In the 21st century, the real resource is knowledge. Science and technology and



PHOTOS: LEFT, ROYAL ROADS UNIVERSITY; TOP RIGHT, UNIVERSITY OF MANITOBA; CENTRE AND ABOVE, UBC.

Western Canada's universities and other institutes of higher learning help put our economy on a broad-based, sustainable footing.

those who command knowledge will be the ones who succeed."

Appreciation of knowledge and innovation as competitive advantages is widening as the impacts of globalization and Asia's rising economic superpower status increasingly hit home.

The University of Manitoba (U of M) counts the invention of canola, the discovery of a method to prevent Rh disease of the newborn, and new materials that have helped Canada build a world-class aerospace industry among its innovation successes. The school's independent research has produced breakthroughs in HIV/AIDS prevention and elucidation of the SARS genome. The U of M has worked closely with members of the National Microbiology Laboratory and the Public Health Agency of Canada

since these institutions were established.

While Dr. Szathmáry views the world through a global lens, she also sees the university's role inextricably tied with Manitoba's – and Canada's – success.

"The University of Manitoba is a provincial university, but provincial doesn't mean parochial," she says. "We deliver education for degrees in the arts and sciences, the professions as well as at the masters and doctoral levels that is globally competitive. We are the research engine in this province. We can do our best by our community by paying attention to it, and making the global, local."

She notes PricewaterhouseCoopers studies have shown the university's most recent annual impact on the province is in the

order of \$1.2 billion. "There is a cultural impact provided through the university's support of the arts and sports as well as conventions and conferences."

Fundamentally, she says, U of M produces graduates "who may be recruited elsewhere, but who don't forget where they were educated."

"Our graduates are well placed," she says, citing names including John Hunkin, Rick Waugh and Jim Burns among U of M alumni. "They connect us with the world."

The University of Regina's (U of R) Dr. Hawkins says serving the community and society "is at our roots and foundations," a dedication this school expresses admirably.

In the resource and environmental sectors, for example, the U of R's groundbreaking work with the Petroleum Technology Research

Centre is proving that injecting CO₂ into nearly depleted oil wells increases production by forcing oil to the surface and is a viable means of trapping this climate-change-causing gas underground.

Meanwhile, the Communities of Tomorrow initiative, which involves the City of Regina, U of R and the National Research Council Canada, is advancing technologies for sustainable environmental infrastructure – answering a concern of cities worldwide.

Such projects not only advance Canadian leadership internationally, they also help attract world-class talent and build capacity in local communities, says Dr. Hawkins.

"There is appreciation here that this university is a magnet for talent, researchers and other creative people who contribute to economic

development and the quality of life and the cultural life of Regina."

Building local capacity is literally the University of Northern British Columbia's (UNBC) reason for being, yet its efforts also yield bigger-picture success for Canada.

UNBC president Dr. Charles Jago says the establishment of a major university in Prince George (population 77,000) was the result of citizen action and a strategic move to diversify the region's resource economy.

"From the beginning, our focus has been on training people in accredited programs that matter to northern B.C. communities," says Dr. Jago, citing health care, social work, environmental sciences and land-use planning among the school's focus areas.

"If you look at the resource economy today, it's high-tech, knowledge-driven and highly-productive. It absolutely requires highly skilled people. Our graduates are serving that role and moving into positions of leadership. About 60 per cent to 70 per cent of them stay in the local region."

He also says UNBC's efforts help communities address local issues. For example, after mine closures devastated Tumbler Ridge (a B.C. town virtually created to serve the coal industry), a UNBC team led by professor Greg Halseth joined community efforts to help the town through its transition. "Tumbler Ridge has survived and is now expanding," says Dr. Jago.

"Working with communities and engaging communities is what we do. We are part of the culture, fully engaged, promoting social advancement and addressing local economic and social issues."

Whether such efforts among western academics and their partners are in Manitoba, Saskatchewan, Alberta or B.C., it's all good news for Canada. ■



PHOTO: UNIVERSITY OF MANITOBA
University of Manitoba president Emöke Szathmáry.

WESTERN SCHOOLS SCORE HIGH

Western universities, from the University of Manitoba to the University of Victoria are earning recognition among the nation's best.

Among the University of British Columbia's (UBC) accolades, the school recently made international headlines on news that it had attracted Nobel physicist Carl Wieman to join its ranks.

The 2005 Maclean's University Rankings included three Western Canadian universities among its top-10 list for comprehensiveness: the University of Victoria, University of Regina and Simon Fraser University.

In addition, Maclean's included UBC, the University of Alberta,

the University of Saskatchewan and the University of Calgary among the nation's best for medical schools, PhD programs and research.

The Maclean's study also consistently places the University of Northern British Columbia among Canada's top schools for research grants.

Embedded in business

BY LORI BAMBER

Workplace experience means better jobs for skilled graduates

When Pierre Landry applied to Mount Royal College (MRC), he was disappointed to find he was too late to get into the Bachelor of Arts transfer program. But while Supply Chain Management and International Business was not his first choice, he is now an enthusiastic proponent of the program as well as one of its first graduating students. Due in part to his hands-on experience in Directed Field Studies, he already has a rewarding, well-paid job lined up with a company he knows he will enjoy working at.

Far from being disconnected from business and the 'real world,' Western universities and colleges provide students with experiential learning opportunities such as co-op programs, directed field studies (in which students work in business or public enterprise with support from their academic instructors) and paid work experience. At Mount Royal College, for example, students graduating with applied degrees have two full semesters of work experience by the end of their four-year

degree, the equivalent of a year of experience.

"It's very clear," says Dr. Robin Fisher, vice-president and provost at MRC, "that students who have workplace experience as part of their degrees get better jobs more quickly than those who don't. The strength of it is integrating what's done in the classroom with actual

experience; the workplace experience is informed by the classroom experience and vice versa. It's a really enriching experience."

"We're very careful about developing and assigning those workplace experiences, and it is managed, reviewed and assessed by

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PHOTO: MOUNT ROYAL COLLEGE

Students of Mount Royal College's applied degree programs have the equivalent of a year of workplace experience by graduation.

Access: Reaching the workforce of the future

BY ADAM PELLIZZARI

By 2021, nearly 60 per cent of all registered native Canadians will be in their prime working years – between ages 20 and 64.

Nowhere will this have more impact than in the Canadian Prairies, where the economic future of Saskatchewan and Manitoba will be increasingly dependent on the workforce participation of young Aboriginal people. In Saskatchewan alone, it is estimated that 47,000 Aboriginal people will enter the workforce by 2011.

"The Aboriginal population of Saskatchewan will underpin the economy and the future of this province," says Ron Byrne, associate vice president of student affairs at the University of Regina (U of R). "For Saskatchewan to be successful, we need to pay attention to these changing demographics."

To that end, the U of R is focused on recruiting qualified young Aboriginal students, and ensuring that they adapt to universi-

ty life once there.

A full-time native recruiter ensures that the U of R can reach Aboriginal communities on the ground; potential students are also reached through targeted career fairs and focused advertising. By 2009, the University hopes to grow its native population from the current 12 per cent to 20 per cent of the overall student body.

The U of R's Student Ambassador Program provides mentorship for new students, introducing them to university life. This works in conjunction with the new Aboriginal Student Centre, opening this summer to provide a place where students can relax amid familiar surroundings and people.

"It's important that students see themselves reflected in the university community," says Mr. Byrne, "so we take a very deliberate approach to ensure they see themselves and their background represented."

The University's Aboriginal Co-op and summer student

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GO WEST

Bridging the skills gap

BY JANE MUNDY

Canada's booming economy is facing a labour shortage exacerbated by an aging population. "The business community thought they could just pick up the phone and hire; industry assumed they could train workers in-house," says John Winter, president and CEO, BC Chamber of Commerce.

Fortunately, Western schools are rising to the growing challenge, recruiting students from non-traditional sources and partnering with trades and business on school-to-work apprenticeship, mentoring and recruitment programs.

"Our challenge is in high-demand areas such as petroleum, electrical and chemical," says Gordon Nixon, vice-president, Southern Alberta Institute of Technology (SAIT). "This fall, SAIT will add another 250 students to the 3,900 students enrolled last year, and in 2007, an additional 1,200 apprentice students will be accepted for skilled trades such as welding, millwright, plumbing and carpentry."

Educators on college campuses are working with high school students to change perceptions of trade careers. One initiative SAIT offers is "Career Pathways" – partnering with the public school systems to expose students to alternate careers in technical and trade areas – and "Explore IT," where 160 grade nine girls recently learned that these industries aren't all male-dominated.

"Explore IT helped to make up my mind that I want to go into engineering," says Calgary grade nine student April Cheng of the program.

SAIT also meets industry needs for skills training in 10 to 12 week pre-employment programs. "We are offering these programs in 14 areas



PHOTO: KWANTLEN COLLEGE

Kwantlen students find rewarding, non-traditional careers as millwrights, welders and carpenters.

of high-demand industry such as construction and manufacturing," says Mr. Nixon.

At the British Columbia Institute of Technology (BCIT), advisors from industry keep every program active and current. "We have some unique programs," says Randy Friesen, director, marketing and communications. "For example, Aboriginal students learn piping, which includes plumbing, steam fitting, gas fitting and sprinkler fitting."

BCIT is hands-on: "We don't just teach things like aerospace, we actually have our own planes at the airport; we don't just teach about the environment, we have our own forest," adds Mr. Friesen.

"Students are choosing trades as a post-secondary route rather than the university route – they can work, earn and learn at the same time," says Dana Goedbloed, acting dean of trades and technology at Kwantlen College. "We are recruit-

ing in high schools, and older students with academic backgrounds are choosing careers in the trades."

Kwantlen is placing non-traditional students in non-traditional occupations. Females find careers as millwrights, welders and carpenters. "We are starting to recognize a declining population, and women have been in the workforce long enough that they are accepted in generally male-dominated areas," says Ms. Goedbloed. To handle extensive waiting lists, the college is in the process of building a new campus: Cloverdale Trades and Technology Centre will open at the end of 2006.

Western schools are well prepared to bridge a future skills gap; 23,000 people recently attended BCIT's open house. "Whether nursing, shop or automotive, students are involved in the real world of work," says Mr. Friesen. "A lot of our students are going to work the day after they graduate."

Corporate Social Responsibility: Creating a new generation of leadership

BY ADAM PELLIZZARI

More than ever before, university business grads need to be fluent in the language and challenges of sustainability.

"Sustainability requires business transformation, and business transformation requires transformational leaders," says Adine Mees, president and CEO of Canadian Business for Social Responsibility. "Schools that are truly on the cutting edge have already anticipated this growing demand, and are developing curricula that will meet and even exceed it."

At the University of British Columbia's (UBC) Sauder School of Business, all MBA students are exposed to ethical and corporate social responsibility (CSR) issues throughout the initial four-month integrated core, during which they are socialized to understand the ground-up structure of a corporation.

"Ethics and sustainability are in the curriculum, but it's also surrounding the curriculum," says Dale Griffin, associate dean, academic programs. "MBA students attend guest lectures from convicted white collar criminals and the likes of The Corporation writer Joel Bakan."

Starting in 2006, the Sauder School of Business is developing a complete MBA specialty in sustainability in business, which will go beyond the usual core business ethics instruction and offer six sustainability-related courses. For the first time last year, UBC offered a full three-credit course on sustainable business, which was run by Peter N. Nemetz, to great acclaim by students.

British Columbia's Simon Fraser

University (SFU) is also finding novel ways to teach about sustainability. Ethics courses are featured at the third- and fourth-year undergrad levels, including current events and analysis of why unethical business behaviour occurs and how to address an ethical dilemma. MBAs have ethics integrated into their leadership training and through modules on CSR.

Charles Holmes, an associate with SFU's Learning Strategies Group, says the demand for sustainability knowledge is so great, SFU now designs custom graduate-level programs for existing managers and executives of large B.C. companies, and just delivered a four-year MBA program for Alcan's Kitimat management that includes subjects like stakeholder engagement and applied sustainability.

Students at UBC and SFU are also driving a lot of the new focus on sustainability. Students from both schools participate in "Net Impact,"

a growing international MBA society, with chapters all over North America where students meet, network and examine how sustainable business can change the world for the better. Net Impact members from both UBC and SFU recently collaborated in a "green marketing" case competition in April; the goal was to help local companies come up with specific solutions to sustainability problems and make them more sustainability focused.

It is this student-driven interest in sustainable business, says Carolyn Egri, professor at SFU's Faculty of Business, that translates into employment advantages.

"Many of my students don't know what [sustainability] is about at the outset, but by the end of the course, they tell stories about attending job interviews where they start asking questions such as 'what's your recycling program like?' It helps them get jobs, because it really distinguishes them."



PHOTO: UBC

Students in UBC's MBA program learn how sustainable business can change the world for the better.

Access

From WS1

employment program helps students get placed in jobs and provides support throughout the placement. The program also develops resume writing, interview and job hunting skills for post-graduation.

Mr. Byrne is proud of the Aboriginal Bursaries Program (supported by Crown Investments Corporation), which has just received \$2 mil-

lion over the next five years for economically disadvantaged aboriginal students.

The University of Manitoba has also been proactive in helping qualified Aboriginal students reach their highest academic potential.

"Eighty per cent of our aboriginal students go through the university in the normal process," says Dr. Robert Kerr, vice-president academic, at the University of Manitoba.

"That said, we recognize that there are socially disadvantaged students who are talented academically but need help to get started and

work their way through."

The university has been an innovator for decades through its broadly based Access Programs, which provide academic and personal support for disadvantaged students through the Manitoba government. With graduates from many disciplines – including law, nursing, engineering and pre-med – a total of 1,755 students have graduated from U of M Access Programs since 1975.

Focusing on the importance of making a good start, the U of M has established the University One Program, which provides tutoring, writing assistance and mentorship.

"We're helping ease the transition to university," says Dr. Kerr. "The more we do to help students in year one, the greater success they are likely to have, and [to] be able to stay and move forward."

As a resource for native undergrads and graduates alike, the University of Manitoba's Elder-in-Residence Program provides an innovative approach. Roger Armitte, an Anishnabe from the St. Rose area of Manitoba, has been the Elder-in-Residence since 1997, providing personal counselling, guest lectures and traditional ceremonies for staff, student or faculty members who request it.

"[Mr. Armitte] is someone who truly understands [native students] and is a respected member of the Aboriginal community," says Dr. Kerr. "He provides an anchor to help students make it through the big transition to university life."



PHOTO: UNIVERSITY OF MANITOBA

U of M's "U" Crew helps students from semi-isolated northern Canadian communities make a successful transition to university life. Left to right: Wade Houle, Angeline Nelson, Julie Lafreniere, Shawn Goodluck, Ainsley Frederickson.

Embedded

From WS1

faculty in partnership with the supervisor in the workplace. The other thing about this kind of education, for the institution, is that we establish a lot of great connections with community partners, industry, government and non-profits. There are a lot of benefits to the student, the college and the employer. For the student, these workplace experiences are often the start of a career."

At the University of Victoria, which has arranged more than 46,000 student work placements since implementing its co-op program in the mid-'70s, experiential learning forms part of every undergraduate degree. Alumnus Brad

Forth, who was hired by Power Management Ltd., his co-op employer, and went on to become the company's CEO, says, "You become far more valuable to employers if you have that sense of context and know how to apply the theory you've learned. It sets you apart as a potential employee."

The benefit of workplace learning to employers may be most vividly demonstrated by an example from BCIT: in 2004, students Sara Luu and Timothy Nordin worked with consultant Bruce Marsh on a project that led to an annual budget reduction of \$1.8 million in the purchasing department of the Vancouver Coastal Health Authority.

Wendelin Fraser, dean of Bissett School of Business at Mount Royal College, says, "We're in such a hot market that employers are looking

for educated employees, and a student in the third or fourth year of a program can indeed contribute in a major way. Many of our students are getting excellent remuneration, which makes it very attractive to participate."

For business, she says, having an opportunity to have students participate in the organization and getting those students sooner rather than later is a big advantage.

"They've been able to see what the students are like and make a pretty good assessment about who they'd like to see as a long-term employee. The students have had the opportunity to see how well they like working in the company – every company having their culture and ways of doing things – so you have a better sense of how the employee is going to fit your organization."

Mount Royal
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UMB
Full



Finding the money

Careful, creative planning makes higher learning accessible to all

BY LORI BAMBER

“Many high school students,” says Murray Baker, author of the best-selling *The Debt-free Graduate* 2006, “overestimate the cost of post-secondary education and underestimate its value.” In fact, a bit of careful, creative planning can put trade school, college and university programs within reach of all students, potentially increasing income and career satisfaction for a lifetime.

One of the keys, says Mr. Baker, is to minimize debt by maximizing non-repayable funds like scholarships and bursaries. Availability varies from school to school, so he advises students to begin by working with their high school guidance

counsellor and the financial assistance officers at the institutions they’d like to attend. “Let everybody know you’re looking for some sort of funding.”

It’s important to start looking early, he says. “Many times students think, well, I’m probably OK, and then they run short midway through the year. It may be too late by that time – all the bursaries may have been given out already.

“So they have to run out, get a job, work more hours than they intended and impact their academics. Or – another mistake – end up ringing up cash advances or paying for the last few months using cash advances on their credit cards. When I’m speaking on campus, I often meet students who are in real

trouble with credit cards.”

He advises students to create a financial road map of income and expenses, to stay away from credit cards entirely in the first year, and to use only one card, with a low credit limit, after that. “I don’t think students are as aware as they should be of how debt, particularly large debt, will impact quality of life after graduation.”

One way to keep debt low, he advises, is to use Studentawards.com and ScholarshipsCanada.com, search sites that match scholarships and bursaries with eligible students.

At the University of Manitoba, for example, almost \$10 million in bursaries is paid out each year (something that varies from university to university) and emergency

aid is also available. Peter Dueck, executive director of enrolment services, says, “We provide about \$160,000 a year in emergency funding (in the form of either loans or bursaries), and almost all universities, depending on the size of the university or the amount of tuition, provide this aid. Most institutions also have a food bank.”

Students can also earn money by working on campus, through work study programs, co-op or directed learning placements.

Parents and students should keep net costs in mind while planning, and consider alternative programs if money is a concern. At Royal Roads University in Victoria, for example, David Rees, registrar, says, “Lower tuition rates do not necessarily mean lower costs. The two delivery models we offer allow people to either remain in the workplace or to enter the workplace a year earlier... (enabling them) to get a degree from Royal Roads at two to four times less cost than at a traditional university.”

Most importantly, says Mr. Dueck, students should apply for need-based assistance if money is a concern. “While scholarships are often automatically awarded on the basis of the applicant’s grades, need-based programs must be applied for, as early as possible.”



PHOTO: ROYAL ROADS

Royal Roads provides a blended learning model so students can balance their careers and family while completing their degrees.

LIVING WELL ON A STUDENT BUDGET REQUIRES MORE THAN A LITTLE CREATIVITY – BUT THERE ARE SOME TAX BREAKS THAT CAN HELP.

- Remember that tax deductions aren’t limited to university tuition: any post-secondary level course for individuals 16 or over (at year-end) that has been Human Resources and Skills Development Canada-certified will qualify. (Amounts must be over \$100.) If you can’t use all your tuition credits, you can carry them forward, or transfer them to a spouse, parent or grandparent to a maximum of \$5,000 per year.
- You can claim a credit for each month you were a full- or part-time

student even if you didn’t attend for the full year – and if you’re a full-time student and moved at least 40 kilometres closer to your school to attend, you can also claim eligible moving expenses.

- Interest on your approved provincial and federal student loans is tax deductible, so be sure your loan is provincially or federally approved when you apply. (These deductions can be carried forwarded if your income is too low to benefit in the year the interest is charged.)

FROM THE NEW FEDERAL BUDGET:

- The latest federal government budget introduced welcome news for students: post-secondary students can now claim an annual \$500 tax credit to help defray textbook costs.
- Even better, all scholarship, fellowship and bursary money will now be income-tax exempt. (Anything over \$3,000 a

year was formerly considered taxable income.)

- Skilled trade apprentices will get a new \$1,000 annual grant in their first and second years and a tax deduction of up to \$500 for the cost of tools they need for the job, above an initial cost of \$1,000.

For more information, visit www.cra-arc.gc.ca.

UBC
3 x 150

No borders

BY NICOLE DUNSDON

Learning to manage conflict in today’s world demands a level of intercultural awareness that can’t be gained solely in a North American classroom.

Royal Roads University (RRU) recognizes this challenge, providing innovative programs that attract Canadian and international learners to participate in learning residencies in Canada, Asia, Europe, the Middle East and Africa.

With a mandate from the Government of British Columbia to offer applied and professional programs attractive to people who are already in the workforce, Royal Roads is structured so that students can still work while attending university.

A student of RRU’s Master of Arts in Human Security and Peacebuilding program, for example, could be a Canadian soldier living in Iraq, learning the theory of humanitarian intervention, social reconstruction and peace building while putting it into practice at the same time.

Or, it could be a woman stationed in Palestine with the Green Cross, offering humanitarian assistance during an emergency situation in that region. “Canadians study with us from areas all over the world,” says Dr. Jim Bayer, dean of the Faculty of Social and Applied Sciences, RRU.

Closer to home, Sara Neuert, a student of RRU who is studying for her Master of Arts in Conflict Analysis and Management, is working as a mediator during a crisis between the Six Nations Community in Caledonia, Ontario, and the



PHOTO: ROYAL ROADS UNIVERSITY

Kristine Booth (centre), a student in the Royal Roads University Human Security and Peacebuilding program, in Uganda in 2005.

provincial and federal governments.

Ms. Neuert spent six years with the Chiefs of Ontario, an advocacy organization that represents 134 First Nations communities.

“I was already doing a lot of cross-cultural conflict management in my work with First Nations and government,” says Ms. Neuert. “I wanted the background to expand on what I was doing.” Royal Roads was an automatic choice, with its distance education and intensive residencies. Ms. Neuert says the international focus of her program will further her interest in cross-cultural conflict management on a global basis.

RRU has 3,000 learners and 6,500 graduates from 48 countries. Along with full-time, on-campus undergraduate programs, the university offers classroom-based MBA programs both home and abroad.

Great examples of Royal Roads’ intercultural, global learning environments abound.

The university’s Thai-Canada Master of Arts in Conflict Analysis

and Management allows Canadian and Thai students to learn together via the Internet. Their first residency takes place in Thailand and the second is held in Victoria, B.C., at the Royal Roads campus. In working with a consortium of Thai universities and institutes, as well as instructors from all over the world, RRU provides its Thai and Canadian students with rich cultural experiences.

Thirty students in the Master of Arts in Human Security and Peacebuilding program just spent their residency in Uganda. Makerere University in Kampala and Royal Roads are partnering to train students to collaborate on strategies to rebuild civil society after two decades of civil war.

“This model inserts Canadians into situations where they live beside people in other countries,” says Dr. Bayer. “Taking learning beyond our borders into a different culture and setting where no one has all of the answers, but, instead, everyone can share their successes and failures and learn from one another.”

Many universities, colleges and trade schools offer a host of online resources for their students. Here are a few additional websites to help students thrive.

CanLearn: “Helping you save, plan and pay for your education” The Government of Canada site offers tools, calculators and resources to students, parents and advisors. www.canlearn.ca

Scholarships Canada: A comprehensive scholarship portal helps you find student awards, bursaries and grants, student loans, applications and budget planning. www.scholarshipscanada.com

Canadian Federation of Students: Representing 450,000 Canadian secondary students, this site provides the latest news, a collective voice on political issues and resources for student unions. www.cfs-fcee.ca

The Debt-Free Graduate website: Hosted by Murray Baker, author of the book by the same name, this site offers a wealth of tips on living with style on a shoestring budget, and tools including a student cash flow planner. www.debtfreegrad.com



The New Value Exchange between academia and industry



DR. DANIEL F. MUZYKA
Dean of the Sauder School of Business, University of British Columbia
RBC Financial Group Professor of Entrepreneurship

The business schools of today are no longer the ivory towers of yesterday in the sense of only providing conceptual advice. In 2006, we are an integral part of the business value chain and a critical conduit for knowledge transfer.

Central to this evolution is the fact that corporations and other organizations from private and public sectors are giving back to academia in important ways.

Our relationship with industry, with government and with other institutions outside of academia has reached a historically significant level of importance. We exchange value: They deliver it, and we deliver it. It's a symbiotic relationship that is more pronounced than even 10 years ago.

In the traditional sense, we are providing the next generation of managers and professionals for business. However, today's schools also provide new concepts to guide thinking in the areas of business management and public policy, and new insights for dealing with a rapidly changing business landscape.

This is a growing trend across North America. At the Wharton School of the University of Pennsylvania, the Jay H. Baker Retailing Initiative links retail theory with practice by forming partnerships between world-class researchers, educators, students and the global leaders of today's retail trade. Advisors to the school come from companies as diverse as Gap Inc., Tiffany & Co., Costco Wholesale and Neiman Marcus Group.

At Queen's School of Business, the recently launched Certificate in Corporate Social Responsibility provides students there with hands-on experience in dealing with social

improve management and operations within the industry.

The Centre is a prime example of how institutions like ours can bring together health-care governing bodies, industry professionals and academics to deploy improved health services and programs. With patient wait times and other health-care delivery issues resonating across the province and the country, this is the kind of relationship that can only strengthen in the months

and years ahead.

Through their active participation, health authorities and other industry players provide the university with key learning and research opportunities. In turn, we provide the portal to be able to look at health-care problems and solutions; ultimately helping us have a more significant impact on this vital issue. Again, it goes back to the value chain in terms of coming up with solutions that "profit" both industry

and academia.

These kinds of industry partnerships and other means of involvement are crucial because they provide ongoing resources and an engine for learning and research.

Business problems today have become more complex. In turn, academic institutions are responding with enhanced learning opportunities such as customized executive programs and professional development programs. The involvement of

industry, professional groups and other related organizations in developing these programs can't be understated.

We are a forum for the transfer of information between all interested parties in business education – a place where innovation and ideals are the focus, and solutions are found. As a result, we will increasingly look to the private sector and industry at large for these synergies and collaborations. ■

challenges, many provided by an ongoing dialogue with leaders from the corporate world.

These are good examples of how the "new age value chain" really takes hold, and where we find commercial and governmental enterprises now meeting the needs of the university communities they interact with. More than ever, the focus of Sauder and like-minded academic institutions internationally is on this symbiotic exchange, as we develop ideas through action and through research with firms.

Together, we work on overcoming problems and finding solutions, whether the arena is retailing, real estate development, transportation or the deployment of government programs. We're working with our partners on challenging problems to develop valuable solutions. In turn, what they give back to academia is critical: valuable research opportunities and knowledge forums for faculty and students that become part of a long-term process.

Case in point: The Centre for Operations Excellence at the Sauder School of Business is working together with A&W Canada on a compelling operations research project that allows Sauder students to employ business models, decision analysis, statistics and other tools in a real-world, retail franchise environment. Thanks to this partnership and others like it in the realms of transportation, telecommunications, manufacturing and financial services, our graduates are gaining important industry project experience while guiding projects from conception to final delivery.

On the health-care delivery front, the Sauder-hosted Centre for Health Care Management connects nine UBC faculties and schools that have a genuine interest in the advancement of health care in British Columbia. Our faculties are actively collaborating with B.C. health authorities and other health-care organizations to continuously

Royal Roads
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The following are just a few examples of resources Western Canada's higher-learning institutes provide to the business community. Your local college, university or trade school may offer similar programs.

- The Business Career Centre at the Sauder School of Business is an excellent resource for matching companies with UBC graduates for intern and co-op work opportunities.
www.sauder.ubc.ca/cc

- At the University of Alberta, the Alberta Business Family Institute provides programs to assist family members engaged in business, promotes peer dialogue and provides access to tools and resources.
www.bus.ualberta.ca/abfi

- On a limited basis, Royal Roads University offers executive coaching in which participants – ideally mature managers – bring a real business challenge in front of a panel of experienced coaches and facilitators. Organizational consulting

and a leadership challenge program are also available. Call 250-391-2511 or toll-free 1-877-778-6227 for more information.

- At the University of Manitoba, the Asper Centre for Entrepreneurship supports young Manitoba entrepreneurs through a combination of education and practical experience.
www.umanitoba.ca/entrepreneur

- The BCIT Entrepreneurial Skills Training (BEST) Program helps qualified candidates meet the challenges of starting a new business venture, providing tools, resources, training, as well as access to an experienced Business Advisor through the business launch phase.
commons.bcit.ca/venture/best

GO WEST

Collaboration drives world-class research

BY GRANT WING

By forging strong collaborations with other research institutions, Western Canadian universities are advancing research in a broad range of fields.

A 1970's collaboration between the University of Manitoba department of medical microbiology and the University of Nairobi in Kenya has led to the Winnipeg university's role as a leading centre for the study of HIV/AIDS and infectious diseases.

It's just one example of the powerful outcomes that can result from collaborative research.

Dr. Joanne Embree, head of the University of Manitoba's department of medical microbiology, says a small initial collaboration with the Kenyan university allowed researchers like her to witness firsthand the spread of AIDS in Kenya. Among the crucial discoveries made about HIV/AIDS transmission was a group of sex workers who remained uninfected after repeated exposure to HIV, and whose immunity may hold the key to a HIV vaccine.

"It's been an incredible experience of two universities working together and then bringing in several different partners - universities, pharmaceutical industry, government agencies - together to do research and then take the research that results and apply them to public health policy," says Dr. Embree.

The collaboration has attracted Canadian funding to build a modern research laboratory in Kenya and funding from major American relief organizations for AIDS control and prevention in India.

The new International Centre



PHOTO: SFU

Dr. Neil Branda (left) SFU professor and director of 4D Labs.

for Infectious Diseases (ICID) in Winnipeg will foster further collaboration between the biotechnology research cluster that has emerged in Winnipeg, says Dr. Embree.

When Simon Fraser University's (SFU) 4D Labs opens this fall, the state-of-the-art facility will foster collaboration in nanotechnology, the science of creating and controlling devices made on the atomic or molecular scale. The new materials based on these tiny structures could lead to faster, smaller computers, stronger, lighter materials and new drug delivery systems.

Dr. Neil Branda, SFU professor of chemistry and 4D's director of molecular systems, says 4D Labs will have a wide range of equipment for fabrication and analysis of nanoscale materials and lab space for visiting researchers to use for collaborative projects.

"We already have people working together at SFU, UBC and the University of Victoria. There were so many collaborations and interactions already in the Lower Mainland we decided that we needed to build a centre to be able to facilitate them," said Dr. Branda.

He says the \$36-million facility will allow researchers to work on a broad range of new materials with many applications, and that a collaborative spirit will be very prominent at 4D.

"Once we open in October, we will be a facility at SFU that people from around the region can access," he said.

At the University of Victoria,

physics and astronomy professor Dr. Sara Ellison is collaborating with the National Research Council of Canada's Herzberg Institute of Astrophysics (NRC-HIA) in Victoria for her research looking at the evolution of the early universe.

Her collaboration with NRC-HIA, which manages and allocates access to Canada's observatories, has allowed her to stay involved with instrumentation and ground-based observatories nationally and overseas.

One project, co-ordinated with the Very Large Telescope in Chile, has developed an innovative follow-up to gamma-ray bursts. It recently set a record for fastest response to cataclysmic supernova explosions, adding to astronomy's understanding of the phenomenon by recording longer-duration images.

Dr. Ellison values the time she spends at NRC-HIA, which allows her to collaborate with the institute's scientists, and is enthusiastic about her role on the science team advising NRC-HIA telescope instrumentation designers working on instruments for a large 30-metre optical telescope now being built.

"NRC-HIA has a very large instrumentation group with some of the world leaders in designing instruments for the current generation as well as future generations of optical telescopes," she says. "To have a hand in designing (the instrumentation) I am going to work with for the rest of my career, certainly, it's really exciting." ■

THE VALUE OF COLLABORATIVE RESEARCH

Partnerships with universities can foster innovation while increasing research efficiency by sharing expertise and resources in joint projects.

Dr. Thomas Ross, professor at UBC's Sauder School of Business, says that collaborating with a university allows a greater cross-pollination of ideas that can lead to more of the serendipitous innovations that happen when people from different disciplines approach the same problem in different ways.

Partnerships with universities can also allow public research institutions to get the expertise they need without hiring a full-time researcher. "You have access to more people when you are at a university. You get the engineers, physicists, chemists and biologists - whoever you think you might

need, you have that pool of talent there," said Dr. Ross.

Maja Veljkovic, director general of Vancouver-based National Research Council Institute for Fuel Cell Innovation (NRC-IFCI), says that by sharing experts and resources, collaborations between NRC-IFCI and local universities are helping direct academic research toward areas critical to Canadian industry. This partnership is also preparing students for the workforce by exposing them to collaborative projects with NRC-IFCI's industrial partners.

Three UBC professors working part-time at NRC-IFCI, and joint students also use the NRC-IFCI's advanced hydrogen facilities for joint projects. In return, NRC-IFCI researchers have access to UBC's new Clean Energy

Research Centre.

Ms. Veljkovic says NRC-IFCI also shares experts and equipment at Simon Fraser University's new materials research facilities, has partnerships with the University of Victoria's Institute for Integrated Energy Systems, and is working on solar-powered hydrogen generation systems with BCIT and industrial partners.

"By working together, we can really leverage resources to cover the whole spectrum from fundamental new science and novel ideas to commercial applications of fuel cells because we are working with industry to deploy this technology," said Ms. Veljkovic. "We don't duplicate things, we synergize." ■



PHOTO: UNIVERSITY OF SASKATCHEWAN

The \$174-million Canadian Light Source (CLS) synchrotron at the University of Saskatchewan is welcoming a growing number of world-class researchers.

Canadian Light Source synchrotron gears up to meet demand

BY MICHAEL ROBIN

When Regan Wilks wanted to know how electrons move within peptides, the building blocks of proteins, the PhD student turned to the most powerful light in the nation: the Canadian Light Source (CLS) synchrotron at the University of Saskatchewan.

"This is very substantial work," says U of S Canada Research Chair Alex Moewes, Mr. Wilks' supervisor and leader of the research team. "This project has both experimental and theoretical significance in biology and materials science."

The work, one of the first published pieces of research from the

\$174-million national facility, is important to learning how processes essential to life work. It also suggests that by adding metal atoms to peptide chains, they can act like tiny wires, raising exciting possibilities for computers and nanotechnology devices.

"Everything came together," said Mr. Wilks. "I'm working with a great group and a great machine. I grew up here in Saskatoon, and it's wonderful to be able to stay here and do work that can't be done anywhere else in Canada."

Like the 40 or so other facilities in the world synchrotron community, the CLS accelerates a beam of electrons to nearly the speed of

light, then forces it to travel around a ring-shaped vacuum chamber. Each time the electron beam changes direction, it produces light that is directed down beamlines for an extremely broad range of experiments.

Research organizations from academia, government and industry are already using synchrotron light to address a variety of challenges. These include arsenic in mine tailings, underground carbon dioxide injection for greenhouse gas sequestration, and remote detection of possible leaks in oil and gas pipelines.

"We're welcoming a growing number of researchers as we bring

more capacity online," says CLS executive director Bill Thomlinson.

A good number of these scientists are exploring questions in the life sciences, not surprising on a campus that is home to colleges of agriculture, medicine, veterinary medicine, pharmacy and nutrition. Specialized organizations on campus are devoted to key areas such as vaccine development and environmental toxicology. One of North America's most successful research parks, Innovation Place, is also located next to the CLS.

In fact, the most ambitious addition to date, the Biomedical Imaging and Therapy facility (BMIT) is devoted to life sciences research.

BMIT's two beamlines are part of the seven-beamline, \$50-million phase two expansion currently underway that will double the number of beamlines (there is room for about 30 at the CLS).

Only the third such facility in the world, BMIT will be unique in its ability to study full-size animals and eventually, humans. Using BMIT, researchers will study the inner workings of the body in unprecedented detail, including such hard-to-image soft tissues as lungs, cartilage and reproductive organs. BMIT will also be used to develop techniques to better treat cancer, using the extremely powerful, precisely directed X-rays.

The CLS is a rapidly growing research enterprise, directly employing more than 120 people in an environment that is decidedly international in flavour. While the working language may be English, it is accented with tones from China, Italy, Russia and more than a dozen other countries.

"It's exciting to see scientists from all over the world starting to rub shoulders with our U of S users and colleagues from across the country," Mr. Thomlinson says. "We're already seeing some powerful local collaborations that are getting some interesting results." ■
For more information on the CLS, visit www.lightsource.ca.