

University of New Brunswick

Vice-President (Research) & Office of Research Services

Annual Report 2011-2012



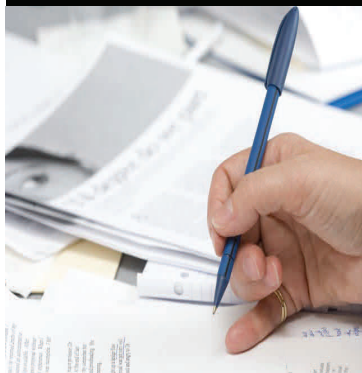


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Highlights from the year in research...

- Strong growth, at 9.5 %, in our total research revenues.
- Contract research revenues up on both campuses.
- Tri-Council funding up by 16.1 %.
- SSHRC success rate up by 7.8 percentage points.
- UNB spin-out, Q1 Labs initiated in 2000, purchased by IBM.
- The number of graduate students, Master's, Doctoral and Post-Doctoral Fellows, all up again.
- Drs. Kecheng Li and Linda Neilson join the ranks of our University Research Scholars.
- Dr. Anthony Reiman named as the Canadian Cancer Society Chair in Saint John marking an important partnership between UNB, Université de Moncton, the Canadian Cancer Society, the New Brunswick Cancer Research Institute, Dalhousie Medicine in New Brunswick and Horizon Health.
- Several more highlights described in the Success Stories section of the report.

Message from the Vice-President (Research)

During the last few months, I have had the pleasure of finding out about the exciting research initiatives ongoing at the University. I have truly felt like a “kid in a candy store”. The varied research strength I have seen clearly shows that the University can take a leadership roll in the social, intellectual and economic health of the province and region. These strengths can make us a key player for growth in Canada and an international model in the future. The following annual report illustrates some of these strengths.

It has been a slow recovery from the financial crisis of 2008. Though the world economy has been in a stall, research revenues at UNB have increased during 2011-12 year with a nearly 10% increase over the previous year (pg 4). Likewise, revenue per faculty topped the \$100K mark (page 8). Much of this growth is due to the

strong performance of UNB in contract research. The intellectual property from this work has resulted in 80 patents pending with gross revenues received of \$1.9M (pg 15). One indicator of our impact on the local economy is the 50% expenditure of research revenue to salaries (pg. 8). In 2011-12 the added research funding has lead to continued growth in the graduate program with more than a 10% growth in doctoral and post-doctoral student enrolment (pg. 19). With this increased research intensity new research programs are being developed and will attract additional students such as the Pond-Deshpande Centre for Entrepreneurship and Innovation (pg 29) and the IBM Centre for Advanced Studies (pg 30).

Finally, there is a clear trend in government to promote innovation as a means to invigorate the economy. UNB



David Burns
VP Research

is in an excellent position to take advantage of this trend. Efforts such as the ones highlighted in this report demonstrate the capability for innovative thinking that is the engine for a new economy.

Message from the Executive Director of ORS

The 2011-12 fiscal year saw a reversal of the trend seen in our research revenues over the last two fiscal years. Slow growth in 2009-10 and the decline seen in 2010-11 has been replaced by strong growth, 9.5% in total research revenues, to a level just above that seen in 2009-10. In 2011-12, we surpassed our previous record by just under 3%. It must be noted that our contract revenues were at an all-time high at \$26.2M, but our grants revenues, at \$31.2M, have fallen to the levels of 2007-08 and 2008-09, off considerably from the high of \$35.9M in 2009-10.

As we all know, our Tri-Council grants are vital to the university's research activities and any decline is cause for concern. However, our success (100 %) with the newly created NSERC Engage

program demonstrates our ability to compete successfully and attests to UNB's strong partnership abilities. An increase to 30.8 % in overall success rate in SSHRC funding coupled with a 5.6 percentage point increase in the funding rate is good news. Furthermore, with the introduction of SSHRC's partnership programs coupled with UNB's experience in partnering, we are optimistic that UNB will be able to grow its SSHRC funding.

Last year in this space I mentioned the acquisition of the local IT firm Radian6 by Salesforce.com. In 2011-12, Q1 Labs, a spin-out from UNB based on a licensing deal initiated in October 2000 by ORS, was acquired by IBM. It is interesting to note that one of the partners in Q1 had been a key partner in the formation of Radian6.

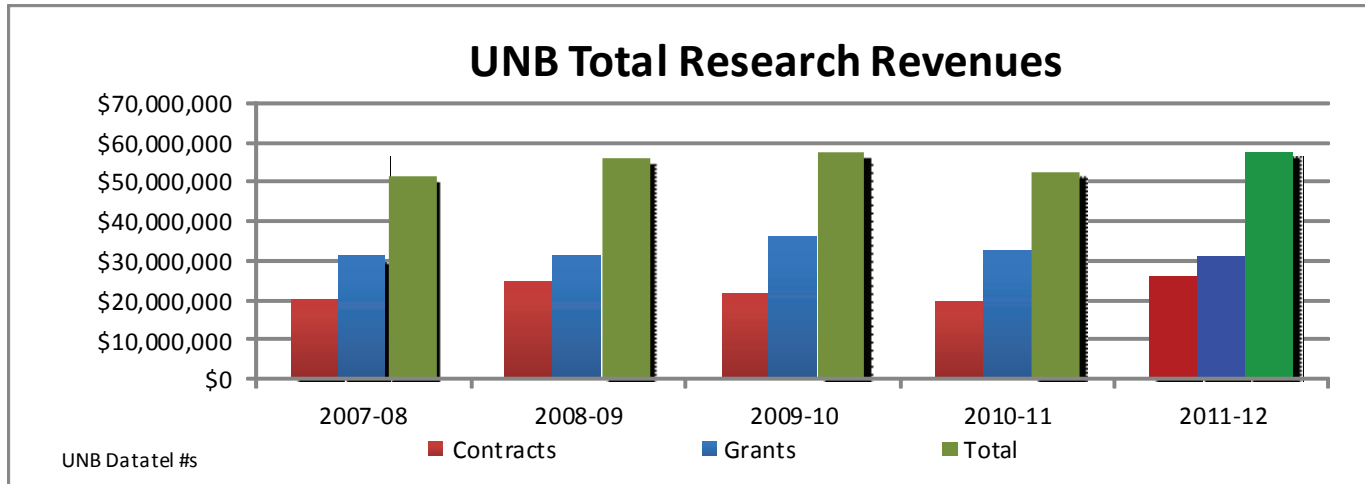


Dwight Ball
Executive Director (ORS)

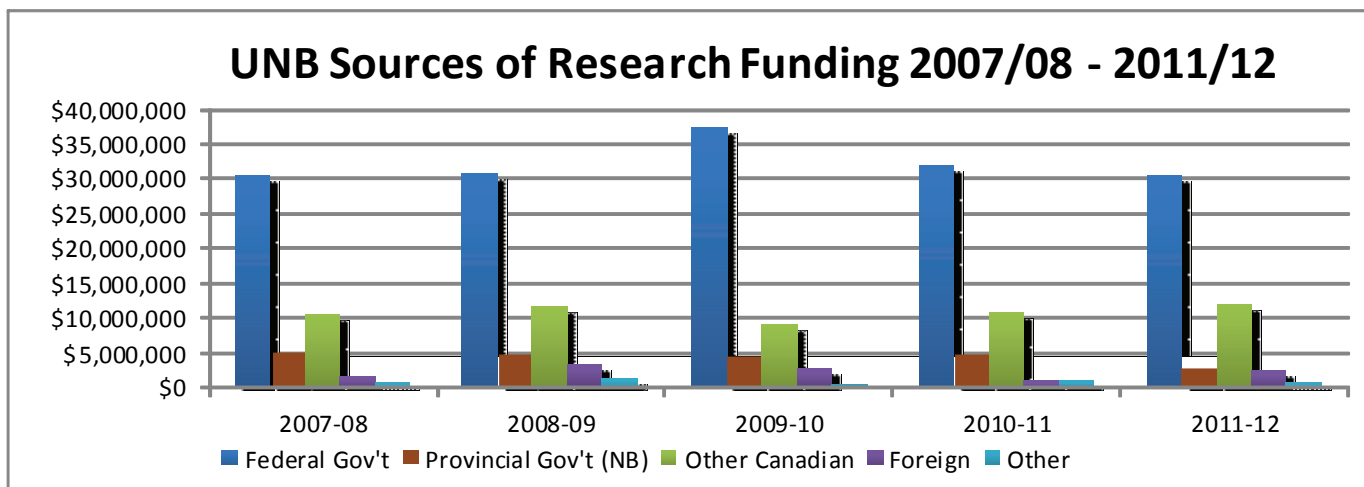
It is worthy of note in this edition of our Annual Report that, although outside the time period covered here, on August 1, 2012 we welcomed our new Vice-President Research, Dr. David Burns to the Office.

Research Revenue

The 2011-12 fiscal year saw a reversal of the downward trend in research revenues seen in 2010-11. Total research revenues were up by 9.5% over the previous year to \$57,428,140, \$165,845 above the level of two years ago. This reversal was due to contract revenues, other than with the federal and provincial governments (see: UNB Sources of Research Funding 2007/08 - 2011/12). Fredericton saw a 33% increase and Saint John 10%, totalling 31% and yielding \$19,856,688, a level approximating 2008-09. Grants, other than from tri-Council sources, dropped across both campuses, 3% in Fredericton and 22% in Saint John for an overall decline of 6%.

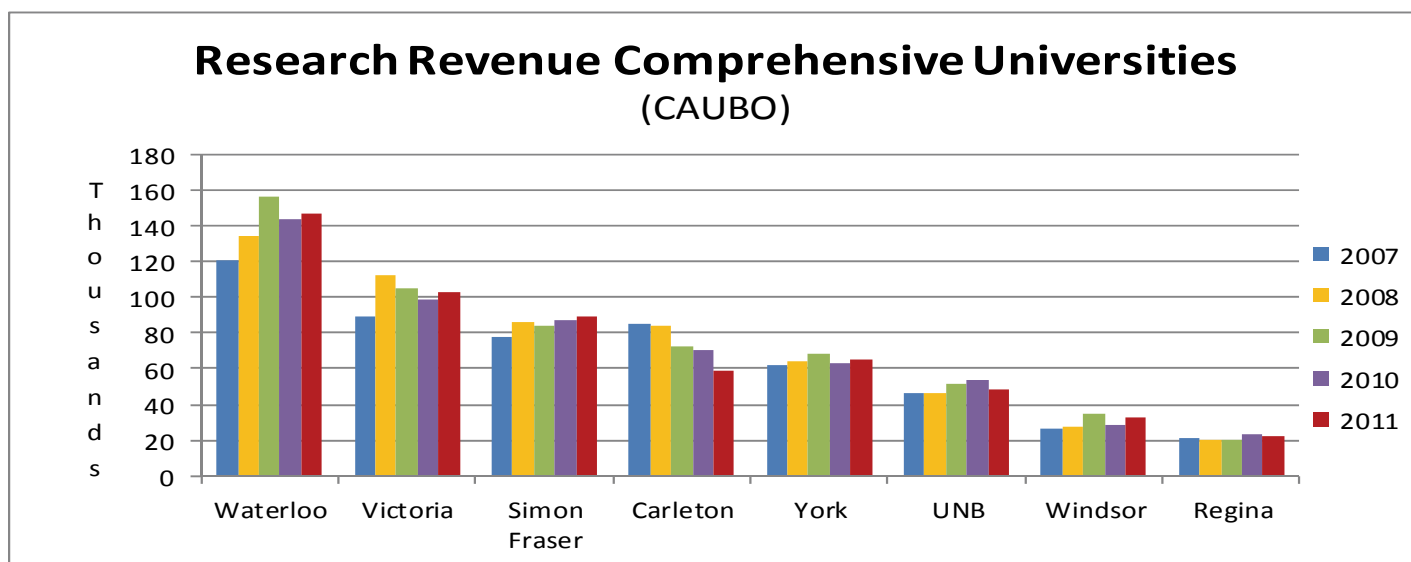


Worthy of note is the 62% increase in non-government Canadian contracts and a 164% increase in non-Canadian contracts.

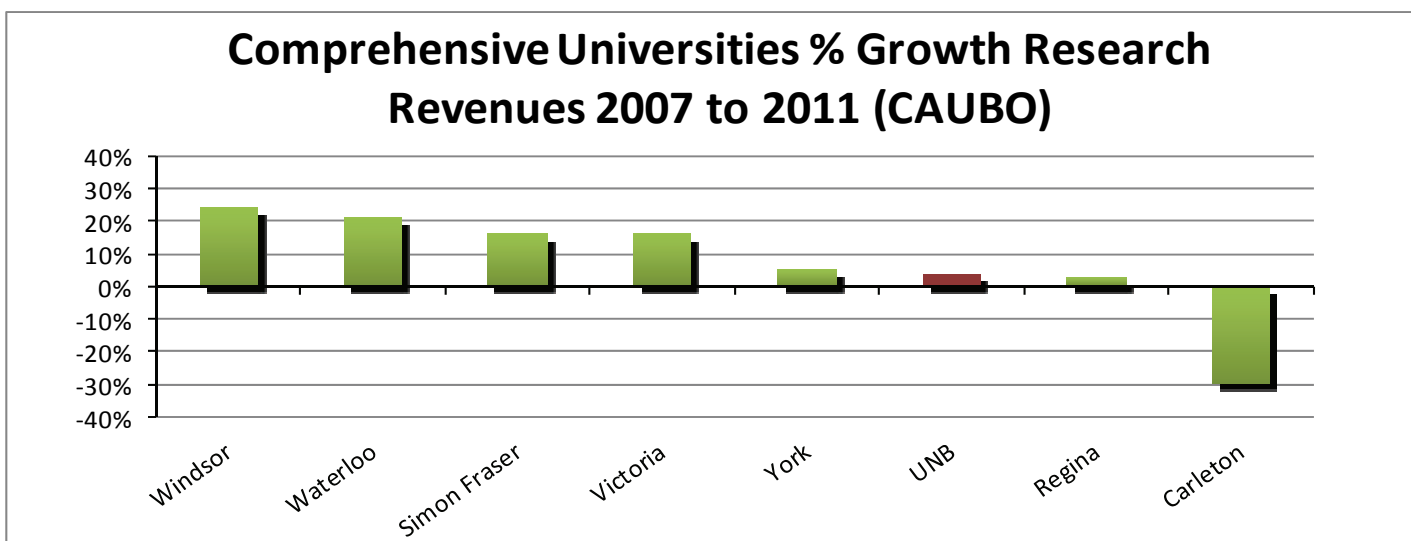


Research Revenue (continued)

The Canadian Association of University Business Officers (CAUBO) compiles research-related revenues based on mutually agreed upon definitions. It is this number that is used for inter-institutional comparisons. In the fiscal year 2011-12, UNB's CAUBO number was \$51,936,187, up 7.7% from the final CAUBO number for last year of \$48,243,509. The inter-institutional comparative revenues graphed below are one year in arrears due to reporting and publication delays. In 2011, UNB placed sixth in its commonly reported peer group, as opposed to seventh previously due to our having stopped graphing UQAM since the Quebec universities have not reported since 2008.



We have routinely reported our percentage growth in CAUBO research revenues over a rolling five year period in comparison to our peer group of universities. Last year, we ranked 2nd after Simon Fraser for the period 2006 to 2010, however we have dropped to 6th, with 4% growth, just behind York for the period 2007 to 2011.



Research Revenue (continued)

Research Revenue per Generating Unit

The following table attributes research revenues by generating unit during the last fiscal year. Note that other research revenues are generated by the university, but are not reported on this table (e.g., the Indirect Costs of Research grant).

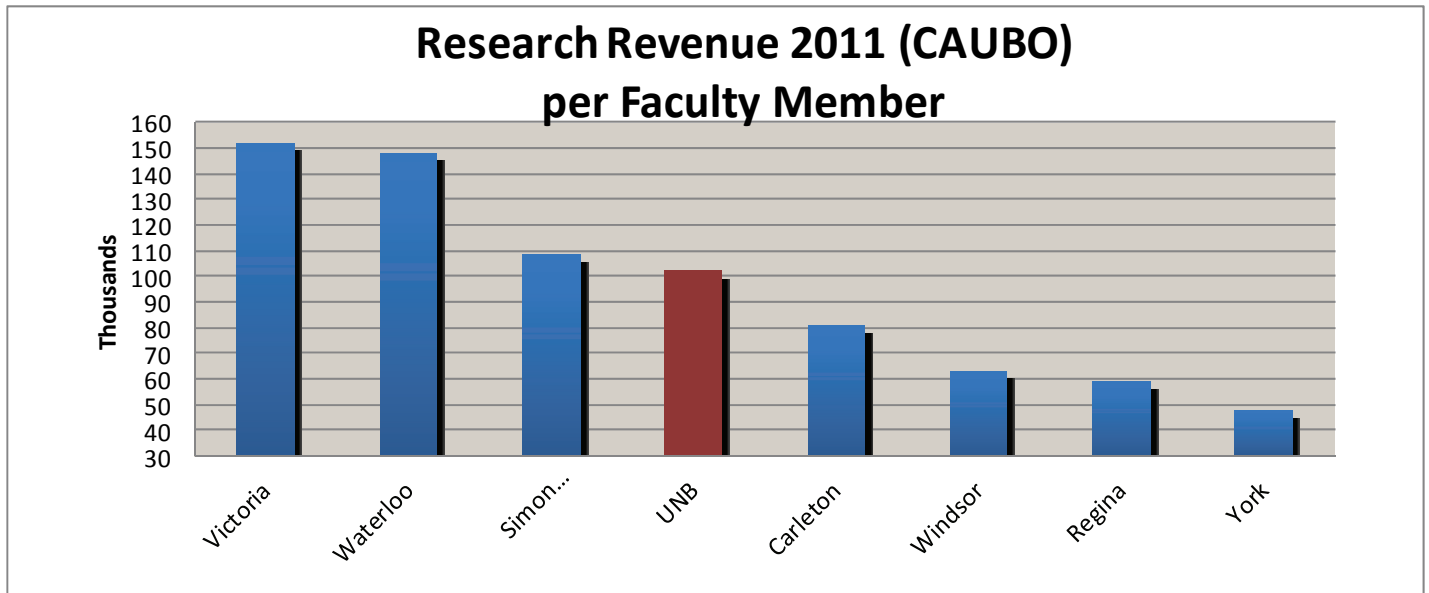
| Research Revenues per Generating Unit | | | | |
|---------------------------------------|------------------|------------------|----------------|-------------------|
| UNIT | Grants | Contracts | Other | Total |
| ADMINISTRATION (F) | 67,000 | 127,669 | | 194,669 |
| ARTS (F) | 2,808,014 | 148,517 | 7,946 | 2,964,477 |
| Arts | 424,054 | | | 424,054 |
| Anthropology | 63,166 | | | 63,166 |
| Classics | -29,475 | | | -29,475 |
| Economics | 106,158 | 27,787 | 400 | 134,345 |
| English | 117,224 | | | 117,224 |
| History | 224,044 | 33,236 | 9,952 | 267,232 |
| Philosophy | | | -2,406 | -2,406 |
| Political Science | 13,636 | | | 13,636 |
| Psychology | 549,576 | 31,494 | | 581,070 |
| French | 2,200 | | | 2,200 |
| Culture & Language Studies | | | | |
| Sociology | 1,337,431 | 56,000 | | 1,393,431 |
| COMPUTER SCIENCE (F) | 1,024,074 | 685,675 | 1,000 | 1,710,749 |
| EDUCATION (F) | 1,157,639 | 26,766 | | 1,184,405 |
| ENGINEERING (F) | 6,346,254 | 3,598,597 | 436,463 | 10,381,314 |
| Chemical Engineering | 2,139,837 | 1,752,208 | 210,517 | 4,102,562 |
| Civil Engineering | 633,194 | 437,225 | 123,340 | 1,193,759 |
| Electrical Engineering | 1,748,014 | 704,653 | | 2,452,667 |
| Mechanical Engineering | 592,533 | 245,240 | 6,000 | 843,773 |
| Geodesy & Geomatics | 1,190,423 | 459,271 | | 1,649,694 |
| J Herbert Smith ACOA Chair | 42,253 | | 96,606 | 138,859 |
| FORESTRY | 3,185,355 | 2,753,090 | 337,621 | 6,276,066 |
| KINESIOLOGY | 332,540 | 177,995 | 43,406 | 553,941 |
| LAW | 15,767 | 136,462 | 1,068 | 153,297 |
| NURSING (F) | 622,803 | | 17,355 | 640,158 |

Research Revenues per Generating Unit (continued)

| Research Revenues per Generating Unit | | | | |
|--|------------------|------------------|----------------|------------------|
| UNIT | Grants | Contracts | Other | Total |
| SCIENCE (F) | 5,700,689 | 3,214,409 | 46,805 | 8,961,903 |
| Math & Stats | 410,669 | | | 410,669 |
| Biology | 3,386,633 | 360,696 | 19,615 | 3,766,944 |
| Chemistry | 465,973 | 544 | 10,639 | 477,156 |
| Earth Sciences | 572,218 | 2,031,296 | 16,551 | 2,620,065 |
| Physics | 865,196 | 821,873 | | 1,687,069 |
| INSTITUTE OF BIOMEDICAL ENGINEERING (IBME) | 565,644 | 1,876,415 | | 2,442,059 |
| CHRONIC ILLNESS RESERCH INSTITUTE (CIRI) | | | | 0 |
| CANADIAN RESEARCH INSTITUTE FOR SOCIAL POLICY (CRISP) | 299,377 | 76,908 | | 376,285 |
| CDN. RIVERS INSTITUTE (CRI) (F & SJ) | 921,025 | 597,503 | | 1,518,528 |
| SCHOOL OF GRAD STUDIES | 208,559 | 2,142,854 | | 2,351,413 |
| HIL | -2 | 3,500 | | 3,498 |
| CADMI MICROELECTRONICS | | | 107,151 | 107,151 |
| ARTS (SJ) | 43,694 | 8,065 | | 51,759 |
| History & Politics | 7,000 | | | 7,000 |
| Social Science | 501 | 4,501 | | 5,002 |
| Criminal Justice Studies | 21,154 | 3,564 | | 24,718 |
| Psychology | 15,039 | | | 15,039 |
| BUSINESS (SJ) | | 188,555 | | 188,555 |
| SCIENCE & ENGINEERING (SJ) | 2,972,009 | 1,022,383 | 21,285 | 4,015,677 |
| Biology | 2,527,275 | 670,806 | 16,285 | 3,214,366 |
| Physical Sciences | 47,100 | 242,500 | 5,000 | 294,600 |
| Nursing/Health Sciences | 46,500 | | | 46,500 |
| Engineering | | 4,000 | | 4,000 |
| Computer Science and Applied Stats | 339,134 | 105,077 | | 444,211 |
| Mathematical Sciences | 12,000 | | | 12,000 |

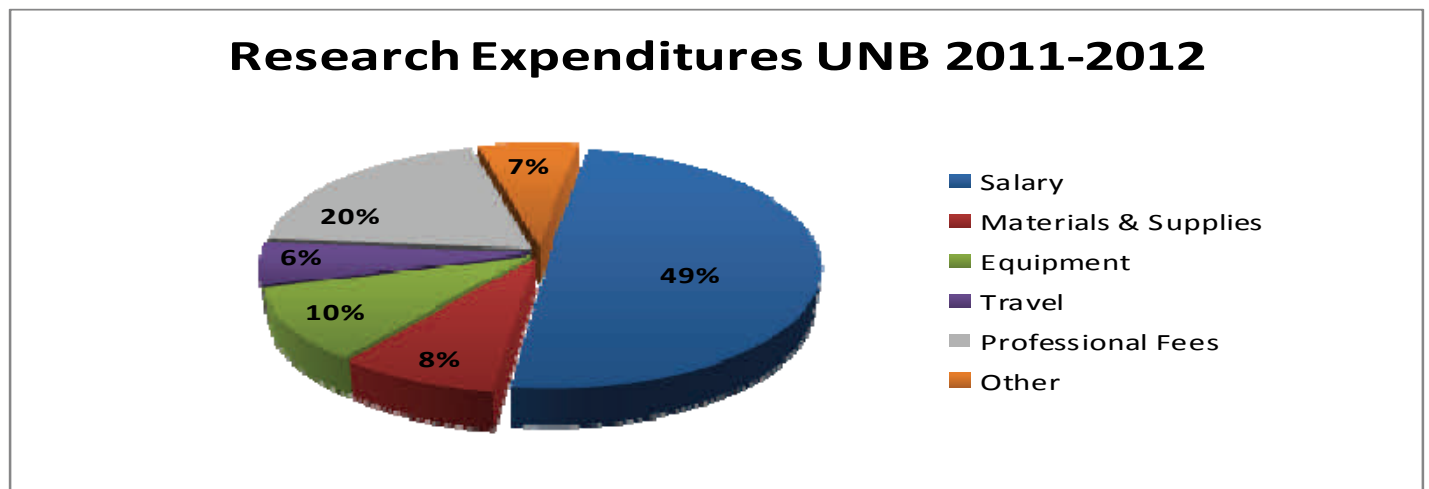
Research Revenue (continued)

A metric that is commonly cited when comparing the research intensity at universities is the research revenue generated per faculty member. In order to make such a comparison credible, independent sources are required for the two metrics. For our purposes, we use Re\$earch Info Source Inc. and CAUBO. In 2011, as in 2010, UNB ranked fourth, but in 2011 we broke through the \$100k per faculty member barrier..



Research Expenditures

The majority of the research funding received by UNB goes back into the New Brunswick economy through salaries. In 2011-12, \$22.8 million was spent on student and non-student salaries. Equipment, materials and supplies consumed \$16.2 million and travel \$3.9 million.



NOTE: The bulk of all research revenues eventually flow back out as expenses. Due to the timing of different accounting tasks, however, total research expenditures will not equal total research revenues for the fiscal year.

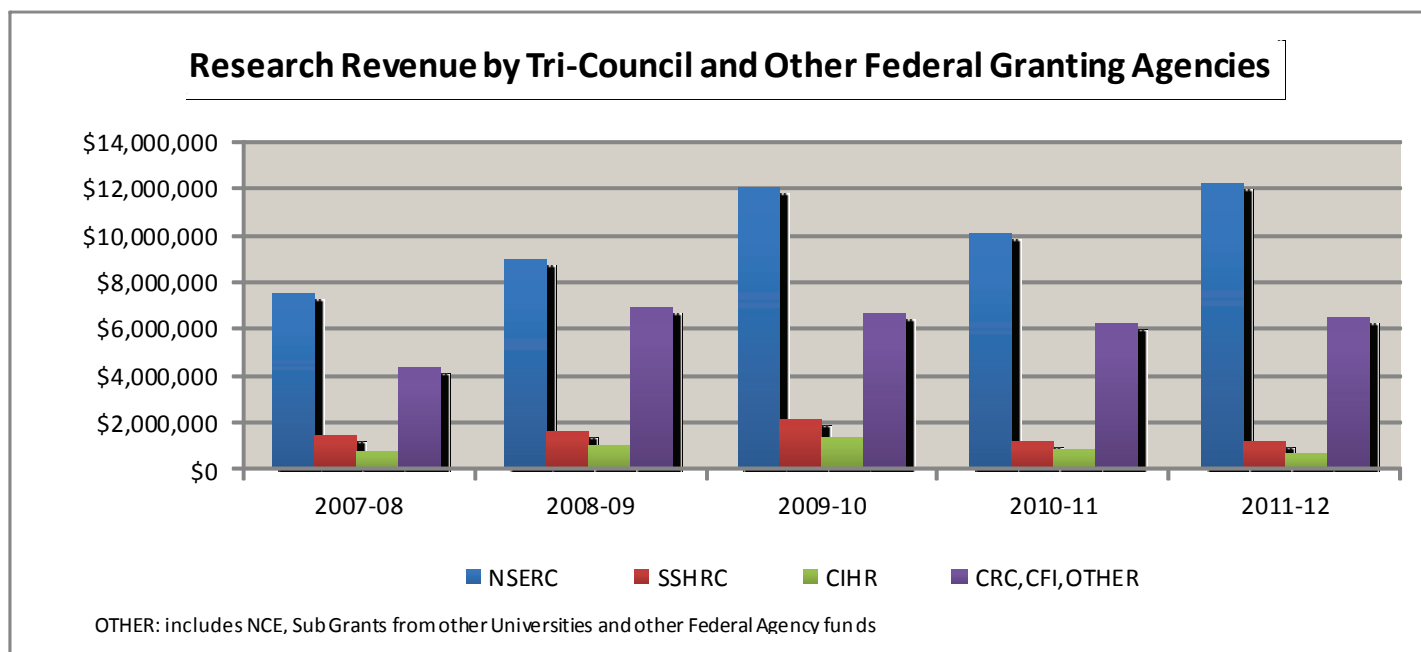
Indirect Costs of Research



The Indirect Costs of Research grant provides funding for research facilities, resources, management and administration, regulatory requirements, accreditation and intellectual property management. The amount universities receive from this program is contingent on their level of tri-Council funding based on a three-year rolling average. The university's allocation for 2011-12 was \$3,577,560, and the allocation for the 2012-13 fiscal year is \$3,574,976.

Tri-Council Funding

The University's tri-Council (NSERC, SSHRC, CIHR) revenues in 2011-12 increased by 16.1% overall to \$14,028,122 which is still \$1.4M below 2009-10. The Fredericton campus saw an increase of 30% while the Saint John campus suffered a 27% decline. Other tri-Council (CRC, CFI, other) grants rebounded from \$6.1M in 2010-11 to \$6.4M in 2011-12.



As indicated, grants from Tri-Council are a very important component of UNB's research activities. The details of our successes or lack thereof are being continuously scrutinized. To that end, details of our submissions to and awards from NSERC, SSHRC and CIHR for the calendar year 2011 are depicted on the following table (totals will differ from those presented for fiscal year 2011-12).

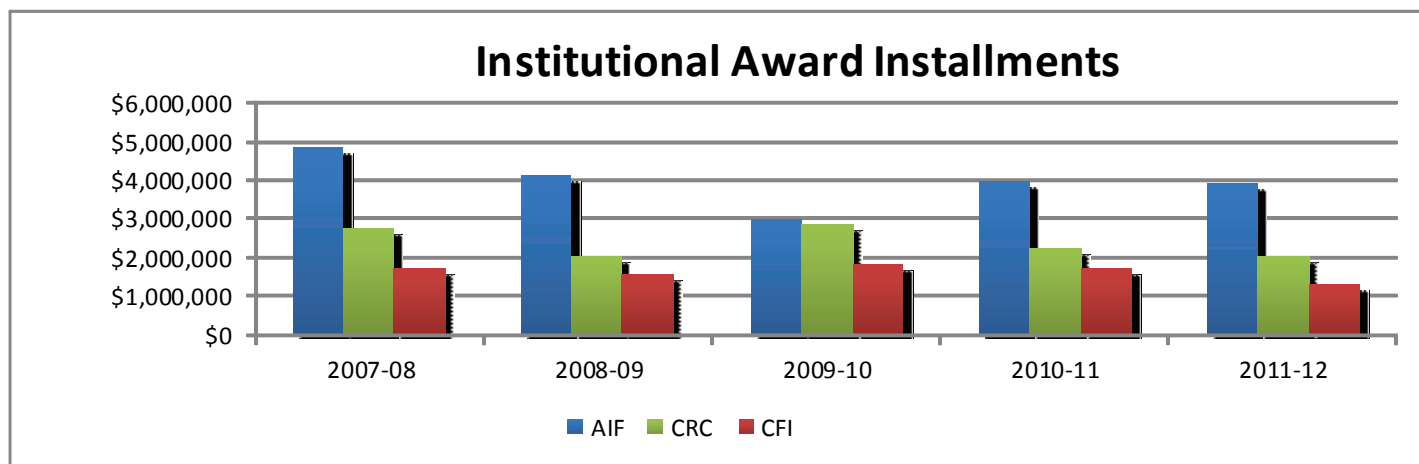
In order to facilitate comparisons, we have also provided last year's (2010) metrics.

Tri-Council Success

| Tri-Council - 2011 Results | | | | | | | |
|----------------------------|-------------------|-----------|--------------|------------|-------------|--------------|--------------|
| Submissions | Program | Submitted | Requested | Successful | Awarded | Success Rate | Funding Rate |
| NSERC | CRD | 4 | \$1,000,000 | 4 | \$995,000 | 100% | 99.5 % |
| | Strategic Project | 4 | \$2,340,114 | 1 | \$598,260 | 25.0% | 25.6% |
| | RTI | 18 | \$1,330,827 | 3 | \$291,462 | 16.7% | 21.9% |
| | Discovery | 42 | \$11,649,751 | 18 | \$2,585,000 | 42.9% | 22.2% |
| | Engage | 20 | \$492,458 | 20 | \$492,458 | 100.0% | 100.0% |
| | Other | 13 | \$5,915,142 | 6 | \$213,902 | 46.2% | 3.6% |
| | Total NSERC | 101 | \$22,728,292 | 52 | \$5,176,082 | 51.5% | 22.8% |
| SSHRC | Insight | 22 | \$3,827,901 | 6 | \$1,350,782 | 27.3% | 35.3% |
| | Other | 17 | \$5,288,067 | 6 | \$342,144 | 35.3% | 6.5% |
| | Total SSHRC | 39 | \$9,115,968 | 12 | \$1,692,926 | 30.8% | 18.6% |
| CIHR | OOG | 7 | \$2,431,780 | 0 | \$0.00 | 0.0% | 0.0% |
| | Other | 3 | \$66,895 | 2 | \$36,539 | 66.7% | 54.6% |
| | Total CIHR | 10 | \$2,498,675 | 2 | \$36,539 | 20.0% | 1.5% |

| Tri-Council - 2010 Results | | | | | | | |
|----------------------------|-------------------|-----------|--------------|------------|-------------|--------------|--------------|
| Submissions | Program | Submitted | Requested | Successful | Awarded | Success Rate | Funding Rate |
| NSERC | CRD | 1 | \$332,247 | 1 | \$332,247 | 100% | 100.00% |
| | Strategic Project | 7 | \$3,151,440 | 2 | \$1,140,556 | 29.00% | 36.00% |
| | RTI | 19 | \$1,045,810 | 4 | \$230,665 | 21.00% | 22.00% |
| | Discovery | 49 | \$12,937,958 | 28 | \$3,943,000 | 57.00% | 30.00% |
| | Engage | 18 | \$434,818 | 17 | \$418,395 | 94.00% | 96.00% |
| | Other | 12 | \$3,450,833 | 8 | \$1,683,178 | 67.00% | 49.00% |
| | Total NSERC | 106 | \$21,353,106 | 60 | \$7,748,041 | 57.00% | 36.00% |
| SSHRC | SRG | 21 | \$2,142,669 | 6 | \$311,448 | 29.00% | 15.00% |
| | Other | 5 | \$247,365 | 0 | \$0.00 | 0.00% | 0.00% |
| | Total SSHRC | 26 | \$2,390,034 | 6 | \$311,448 | 23.00% | 13.00% |
| CIHR | OOG | 10 | \$2,453,576 | 2 | \$125,905 | 20.00% | 5.00% |
| | Other | 4 | \$575,410 | 3 | \$295,059 | 75.00% | 51.00% |
| | Total CIHR | 14 | \$3,029,986 | 5 | \$420,964 | 36.00% | 14.00% |

Institutional Funding



Atlantic Innovation Fund (AIF)

The Atlantic Canada Opportunities Agency announced project approvals for Round 9 applications in May 2012. Three UNB-led projects were approved:

Dr. Felipe Chibante (Chemical Engineering) was awarded \$1.5 million for his project intended to lower the cost of fullerene manufacturing for solar cells.

Dr. Wei Chang Du (Computer Science) was awarded \$1.4 million for his software engineering project to integrate business vocabularies, rules, and process modules for engineering enterprise systems.

Dr. Yun Zhang (Geodesy and Geomatics) was awarded \$1.9 million for his project to develop software systems for triple-sensitive surveillance cameras with improved sensitivity and imaging sensors.

As well, Dr. Gregory Fleet (Business, SJ campus) is playing an important role in a project led by Mariner Partners to develop internet monitoring solutions for companies offering TV and video to mobile devices.

Canada Foundation for Innovation (CFI)

In 2011-12, UNB was successful in having three new CFI projects approved at a total value of \$278,519, plus an additional \$83,556 in Infrastructure Operating Funds to help maintain the equipment. UNB researchers are currently leading 34 active CFI infrastructure projects involving \$5.7 million from the CFI and \$7.7 million from matching sources.

Institutional Funding (continued)

Canada Research Chairs (CRC)

UNB received \$2.1 million for our 14 active Canada Research Chairs in 2011-12*. During the fiscal year, Dr. Nicole Letourneau (Nursing) left the university at the end of her first term as a Tier 2 Chair in Healthy Child Development and Dr. Om Rajora completed his term as the Tier 1 Chair in Forest and Conservation Genomics and Biotechnology. Dr. Elizabeth Mancke (History) was awarded a Tier 1 Chair in Atlantic Canada Studies.

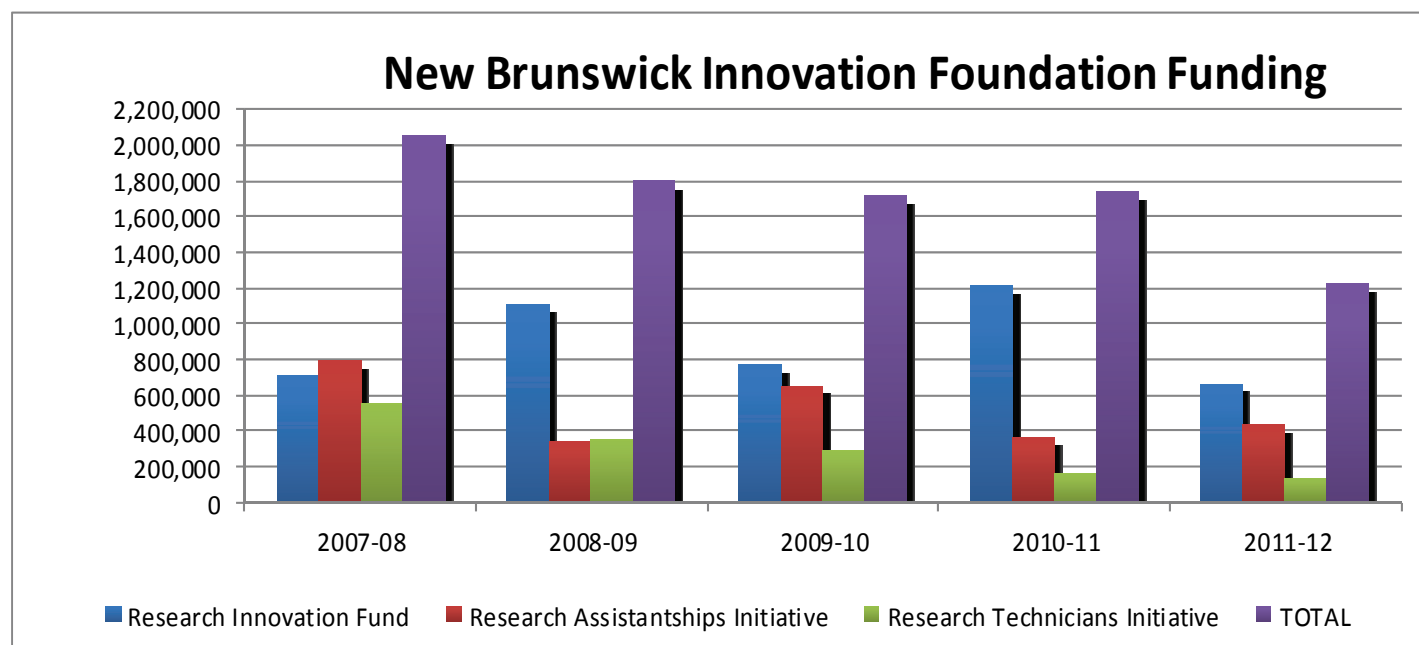
UNB's CRC contingent as of April 30, 2011 was:

| | Name | Department/Faculty | CRC in... | Tier |
|----|-----------------------|--------------------------|--|------|
| 1 | Bruce Balcom | Physics/Chemistry | Materials Science MRI | 1 |
| 2 | Rick Cunjak | Biology (F) | River Ecosystem Science | 1 |
| 3 | José Domene | Education | School to Work Transition | 2 |
| 4 | Michael Haan | Sociology/Economics | Population and Social Policy | 2 |
| 5 | Karen Kidd | Biology (SJ) | Chemical Contamination of Food Webs | 2 |
| 6 | Kerry MacQuarrie | Civil Eng. | Groundwater-Surface Water Interaction | 2 |
| 7 | Elizabeth Mancke | History | Atlantic Canada Studies | 1 |
| 8 | Christopher Martyniuk | Biology (SJ) | Aquatic Molecular Ecology | 2 |
| 9 | Kelly Munkittrick | Biology (SJ) | Ecosystem Health Assessment | 1 |
| 10 | Yonghao Ni | Chem./Chem. Eng. | Pulp and Paper Science and Engineering | 1 |
| 11 | Lucia O'Sullivan | Psychology | Adolescent Sexual Health Behaviour | 2 |
| 12 | John Spray | Geology | Planetary Materials | 1 |
| 13 | Doug Willms | Education | Literacy and Human Development | 1 |
| 14 | Yun Zhang | Geodesy & Geomatics Eng. | Advanced Geomatics Image Processing | 2 |

* Our full allocation of 16 Chairs will be filled by the recent approval of one Tier 2 Chair, Dr. Ying Zheng and another nomination that is currently underway.

New Brunswick Innovation Foundation

The New Brunswick Innovation Foundation continued to be a strong supporter of research at UNB. However, except for the Research Assistantships Initiative, funding from NBIF was down in the 2011-12 fiscal year to \$1,224,564 from \$1,743,065 the previous year. Discussions are taking place with NBIF to reverse this trend and efforts are being made internal to UNB to maximize NBIF's potential positive impact on our research activities.



Industrial Research Assistantship Program (National Research Council)

Since 2006, UNB, through ORS, has been providing short-term technical assistance to Canadian companies under this NRC program.

The objective of this initiative is to support the innovative needs of Canadian SMEs through the provision of technical assistance from faculty and staff of the University. UNB provides the expertise of its faculty, staff and associates to meet industry needs for advice on technical issues.

Many SMEs in Atlantic Canada have technical problems and technical-based ideas that they do not have the expertise to address. Through this program, the University is able to assist the entrepreneur in understanding the issues and outlining the options on how to move forward.

The scope of the services could include:

- On-site troubleshooting of issues in manufacturing, packaging, testing, etc.
- Initial assessment of new product concepts or standards
- Literature searches
- Technology searches and reviews
- Selection of equipment
- Assisting with preparation of technical research methodologies
- Preliminary market research as part of a product development process
- Technical training of company staff
- Seminars on specific technical issues of interest to industry
- Ad-hoc advice

Industrial Research Assistantship Program (National Research Council) (continued)

UNB is able to provide these services thanks to the support of the National Research Council's Industrial Research & Assistance Program (NRC-IRAP).

For the 2011-12 fiscal year, a total of 19 projects, involving 15 researchers were completed worth a total of \$75,000. Since inception a total of 116 projects have been completed under this program.

| NRC-IRAP Network Member Program | | | | | | |
|--|------------------|------------------|------------------|------------------|------------------|------------------|
| | 2006–2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
| Projects Completed | 18 | 19 | 17 | 25 | 18 | 19 |
| # of UNB Faculty Involved | 21 | 23 | 21 | 21 | 16 | 15 |

It is important to note that separate from the NRC-IRAP Network Member Program administered by ORS and reported above, the Wood Science & Technology Centre in the Faculty of Forestry & Environmental Management administers a Network Member Program specific to its industry sector.



Intellectual Property Management, Technology Transfer and Knowledge Transfer

The Industry-Government Services (IGS) division of the Office of Research Services connects business to researchers and guides research to market. In 2011-12, IGS:

- Obtained the following awards (\$39,800 total) from Springboard Atlantic Inc. to assist in moving technologies through the commercialization process:
 - a \$19,000 Proof-of-Concept award (in Chemical Engineering)
 - three Patent & Legal Awards (\$20,800 total) (in Chemical Engineering, Geodesy & Geomatics Engineering and Mechanical Engineering)
- Assisted in securing a \$100,000 Phase II NSERC I2I award for a technology in the Department of Physics
- Managed 12 new invention disclosures
- Entered into 7 technology transfer agreements with industry
- Filed 19 new patents and saw 4 previous patent applications issued
- Filed 4 new Section 9 trademarks and saw 2 previously filed trademarks advertised
- Assisted in the creation of 1 startup company
- Received revenues (licensing income and patent reimbursements) of just under \$2 million
- Knowcharge Inc., a UNB spin-off, received a total of \$638,000.00 in funding from the New Brunswick Innovation Foundation and the First Angel Network

| Technology & Knowledge Transfer | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-------------|-------------|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2000-2012 |
| Disclosures | 21 | 18 | 15 | 14 | 16 | 12 | 218 |
| Patents Filed | 19 | 22 | 22 | 27 | 23 | 19 | 196* |
| Patents Issued | 8 | 7 | 6 | 4 | 4 | 4 | 39 |
| Total Patents Pending | 46 | 56 | 64 | 68 | 71 | 80 | n/a |
| License Agreements | 16 | 10 | 12 | 15 | 7 | 7 | 106 |
| Gross Revenue Received** | \$303,701 | \$269,107 | \$448,991 | \$287,190 | \$281,390 | \$1,954,029 | \$4,414,216 |
| Start-ups Created | 1 | 2 | 2 | 3 | 0 | 1 | 17 |
| * covers 76 separate technologies | | | | | | | |
| ** Note: Gross Revenues = Licensing Income + Patent Reimbursements | | | | | | | |

Intellectual Property Management, Technology Transfer and Knowledge Transfer (continued)

UNB’s track record as measured by the common metrics for IP Management, Technology and Knowledge Transfer is good. The tables below report the number of formal disclosures made by researchers, the number of US patent applications filed, and the number of licence agreements executed at UNB, normalized for size based on research expenditures. The metrics, reported for the 2010-11 and 2011-12 fiscal years, compare UNB to the Canadian and United States averages. UNB is at the Canadian average and slightly below the US average for disclosures. UNB filed less patents in 2011-12, but is still near the Canadian average, but below the US average. However, the US average decreased significantly in 2011-12. The number of license agreements executed at UNB continue to be above the Canadian and US averages.

Since the establishment of the Intellectual Property Management Program within the Office of Research Services in late 1999, UNB has been active in transferring technologies into the marketplace, with a strong focus on industry collaboration. In the 12-year period from 2000 to 2012, UNB has:

- Managed 218 invention disclosures;
- Filed 61 US Provisional, 46 Canadian, 53 Non-US Provisional and 36 Other (European, PCT, etc.) patent applications (196 total) for 76 separate technologies;
- Seen 39 patents issued;
- Filed 18 Section 9 trademarks for the University;
- Completed 106 technology transfer deals;
- Secured licensing revenues and patent reimbursements of over \$4.4 million;
- Assisted in the creation of 17 UNB spin-off companies.

| Technology and Knowledge Transfer (Universities) | | | | | | | |
|--|-----|--------|-------|---------------------------------------|-----|--------|-------|
| (Per \$million Research Expenditures) | | | | | | | |
| Metric (2010) | UNB | Canada | U.S.A | Metric (2011) | UNB | Canada | U.S.A |
| Disclosures | .24 | .28 | .34 | Disclosures | .31 | .31 | .36 |
| Patents Filed | .23 | .15 | .32 | Patents Filed | .11 | .15 | .22 |
| License Agreements | .26 | .07 | .07 | License Agreements | .13 | .08 | .08 |
| Sources: AUTM Canadian Licensing Activity Survey: FY2010 and AUTM U.S. Licensing Activity Survey: FY2010 | | | | Source: AUTM Licensing Survey FY 2011 | | | |

Research Ranking

The Research Ranking exercise, completed on a biannual basis, has become an important tool that assists the Office of the Vice-President (Research) in measuring research output of academic units at the University of New Brunswick. This exercise exists in the form of an electronic questionnaire that is completed by each person with the designation of Professor, Associate Professor, Assistant Professor, Adjunct Professor, Honorary Research Professor, Postdoctoral Fellow, Senior Research Associate or Research Associate. Once the

data is collected, a committee reviews the submissions from each academic unit and assigns a ranking of 1 through 10 to each unit based on their submission. A ranking of 1 signifies research excellence, while a ranking of 10 signifies extremely low research performance.

The on-line portal for the current ranking period (July 1, 2011–June 30, 2013) is available and will be open until August 31, 2013.

Fredericton Campus

| Department / Faculty | | | | | Department / Faculty | | | | |
|------------------------------|---------|---------|---------|---------|--------------------------|---------|---------|---------|---------|
| | 2003-05 | 2005-07 | 2007-09 | 2009-11 | | 2003-05 | 2005-07 | 2007-09 | 2009-11 |
| Business Administration | 4 | 4 | 5 | 5 | Forestry & Env. Mgmt. | 1 | 1 | 1 | 1 |
| Anthropology | 5 | 5 | 5 | 4 | French | 6 | 5 | 5 | 5 |
| Biology | 2 | 1 | 1 | 1 | GGE | 1 | 1 | 1* | 1 |
| Chemical Eng. | 2 | 1 | 1 | 2 | History | 1 | 1 | 1 | 1 |
| Chemistry | 1 | 1 | 2* | 2 | Kinesiology | 4 | 4 | 3 | 4 |
| Civil Eng. | 2 | 2 | 2 | 2 | Law | 5 | 4 | 4 | 4 |
| Classics & Ancient History | 8 | 7 | 6 | 5 | Mathematics & Statistics | 4 | 3 | 3 | 3 |
| Computer Science | 2 | 3 | 3 | 3 | Mechanical Eng. | 1 | 1 | 2* | 2 |
| Culture and Language Studies | 10 | 6 | 4 | 4 | Nursing | 4 | 4 | 4 | 3 |
| Earth Science | 1 | 1 | 1 | 2 | Philosophy | 7 | 6 | 4 | 4 |
| Economics | 4 | 5 | 5 | 5 | Physics | 2 | 1 | 1 | 2 |
| Education | 4 | 3 | 4 | 3 | Political Science | 3 | 3 | 4 | 4 |
| Electrical & Computer Eng. | 2 | 2 | 1 | 1 | Psychology | 3 | 2 | 2 | 2 |
| English | 2 | 2 | 2 | 2 | Sociology | 3 | 4 | 3 | 2 |

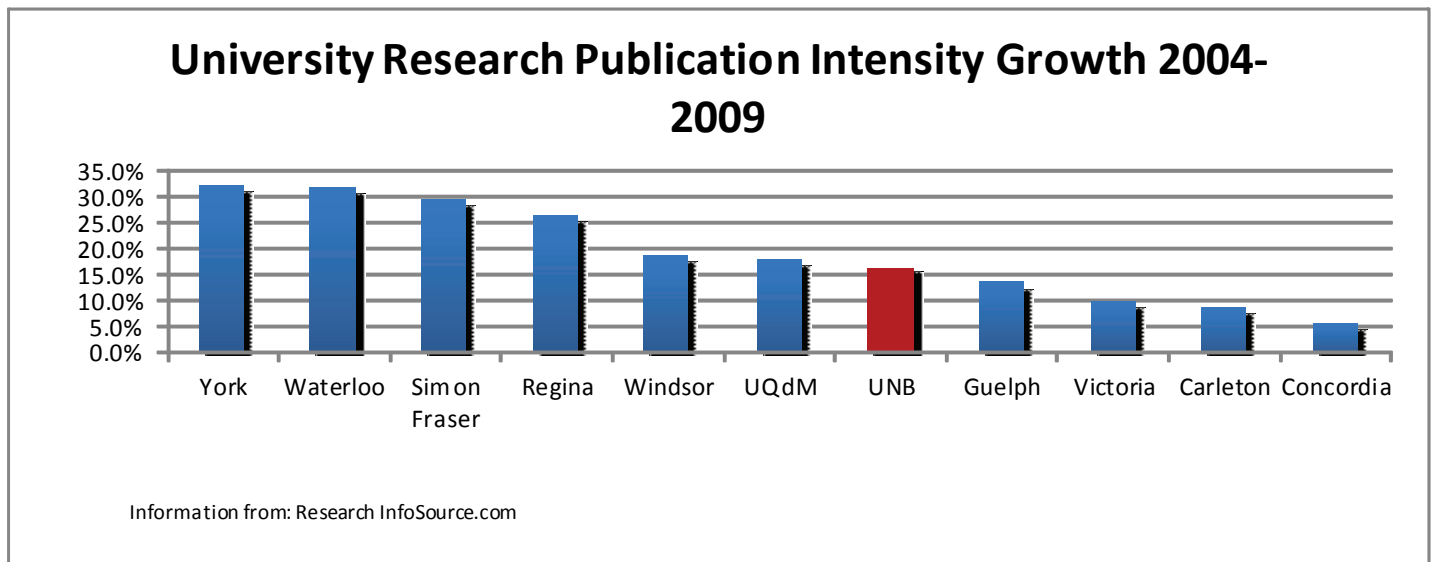
Saint John Campus

| Department / Faculty | | | | | Department / Faculty | | | | |
|------------------------------|---------|---------|---------|---------|-----------------------|---------|---------|---------|---------|
| | 2003-05 | 2005-07 | 2007-09 | 2009-11 | | 2003-05 | 2005-07 | 2007-09 | 2009-11 |
| Biology | 1 | 1 | 1* | 1 | Mathematical Sciences | 5 | 3 | 3 | 2 |
| Business | 6 | 6 | 6 | 5 | Nursing | 7 | 6 | 6 | 5 |
| Computer Science & App Stats | 2 | 2 | 3 | 3 | Physical Sciences | 5 | 6 | n/a | n/a |
| Engineering | 5 | 5 | 6 | 6 | Psychology | 5 | 5 | 4 | 5 |
| History & Politics | 4 | 4 | 5 | 5 | Social Sciences | 5 | 6 | 5 | 4 |
| Humanities & Languages | 5 | 5 | 5 | 4 | | | | | |
| | | | | | | | | | |

n/a Department no longer exists

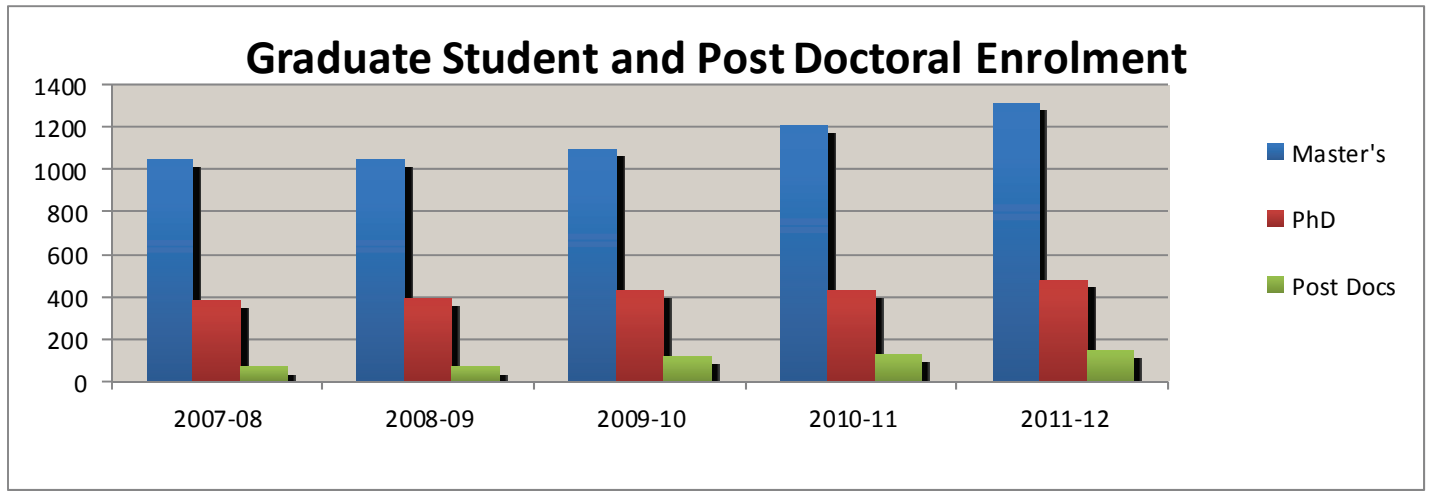
Research Outputs

A classic metric for quantifying research output is research publications. RESEARCH Info Source Inc. publishes such a metric. Between 2004 and 2009, UNB's growth in publications output was 16.4%, placing us 7th amongst our peer group of universities. York University and Université du Québec à Montréal jumped ahead of UNB since last year, displacing us by two positions.



School of Graduate Studies

Following the trend initiated in 2009-10, we have again seen good growth in the number of Masters students at UNB, up by 8.3% following the 10.7% growth seen the previous year. Doctoral student registrations are also up after two years of no growth, with an increase of 12.2% to 478. The steady growth we have seen over the past decade in the number of Post-Doctoral Fellows at UNB continued, now at 144, up 12.5% over the 2010-11 fiscal year. The growth seen in these three levels of graduate student education are strong positive indicators of the health of UNB's research enterprise and its reputation, regionally, nationally and internationally.



VP (Research) Representation

The VP (Research) holds the following positions on and off campus as part of the office mandate:

Chairperson, Board of Directors:

- Canadian Research Institute for Social Policy
- Chronic Illness Research Institute
- Institute of Biomedical Engineering

Member, Board of Directors:

- AARMS
- ACENet
- Canadian Rivers Institute
- Fredericton Knowledge Park
- Huntsman Marine Science Centre
- McKenna Fund Advisory Board
- Muriel McQueen Ferguson Centre for Family Violence Research
- New Brunswick Health Research Foundation
- Pond-Deshpande Centre for Entrepreneurship & Innovation
- Springboard Atlantic
- Wallace McCain Institute

Member:

- Steering Committee, Canadian Association of Postdoctoral Administrators
- NSERC Atlantic Advisory Board
- Fredericton, Vision 2020 Committee

In addition, the VP (Research) holds several positions related to his academic interests:

- Program Chair, International Diffuse Reflectance Society, 2012
- Advisory Board, International Council for Near Infrared Biannual Meeting, 2013

Executive Director Representation

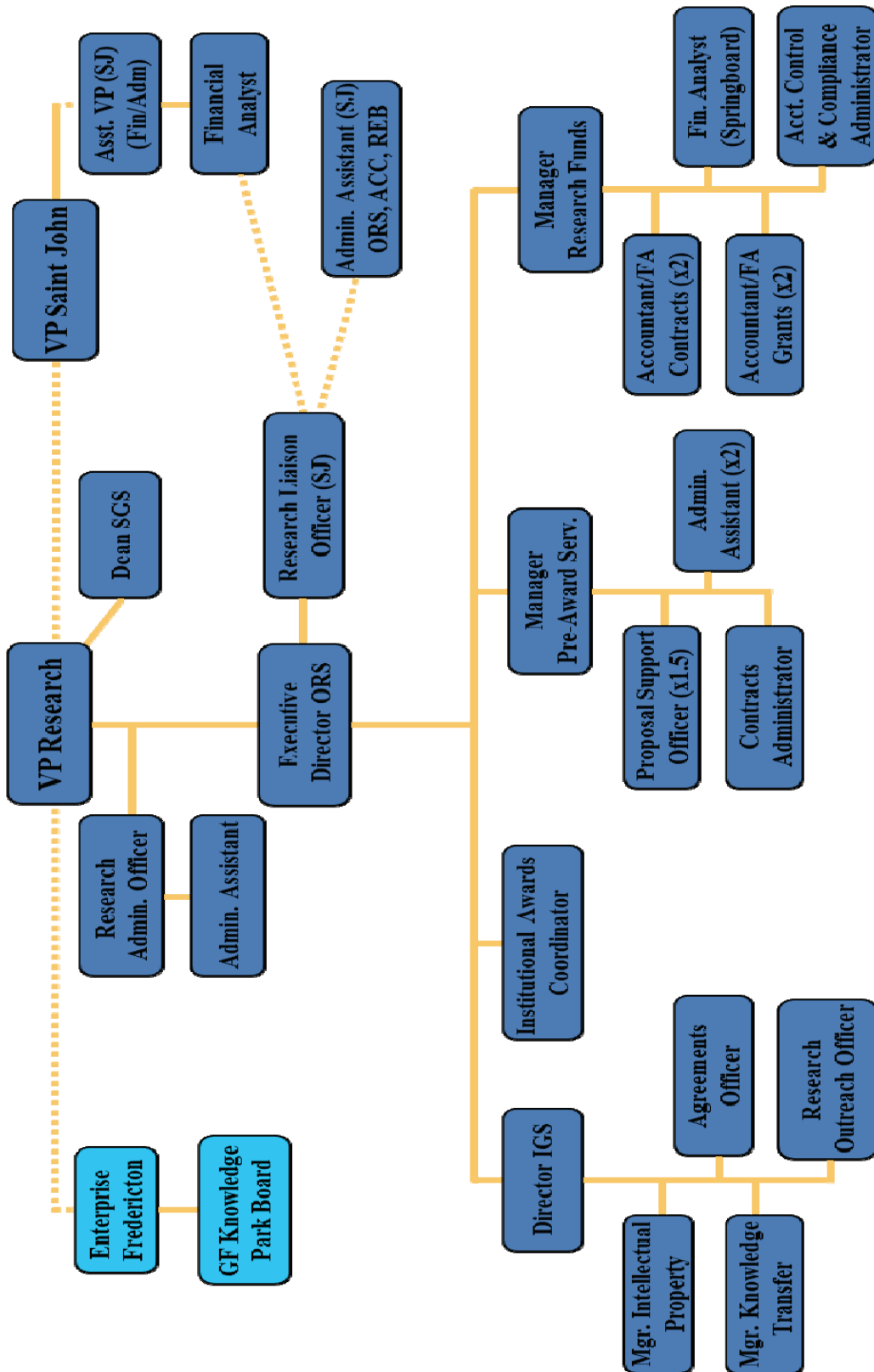
The Executive Director of the Office of Research Services represents the Office and/or the University in the following university functions:

- Chair, UNBF Asbestos Steering Committee
- Chair, Biohazards Safety Committee, UNB
- Member, Directors Plus
- Member, Board of Directors, Construction Technology Centre Atlantic
- Member, Board of Directors, CADMI Microelectronics Inc.
- Member, Advisory Board, Huntsman Marine Science Centre
- Representative of the VP Research, Advisory Board, Centre for Nuclear Energy Research

In addition, the Executive Director holds positions related to his professional and personal interests:

- Member, Society of Research Administrators International
- Member, Canadian Association of University Research Administrators
- Member, Admissions Committee, Association of Professional Engineers and Geoscientists of New Brunswick
- Fellow, Canadian Institute of Mining, Metallurgy and Petroleum
- Member, Association of Professional Engineers & Geoscientists of New Brunswick
- Certified Geologist, State of Maine
- Member, Cultivation Committee, NB Association for Community Living

VP (Research) and Office of Research Services Organizational Chart



= VP Research & ORS (Fredericton and Saint John)
 = Greater Fredericton Knowledge Park (External to UNB)*
* Note: UNB's VP Research is the President of the Greater Fredericton Knowledge Park Board.

University Research Scholars 2011: Dr. Kecheng Li & Dr. Linda Neilson

The award of University Research Scholar is intended for University of New Brunswick researchers who have demonstrated a consistently high level of scholarship, and whose research is, or has the potential to be, of international stature. The award shall honour leading researchers at the University. Recommendations for this award are made by a selection committee and approved by the Board of Governors.

Dr. Kecheng Li

Dr. Kecheng Li is a Chemical Engineer whose work tackles the technical issues facing the pulp and paper industry.

Since joining UNB, Dr. Li has quickly established the “Advanced Surface Analysis for Pulp Fibres and Paper Initiative” program which is supported by CFI-New Opportunity Fund in collaboration with NBIF and Irving Paper. The research lab houses more than one million dollars worth of equipment and established solid research infrastructure in the area which is unique in Atlantic Canada.

With his strong background in wood chemistry and pulp and paper, Dr. Li has formed a strategic research program tackling technical issues facing the mechanical pulping industry. The program focuses on reducing process energy consumption while improving the quality of mechanical pulp. This project has been strongly funded by several key industrial players such as Tembec, Irving, NewPage and the Pulp and Paper Research Institute of Canada, and also by the world

leader in mechanical pulping technologies, Novozymes North America (USA), in collaboration with NSERC and AIF.

With his expertise in advanced surface techniques and enzymatic processing of wood, Dr. Li has initiated another research program which develops novel technologies for producing second-generation bioethanol from wood and agriculture biomass.

Dr. Li proposes to develop new biomechanical technologies for the pre-treatment of woody biomass for biofuel production – an approach which promises lower energy consumption and less reliance on other chemicals in the processing. Based upon a solid theoretical foundation, the research would make an important contribution to the scientific and engineering communities in Canada, have significant commercialization potential, and would employ up to 5 highly qualified people.



University Research Scholars 2011 (continued)

Dr. Linda Neilson

Dr. Neilson brings to her academic work a unique combination of multi-disciplinary academic and professional expertise. Dr. Neilson completed her professional law degree (LL.B.) at UNB and this was followed by ten years of law practice in Canada. At that point, Dr. Neilson returned to university, this time in England, and obtained a Ph.D. in Law from the London School of Economics and Political Science, University of London. For many years, whilst a faculty member here at UNB, she has been engaged in national legal research for Canadian judges on behalf of the National Judicial Institute of Canada (Ottawa).

Since the days of her doctoral dissertation, Linda Neilson has been interested in family mediation and conflict resolution. She brings to her work a dedication to the legal system and a passion for making connections among research, policy, and practice in order to ensure that the legal system and associated government policies respond knowledgeably, compassionately, and effectively to the circumstances of families, particularly women and children. She conducts research in partnership with front line professionals (e.g., mediators, judges, practising lawyers) in order to ensure relevance and applicability.

Over the last few years, Dr. Neilson's work has received a high profile and earned her national and international recognition. For the past seven years Dr. Neilson has conducted a comprehensive analysis of research on the operation of legal systems in domestic violence cases in Canada, the United States, Australia, and New Zealand; connected that body of research to a comprehensive analysis of multiple areas of social science research; and linked those bodies of research to judicial practice principles, case law and statutes from fourteen legal jurisdictions in Canada (provincial, territorial, federal) in order to provide practical tools the legal system can use to respond appropriately in domestic violence cases.



This research has resulted in an eighteen-chapter, 1700 page, academically and judicially peer-reviewed electronic bench book titled *Domestic Violence and Family Law in Canada: A Handbook for Judges* (Ottawa: National Judicial Institute, 2009; with introductory comments by Justice John F. McGarry (Superior Court, Ontario)). The book is identified in electronic e-book format as: *Domestic Violence Family Law*. The work has attracted both national and international attention. Besides adoption by the National Judicial Institute for use by Canadian judges, two state justice departments in Australia (Victoria and South Australia) have cited the book for best practices and have recommended adoption (following integration of Australian legal cases and statute law) at both the State and Commonwealth levels. The Chief Magistrate for the State of Victoria and a national advisory committee has made similar recommendations. Judicial associations in the United States are making use of her work to prepare State Judicial Bench Books; Australian magistrates are using her work in judicial education programs in the domestic violence field in Australia as is the National Judicial Institute in Canada.

In addition to her extensive involvement in the law, legal system and domestic violence work, Dr. Linda Neilson also works closely with the Property Studies Centre at UNB in connection with international policies and practices associated with conflict resolution and community development. In

2007-2009, she participated as Canada's conflict resolution expert in the Property Centre's SRS-SA community land restoration project in South Africa at the University of Pretoria.

UNB Research Success Stories in 2011-12

Canada's scholars descend on Fredericton for the annual "Intellectual Olympics"

Posted by [UNB](#) on 5/27/11

Canada's scholars descend on Fredericton for the annual "intellectual Olympics"

The 2011 Congress of the Humanities and Social Sciences opens today in Fredericton, New Brunswick, bringing more than 6000 researchers to the city for Canada's largest and most significant interdisciplinary academic gathering. Organized by the Canadian Federation for the Humanities and Social Sciences and co-hosted by the University of New Brunswick and St. Thomas University, Congress is the largest event ever held in Fredericton and an important testament to the vitality of Canada's scholarly community.

"The welcome we have received from New Brunswickers has been truly reflective of a community committed to knowledge, research and Canada's intellectual heritage," said Graham Carr, president of the Canadian Federation for the Humanities and Social Sciences.

Congress 2011 is a working meeting for Canada's academics, scholars and researchers – providing opportunities to share knowledge, solidify partnerships and create linkages between the university and other sectors. Over the course of eight days of meetings, panel presentations and keynote speeches, thousands will present their latest works and research at more than 2500 events.

"Having this level of scholarly talent in Fredericton is truly a great opportunity to enrich existing research, present new data, share ideas and discuss and debate topics that affect us all," said Linda Kealey, Congress 2011 Academic Convenor. "We are honoured to be hosting this event in Fredericton and thankful that the federal government, province and community have stepped up to make Congress a success."

The Big Thinking lectures at Congress provide an opportunity for some of the world's most engaging public intellectuals to address the scholarly community and the public, who are invited to attend free of charge. This year's series features The Right Honourable Michaëlle Jean, authors David Adams Richards and Antonine Maillet, National Chief Shawn Atleo, and one of Canada's leading climatologists, Andrew Weaver.



Sydney E. Acker Concrete & Masonry Laboratory

Posted by [UNB](#) on 5/24/11

UNB has opened the Sydney E. Acker Concrete and Masonry Laboratory on its Fredericton campus today, thanks to a generous contribution from the family of alumnus Sydney Acker. The donation is in honour of Mr. Acker's successful engineering career, his immense interest in concrete and his passion for research.

"The importance of this kind of research cannot be overstated," said Eddy Campbell, UNB's president and vice-chancellor. "Concrete is one of the most

commonly used building materials in the world. This laboratory will give UNB researchers access to state-of-the-art equipment in their efforts to better understand what it is, how it works and how we can make it better. "

The Acker laboratory will provide the Concrete Materials Research Group, led by civil engineering professor Michael Thomas, with a separate space for testing and specimen preparation, as well as new equipment for research. His students will utilize the new laboratory to continue their work on important concrete-related research projects, including the creation of cement with a

low carbon footprint and finding ways to reduce the effects of salt on concrete.

The laboratory will increase UNB's position in the field of civil engineering and allow the department to solidify its position as an industry leader. The contribution from Mr. Acker also allowed UNB to leverage additional funding from the Government of Canada through the Canada Foundation for Innovation and the New Brunswick Innovation Foundation, thereby more than doubling the resources available for the laboratory and new equipment.

UNB researchers give health update on the province's largest river system

Posted by [UNB](#) on 7/08/11

The Canadian Rivers Institute (CRI) at the University of New Brunswick released the St. John River State of the Environment Report today—a document created after a decade of research on New Brunswick's largest river system.

Researchers found that the overall quality of water in the river has improved in the last 40 years, but there are a few areas that are still concerning.

"The improvements have occurred because communities and industries are doing a better job of treating wastewater before discharging it to the river," said Allen Curry, director of CRI. "There are also more stringent regulations and laws, and there is better monitoring by the regulatory agencies in Canada and the U.S."

Despite these changes, there are still several stretches of the river near our

urban centres, industries, and agricultural lands that researchers would like to see improve.

"We have made progress but there is more we can do to reduce our impact on the river's water quality and condition," said Dr. Curry.

The Beechwood and Mactaquac Dams have also had a major impact on the river by changing the physical nature of the river.

"Flow downstream of the dams is highly controlled because water is released almost exclusively to meet current or potential energy production demands, said Dr. Curry. "The dams are barriers to fish movement along the river and fish moving downstream have poor survival through the dam's turbines or when they fall over the dam itself."

Dr. Curry says they're also noticing a change in the river's fish community with the creation of headpond

lakes. "More warm water (for example, yellow perch) and fewer cold water (like trout and salmon) fishes survive in these areas."

The report used the existing and accessible data that goes back to the 1950s to assess the state of the Saint John River and changes over time. The report was released today as part of the annual CRI Day, where more than 100 researchers and partners took part in a day of presentations and discussions about our river systems.

Researchers believe the Saint John River will continue to face a number of challenges; however, they say it's important to realize we have the knowledge and technology to better manage our wastewaters, river flows, and fish passage to overcome these challenges and significantly reduce our impacts on our river systems.

Photos from Mars ignite questions for life

Posted by [UNB](#) on 8/08/11

Satellite photos of the arid, desert surface of Mars may show signs of a creeping oasis, according to research from a team of scientists in the United States.

The photos show dark, slow-moving stains of what appears to be liquid flowing down the sides of martian craters.

The red planet has two domes of ice and barren canyons that suggest water once flowed across its surface. New evidence suggests there is seasonal surface liquid, which, if confirmed, could strengthen the possibility of finding life on Mars.

John Spray, chair of the Planetary and Space Sciences Centre at the University of New Brunswick, said the idea of wa-

ter on Mars isn't a new one.

Deep channels, similar to ones carved out by mighty rivers on Earth, have scientists placing the last time water flowed on Mars at around four billion years ago, he said.

Spray, whose research is primarily focused on impact craters on Mars and the moon, said the surface rock of Mars is "rubbleized," cracked open after being "pummelled" by meteorites. Because of this, the planet's surface is porous, he said, like a sponge.

He said the new findings show ice trapped under the ground's surface melting from the sun's heat. He likened it to putting a wet sponge in a freezer, and then letting the frozen sponge sit in the sun.

"If you put it outside in the sun," he said, "it will trickle down onto the table... That's what's happening here."



Dr. John Spray

UNB hosts artificial limb researchers

Posted by [UNB](#) on 8/18/11

It looks eerily like a scene from a science fiction movie, but the dangling arms, robotic hands and silicone skin covers on display at the University of New Brunswick this week are the star attractions of a symposium on upper limb prosthetics.

The MEC – myoelectric control – symposium is bringing together researchers, clinicians and industry officials to share latest developments in the ongoing effort to replicate human movement in artificial limbs.

The international gathering, held every three years, will provide UNB's cutting edge Institute of Biomedical Engineering with the opportunity to showcase the new hand that it is developing with funding from the federal Atlantic Innovation Fund.

Adam Clawson, project engineer with the institute, cups a prototype hand in his own hand as he explains that one of the main drivers behind the project is affordability.

"We want users with a limited budget to be able to experience the same functionality as someone with an unlimited budget," Clawson said in an interview Wednesday.

"We do this by reducing the number of motors and using gearing and other mechanisms to mimic the same functionality as a multi-motor hand."

The hand, which has multiple functions and an innovative rotating thumb, will be the focus of a paper to be presented by UNB researchers on Friday – the final day of the three-day symposium.

UNB obesity research team receives health research grant

Posted by [UNB](#) on 8/22/11

A research team, led by the University of New Brunswick's Stacey Reading and Bo Miedema, has received a research grant of \$386,726, over three years, to carry out work directed at improving the health of obese adults in New Brunswick.

The funding was awarded through the Canadian Institutes of Health Research (CIHR) Partnerships for Health System Improvement (PHSI) program and the New Brunswick Health Research Foundation, a funding partner in the PHSI program.

Dr. Reading is an assistant professor in the faculty of kinesiology, and Dr. Miedema is an adjunct professor in the department of sociology at UNB and a professor in the department of family medicine at Dalhousie University.

"An estimated 29 per cent of adults in New Brunswick are considered obese," said Dr. Reading. "Without proper intervention, these obese adults will likely develop serious cardiovascular and other chronic health problems. Health problems resulting from obesity can be controlled, modified, or avoided by adopting healthy lifestyle behaviours."

The challenge, according to Dr. Reading, is that, unless obese adults have suffered a heart attack, diabetes or other chronic disease, many physicians have nowhere to send their patients for help in controlling and managing their obesity.

Part of the research study will be to determine what components are necessary to create a successful primary-based adult obesity intervention strategy, with the goal of improving body mass index, abdominal obesity, total cholesterol systolic and diastolic blood pressure and exercise tolerance.

The research team is made up of researchers from UNB and Dalhousie University, Horizon Health Network, family physicians, registered dietitians, and psychologists, and community groups in urban and rural New Brunswick.

Dr. Reading's team is one of 25 research teams being funded under CIHR's PHSI program.

"A funding program based on partnerships like PHSI offers Canada's health-system decision makers evidence-based answers to pressing health system questions," said Dr. Robyn Tamblin, scientific director for CIHR's Institute of Health Services and Policy Research. "This knowledge translation will in turn benefit Canadians by improving the quality and delivery



From left: Greg Kealey, UNB Vice-President (Research); Bo Miedema, UNB sociology adjunct professor; Stacey Reading, UNB kinesiology assistant professor; Craig Leonard, New Brunswick Minister of Energy; Keith Ashfield, Minister of Fisheries and Oceans and Minister of the Atlantic Gateway; Roger Cole, acting executive director of the New Brunswick Health Research Foundation.

of healthcare and Canadian health systems."

"Building research and development capacity is key to advancing New Brunswick's economic development goals," said Energy Minister Craig Leonard, who was speaking on behalf of Economic Development Minister Paul Robichaud. "Our government is pleased to have the opportunity to support such worthwhile research."

Created in July 2008, with a mandate to co-ordinate, support and promote health research in New Brunswick, the New Brunswick Health Research Foundation is a major partner in the CIHR PHSI grants.

"The success of Dr. Reading through the rigorous review process is an indication of the high-quality health research we undertake in this province," said Roger Cole, acting executive director of NBHRF. "This brings our total number of projects funded to three since partnering with CIHR for this program in 2009. New Brunswick based researchers have received just under \$1.4 million under this program, which not only gets invested in the local economy, but also helps to train the up and coming student researchers in health research."

UNB officially opens Quartermain Earth Science Centre

Posted by [UNB](#) on 10/06/11

The University of New Brunswick in Fredericton is home to the Quartermain Earth Science Centre thanks to a \$1-million contribution by UNB alumnus and mining executive, Bob Quartermain.

An event was held Wednesday on campus to officially open the centre.

Located in UNB's forestry and geology building, the centre includes dinosaur replicas, a large-scale display showing a journey to the centre of the earth, a working seismograph and a mineral showcase. It also houses a new teaching and computer lab and will serve as a repository for items and information important to New Brunswick and Fredericton geology. The centre's curator, Adrian Park, will offer tours, making it a valuable outreach tool for UNB.

Cliff Shaw, chair of UNB's department of earth sciences says no matter which side of the resources / environmental protection argument you take, it is essential that you understand how the planet works.

"Many of the global environmental concerns of today lie with the field of earth sciences," said Dr. Shaw. "These increasing environmental concerns are driving the demand for skilled workers. And the demand for newly minted earth scientists has never been greater."

The centre, which is the only one of its kind in the province, would not have been possible without the generous support of Dr. Quartermain, whom the space is named after.

Dr. Quartermain says the education that he received in New Brunswick and particularly at UNB, set the foundation

that enabled him to successfully carry on his profession as a geologist at an international level.

"My hope is that the centre will engage students at all levels to consider careers in the earth sciences, as we as an ever-increasing global society need to develop and utilize resources in a sustainable and environmentally sensitive manner," said Dr. Quartermain.

A native of St. Stephen, Dr. Quartermain graduated in 1977 from the University of New Brunswick with a bachelor of science degree in geology. In 1981, he graduated from Queen's University with a master of science degree in mineral exploration.

From 1976 to 1982, he worked for the Geological Survey of Canada and in private industry on mapping and exploration programs. After completing his M.Sc. at Queens, Dr. Quartermain joined Teck Resources and in 1985, was named president of Silver Standard Resources Inc., a position he held for 25 years, growing the company from a staff of two to a company with a market capitalization of \$2 billion.

In 2010, Dr. Quartermain left Silver Standard and in October rolled up his sleeves and started a new gold-silver company, Pretium Resources, a company that focuses on a new major precious metals district in Northern British Columbia.

Dr. Quartermain not only donated \$1 million to refurbish the department of earth sciences and develop this centre, but he has also set aside funds to support the ongoing development of the facility.

Eddy Campbell, UNB president, says Dr.



Quartermain may have made his career elsewhere, but he has deep roots in this province and his loyalty and commitment to the University of New Brunswick have been equally remarkable.

He established the Silver Standard Arnie McAllister Fund, in honour of his mentor, a fund that provides the opportunity for students to visit geological sites around the world. He has also created the Robert Quartermain Geology Scholarships, and provided a leadership gift in support of the Quartermain Sports Medicine Centre, housed within the Richard J. CURRIE CENTER.

"Such contributions enhance the reputation of UNB programs and drive the continued success of our students," said Dr. Campbell. "Having his name associated with our university means so much. He has made tremendous contributions to his profession, and service to his shareholders, UNB and the larger community."

In recognition of his outstanding achievements in the resource industry and his unflinching support of his alma mater, Dr. Quartermain was awarded an honorary degree from the UNB in 2009.

UNB and IBM Collaborate to Bring IBM Centre for Advanced Studies to Atlantic Canada

Posted by [UNB](#) on 10/14/11

The demand for faster access to large volumes of data through computers, mobile phones and cameras is on the rise. To address this issue, UNB and IBM are teaming to establish an IBM Centre for Advanced Studies (CAS Atlantic) on the UNB Fredericton campus.

Physicians, government organizations and retailers alike must be ready to handle the big data flood being generated every single second from external and internal sources, make sense of it in real time and be able to predict on it. Yet, as hardware processing speed continues to increase exponentially, software systems need to also keep pace.

Working with IBM, UNB will create a set of software tools and techniques to help produce meaningful commercial and research gains such as helping “big data” analytics teams attack more complex challenges more quickly or enabling cloud computing environments to get more work done on each watt of power consumed.

“Computer companies link computer processors together to increase performance and better manage large amounts of data,” said Ken Kent. “The

challenge is that the software needed to run these multiple processors, or multi-core systems, is lagging behind. Through CAS Atlantic, our team will work with the researchers and staff at IBM to speed up and develop new software to run the multi-core systems, and in turn, make computer systems run faster.”

Java is one of the most popular programming languages in use today, and the CAS Atlantic team will concentrate on improving Java performance and scalability on multi-core systems. By making Java better suited for cloud environments and big data analytics researchers can advance the state of the art in these field.

In its first three years, the \$5M joint IBM-UNB research centre, will involve at least five faculty and approximately 30 graduate students and research assistants at UNB. These researchers will collaborate closely with IBM research and development staff in compilation and virtual machine technology so the software ultimately takes utmost advantage of the latest hardware: making

“big data” workloads run faster, and more efficiently than ever before.

“This partnership is really a win-win,” said Dr. Kent. “IBM gains the research expertise and capabilities of our experts in Java technologies, and our students in return receive hands-on, real-world experience that provides them a foot in the door with one of the largest technology com-

“This partnership is really a win-win,” said Dr. Kent. “IBM gains the research expertise and capabilities of our experts in Java technologies, and our students in return receive hands-on, real-world experience that provides them a foot in the door with one of the largest technology companies in the world.”

In addition to bringing an advanced studies centre to UNB, IBM will offer three CAS Fellowships to support top graduate students undertaking thesis research at UNB Fredericton.

“IBM has a long history of working with the best research minds in Canada, “ said Marcellus Mindel, head of academic partnerships, IBM Canada. “This collaborative work will help us continue to address the demands for faster pro-

UNB received \$5 million from two prominent alumni to establish Entrepreneurship and Innovation Centre

Posted by [UNB](#) on 10/20/11

The University of New Brunswick has received \$5 million from two of its prominent alumni, Gururaj (Desh) Deshpande and Gerry Pond, to establish an entrepreneurship and innovation centre.

The Pond-Deshpande Centre for Innovation and Entrepreneurship at UNB will act as a catalyst to advance innovation and entrepreneurship in New Brunswick by facilitating collaboration among entrepreneurs, young companies, and UNB students, faculty and alumni.

“As a university, we must provide opportunities for our students to stay and thrive in this province,” said UNB president Eddy Campbell. “Our graduates are the problem solvers of today and tomorrow. We can help them succeed by creating opportunities and potentially opening doors that may not otherwise have been opened. And that is what the Pond-Deshpande Centre for Innovation and Entrepreneurship is all about.”

The centre will work with UNB’s already established innovation and entrepreneurship programs to create courses and mentorship opportunities for students that will provide them with a sound foundation in technical and social entrepreneurship, and give them the opportunity to experience the entrepreneurial process and explore their possibilities for success.

“Great ideas don’t go anywhere unless an entrepreneur takes it and creates a viable enterprise from it,” said Desh Deshpande. “We hope that the centre will create lots of experiential learning opportunities for students to become those entrepreneurs.”

The Pond-Deshpande Centre for Innovation and Entrepreneurship will also serve as a resource for new entrepreneurs to translate their ideas into companies, products or services. The cornerstone of the centre is a grant process that will allow innovators to test their early stage ideas and prove their concepts.

As the centre grows and receives support, it is expected that its scope will broaden and reach will stretch beyond New Brunswick.



Pictured, from left, are: Raj Melville (executive director, Deshpande Foundation) and Karina LeBlanc (executive director, Pond-Deshpande Centre) meeting with Karen Murdock (director of UNB's International Business and Entrepreneurship Centre) and activator team leads at the IBEC.

University of New Brunswick and Cisco Collaborate to Drive IT Innovation and R&D

Posted by [UNB](#) on 10/26/11

The University of New Brunswick (UNB) and Cisco Canada today announced two agreements aimed at helping the university become a world leader in technology innovation.

The agreements were signed at a meeting of the Premier's Advisory Council on Technology in Toronto by Eddy Campbell, UNB president, and Nitin Kawale, president of Cisco Canada, in the presence of David Alward, premier of New Brunswick.

"Effective partnerships are critical to the production of research and to the support of development activities," said UNB President Eddy Campbell.

"Collaborations, such as this with Cisco, enhance the reputation of UNB programs and drive the continued success of our students. With this collaboration, we are reinforcing our commitment to being one of the country's premier institutions for innovation in technology." In a major boost to the university's research and advanced learning capabilities, Cisco is providing a \$2 million endowment to establish a Cisco® Chair in Advanced Learning Technologies at UNB, which will promote, support, and lead innovation at the university through industry-linked projects. The chair holder will foster a close relationship with industry and government, as well as support the university's strategic goals and long-range vision to position the university as one of the world's premier institutes of higher learning.

The Cisco Chair for Advanced Learning Technologies will lead research and innovation in the application of technology related to advanced learning, government cooperation and community outreach. This includes creating innovative ways to deliver educational and training services to remote communities involving the use of high-definition

video and cloud computing infrastructure.

The two parties also signed a marketing development agreement that will help UNB engineering students collaborate to develop energy-efficient processes for the manufacturing industry. The Green Remote Automation and Monitoring for Manufacturing (GRAMM) project will develop the physical monitoring, computing and network infrastructure to remotely monitor manufacturing and production processes, store and manage information, and develop analytical tools so that manufacturing processes and entire facilities can be remotely powered up or down in accordance with production or power demands. Ultimately, companies will be able to reduce power consumption while improving production rates, process performance, quality, and employee communication.

"We are delighted to partner with UNB on these two exciting initiatives designed to help the university realize its strategic goal of driving innovation in the classroom and beyond. "

Cisco Canada President Nitin Kawale

Graduate students taking part in the GRAMM project will be able to take courses and interact with professors using Cisco TelePresence™, irrespective of where they are geographically located. This essentially creates a virtual laboratory, or manufacturing centre, for students to remotely observe and monitor experiments in real time.

Under the terms of the agreement, Cis-

co will provide UNB with two Cisco TelePresence 500 System solutions, one on UNB's Fredericton campus and another at McMaster University in Hamilton, Ont., as well as an array of IT hardware and software solutions to help drive the GRAMM project. Cisco's hardware and cash contribution under the marketing development agreement is approximately \$350,000. The project will also use the CANARIE Network, which connects nearly 40,000 researchers at 200 Canadian universities and colleges to share and analyze data, not only for simple communications across remote sites, but also for all remote data monitoring, storage and data analysis.

"We are delighted to partner with UNB on these two exciting initiatives designed to help the university realize its strategic goal of driving innovation in the classroom and beyond. These projects with UNB are representative of larger initiatives in the works with the Province of New Brunswick designed to boost Canada's global profile as a technology innovator," said Cisco Canada President Nitin Kawale. "Both the Province and Cisco share a dynamic vision for the significant IT R&D potential in the region and see this investment at UNB as a key step to help drive these innovation efforts."

Cisco is currently working with Province of New Brunswick to explore continued investment and new opportunities to utilize advanced technologies to help meet the Province's economic development goals.

New high-speed network improves NB's research and educational capacity

Posted by [UNB](#) on 11/18/11

The partners in the Optical Regional Advanced Network (ORAN) gathered today in Fredericton to unveil a new high-speed network and the latest iteration of the technology partnership, and to celebrate the fortieth anniversary of the NB/PEI Educational Computer Network (ECN).

The ORAN is a joint initiative among CANARIE Inc., The Province of New Brunswick (PNB), the New Brunswick universities, the Maritime College of Forest Technology (MCFT), the Maritime Provinces Higher Education Commission (MPHEC), the National Research Council of Canada, and newest partners New Brunswick Community College (NBCC) and Collège communautaire du Nouveau-Brunswick (CCNB). It is designed to provide a high-speed network that maximizes capacity while reducing capital and operating costs for all partners, to facilitate cutting-edge research and collaboration regionally and globally.

The partners have created a new research network with extensive fibre installations, redundant links around New Brunswick, improved bandwidth, and state-of-the-art equipment. The network, which is scalable to meet future needs, includes a predictable pricing model for the partners for at least ten years and provides a reliable platform for another ten years. Network capacity will be up to ten times that previously available.

"As New Brunswickers, we're building our future through the tremendous creativity and ingenuity of our skilled workforce. Today's announcement will help allow New Brunswick's ICT industry to continue its remarkable record of growth and achievement while playing a critical part in building our province and our country," said New Brunswick Economic Development Minister Paul Robichaud. "This is a great example of the way we can build a brighter tomorrow through innovation and partnership."

"Having an organization with a national mandate, like CANARIE, ensures all regions of Canada benefit from the power of advanced network technology," says Jim Roche, President and CEO of CANARIE. "We are proud to be a member of this strong partnership in New Brunswick, one that supports world-class research and discovery, creative educational initiatives, and innovation in the private sector."

In the opinion of the president and chief executive officer of the CCNB, Mrs. Liane Roy, the pioneering initiative meets their philosophy and vision: "We are proud to join in the New Brunswick Optical Regional Advanced Network (ORAN). The CCNB promotes innovative partnerships that give opportunities to high-performance information technologies allowing for better teaching integration within the classroom. The collaborative project gives the postsecondary system as well as the research community in New Brunswick quick and efficient access to high-performance networks. ORAN will boost our college corporation's capabilities towards innovation and entrepreneurship."

The funding partners for the new network are: CANARIE Inc., \$3,148,000; New Brunswick universities/MCFT, \$3,500,000; NBCC and CCNB, \$3,500,000; NRC, \$350,000; PNB, \$500,000.

Partners took advantage of the network launch to celebrate the fortieth anniversary of the ECN, which includes the publicly-funded universities in New Brunswick and Prince Edward Island, the MCFT, Holland College and the MPHEC. The primary service provided by the ECN to member institutions is connectivity among its members. Additional benefits include joint purchasing and licensing, shared support services, professional development and the delivery of network-based services and information exchange.

"The ECN is a highly successful example of interprovincial and inter-institutional co-operation between post-secondary institutions in the area of information technology services," said ECN Chair Yvon Fontaine, Recteur of l'Université de Moncton. "For forty years we have been efficiently leveraging resources to reduce costs, avoid unnecessary duplication, and connect our members to the wider world."

"The new network will provide increased capacity to educators, students, innovators and researchers in New Brunswick, so they can collaborate and participate in research and innovation projects regionally, nationally and globally. The network will facilitate next-generation research and deliver the associated scientific, economic and cultural benefits of that research to the region."

UNB to help train next generation of European scientists and engineers about solar threats to satellite positioning and navigation systems

Posted by [UNB](#) on 1/05/12

The University of New Brunswick is an official partner in a major European program to train the next generation of scientists and engineers to counter solar threats to satellite positioning and navigation systems.

One of the major threats to the world's ever-increasing dependence on GPS and other global navigation satellite systems (GNSS) comes from the sun. Solar-related phenomena and their effect on the Earth's ionosphere, such as ionospheric scintillation, or fluctuation, can be very disruptive and have serious consequences.

As the Earth approaches the next solar maximum in 2013, when ionospheric effects will be at their greatest, a network of internationally renowned experts, led by the Institute of Engineering Surveying and Space Geodesy (IESSG) at the University of Nottingham, are joining forces to help protect society from the effects of solar-related phenomena on GNSS signals. These experts will train a new generation of young researchers, as well as develop new research programs in the field of ionospheric perturbations and their mitigation.

This network, called TRANSMIT — Training Research and Applications Network to Support the Mitigation of Ionospheric Threats — is the first project of its kind in Europe. It is made up of a consortium of leading universities, research centres, and industry across Europe, as well as in Brazil and Canada.

A number of TRANSMIT fellows, the students selected to participate in the training program, will visit UNB to learn about the space weather data analysis tools and techniques developed by researchers in the Department of Geodesy and Geomatics Engineering and the

Department of Physics on the UNB Fredericton campus.

Richard Langley, a professor in the Department of Geodesy and Geomatics Engineering and a member of the Geodetic Research Lab at UNB, says the university has been doing work around ionospheric disturbances and their effects on GPS and GNSS for more than 20 years.

"We get more episodes of heightened solar activity and associated ionospheric disturbances closer to the peak of the approximately 11-year sunspot cycle, which is what we're ramping up to in a couple of years," says Dr. Langley.

The damaging effects of ionospheric interference resulted in serious service interruption and degradation during the so-called 'Halloween storm' event that took place in October/November 2003, just past the peak of the previous cycle, when one of the most intense solar flares ever was recorded. As a result of this storm, companies delayed high-precision land surveying, postponed airborne and marine surveys, cancelled drilling operations, and resorted to backup systems; and commercial aircraft were unable to use GNSS-based systems for precision approaches.

"The effect on GPS depends on the type and size of the disturbance," Dr. Langley says. "There are also things like solar radio noise storms that can drown out GPS signals and there's not much that can be done about that, except perhaps developing more sensitive GPS receivers that can work with weaker signals."

Systems can also be developed to use both the American GPS system and the Russian GLONASS system, to improve accuracy and provide redundancy.

"At worst, solar outbursts can black out

"The effect on GPS depends on the type and size of the disturbance," Dr. Langley says. "There are also things like solar radio noise storms that can drown out GPS signals and there's not much that can be done about that, except perhaps developing more sensitive GPS receivers that can work with weaker signals."

Dr. Richard Langley, University of New Brunswick Professor, Department of Geodesy & Geomatics, Faculty of

satellite signals altogether," says Dr. Langley. "They can also create positioning errors and rapid signal fading."

These intermittent problems can impact all GNSS users including mission-critical and high-precision applications for air, rail, and marine transport, and even autonomous machinery in areas such as agriculture.

"Luckily though, they tend to be short-lived at our latitudes, overall perhaps half an hour and it's gone," he says. "But, during that period of time if it's severe, if aviation is depending on the use of GNSS for airport approaches, then they will have to use an alternative system. That's happened in the past."

The €4m TRANSMIT initiative is being funded by the European Commission (EC), through a Marie Curie Initial Training Network (ITN). ITNs are part of the FP7 People Programme and aim to improve the career perspectives of researchers who are in the first five years of their research career in both public and private sectors.

Marcio Aquino, co-ordinator and senior

UNB to help train next generation of European scientists and engineers about solar threats to satellite positioning and navigation systems, con't

researcher at IESSG, says that, "Europe lacks robust counter-measures to deal with these ionospheric threats. TRANSMIT will succeed in its aims because of the strong expertise and resources from its exceptional set of partners, encompassing both academic excellence and top-end users — including the aerospace and satellite communications sectors, GNSS system designers, ser-

vice providers, major user operators and receiver manufacturers. The EC investment in projects like this confirms the importance Europe is giving to this new and exciting research area."

Dr. Langley notes that the development of new GNSS systems in Europe and China will make the overall satellite navigation and positioning

systems around the world more robust, but those systems won't be fully implemented until after 2015.

"In the future, we'll have a multi-constellation navigation system and that should also be beneficial in reducing the impact of these kinds of storms," he says.

UNB researcher helping lead citizen engagement in learning project

Posted by [UNB](#) on 1/12/12

A University of New Brunswick researcher is helping lead an initiative aimed at increasing citizen engagement in learning and innovation.

A series of public dialogue sessions on learning were launched in Fredericton this week. The sessions are part of the second phase of public dialogues for a citizen engagement initiative on learning and innovation entitled Learning: Everybody's Project.

Initiative co-chairperson Andy Scott, Andrew Senior Fellow in Social Policy at the University of New Brunswick and the Executive Director of the NB Social Policy Research Network, said this project aims to improve the lives of New Brunswickers.

"Learning increases our ability to participate more fully in society, and plays a major role in helping us maintain our physical and mental health," Scott said. "In short, learning is the key to improving the quality of our lives. We need to value learning more so we can live better lives. So we ask everyone to get in on this conversation on learning as it is an opportunity to their ideas and concerns heard." The 24 public dialogue sessions on learning are being held in 19 communities throughout the province and will conclude Feb. 23 in Caraquet. Interested individuals can also take part in the discussions online, by telephone, e-mail and through social media.

"I ask the public today to become a part of this process to improve learning in our province at all ages of life," said Education and Early Childhood Development Minister Jody Carr, who is co-chair of the initiative. "Imagine what would happen if we all learned something new each day. Would our neighbourhoods be better places to live, work and play? Join the conversation and provide us with your thoughts and ideas on how to grow a learning culture here in our province."

The sessions are being presented in the context of four learning environments: Learning at Home; Learning at School; Learning in the Workplace; and Learning in the Community. Discussions will centre on lifelong learning that happens at all ages and all stages of life. What and where people learn will be discussed.

Launched in November 2010, the goal of Learning: Everybody's Project is to connect and engage citizens in a discussion on the value of lifelong learning. The result of the project will be a vision for a learning agenda outlining how New Brunswick can be transformed into the learning province of Canada.

"We need to change the way we learn and become a learning society so we can generate the ideas and innovations we need to build and enrich our families, our communities and our economy," said initiative co-chair Marie-Paule Thériault. "Now, we need to hear from New Brunswickers in every corner of our province. We need everyone's ideas on improving the way we learn."

New cancer research chair at UNB Saint John

Posted by [UNB](#) on 1/12/12

The University of New Brunswick Saint John is now home to a Canadian Cancer Society Research Chair.

Dr. Anthony Reiman, a practising oncologist and researcher, will be focused on bringing researchers, clinicians and cancer survivors together to find new ways to help reduce the burden of this disease.

“My research revolves around the people I see every day who have been diagnosed with cancer.”

Dr. Reiman’s interest lies in involving patients in his research in order to improve their care. He focuses on multiple myeloma, lymphoma and lung cancer. He is banking biological specimens and clinical data for research, conducting clinical trials of new therapeutic approaches, and doing multidisciplinary supportive care research.

In addition to supporting Dr. Reiman, the Canadian Cancer Society also established a research chair at the Université de Moncton. The research chairs represent a 14-year commitment by the society totaling \$3.1 million. The investment will help strengthen New Brunswick’s network of cancer researchers.

Dr. Reiman is also the Assistant Dean, Research for Dalhousie Medicine New Brunswick and an oncologist at the Saint John Regional Hospital.

“We’re pleased to be partnered with the Canadian Cancer Society for this great initiative,” says Dr. Robert MacKinnon,

UNB Saint John’s vice-president.

“This research chair demonstrates precisely the kind of collaborative research partnerships we want to see as a result of the growing cluster of health care expertise here on campus.”

Dr. Reiman’s research has resulted in over 160 peer-reviewed publications and presentations. He serves on several regional, national and international research committees and clinical guidelines groups, including:

- New Brunswick Health Research Foundation;
- the NCIC Clinical Trials Group;
- the Canadian Association of Medical Oncologists;
- the Pan-Canadian Oncology Drug Review; and
- the International Myeloma Working Group.

Even the best treatments we have today can still be improved,” says Dr. Reiman.

Raised in Saint John, he obtained a Bachelor of Science degree at University of New Brunswick Fredericton, an MD from the University of Toronto, and a Science Masters degree at the Harvard School of Public Health.

Dr. Reiman completed his post-graduate residency training in internal medicine at Dalhousie University and in medical oncology at the University of Alberta.

After undertaking a research fellowship at the Cross Cancer Institute, University of Alberta, Dr. Reiman accepted a full-



Dr. Anthony Reiman

time position there as a medical oncologist, teacher and researcher. After five years in that position, he returned to Saint John in 2008.

“UNB Saint John is a perfect fit for Dr. Reiman in his role as the Canadian Cancer Society Chair,” adds Dr. Ruth Shaw, Dean of Science, Applied Science & Engineering at UNB Saint John.

“Our partnerships with Dalhousie University and Horizon Health in health research have already spawned collaborations between our faculty in natural products research, biology, computer science, nursing and psychology.”

UNB researcher given funding boost

Posted by [UNB](#) on 1/24/12

A University of New Brunswick professor has received \$140,000 from the Canada Foundation for Innovation to advance his research.

Dr. P. Thayyil Jayachandran, UNB physics professor and principal investigator for the Expanded Canadian High-Arctic Ionospheric Network (ECHAIN), was recognized through the foundation's Leaders Opportunity Fund.

The funding will be used to add 15 Global Positioning System (GPS) receivers to the existing network of GPS receivers and radars of the Canadian High Arctic Ionospheric Network (CHAIN). The data will contribute significantly to the progress of space research by providing a better understanding of the processes in the Sun-Earth system.

"It is well documented that the processes in the Sun-Earth system, such as solar flares and storms, affect satellite and radio communications, navigation

systems, aviation safety, electrical power grids, and even our climate," Dr. Jayachandran said. "As our modern society depends increasingly on space technologies, understanding of solar-terrestrial interaction has significant economic and societal relevance. Understanding how these processes will affect technological systems will enable us to predict and mitigate these adverse effects. This funding from the Canada Foundation for Innovation will allow us to do exactly that."

Through the forecasting of space weather and mitigating its effects on GPS-based navigation systems, ECHAIN research will provide the basis for future planning of navigation systems. It will also help mitigate the impact of harmful effects of solar and magnetospheric storms on energy distribution and radio communications infrastructures.

"This latest funding announcement from the Canada Foundation for Innovation speaks to the national calibre of our researchers at the University of New



Brunswick and the importance of their work," said Greg Kealey, UNB Provost and Vice-President (Research). "The foundation awarded \$1.5 million to eight CFI projects at UNB in 2010-2011, and we are grateful for its continued support of our people."

"Canadian communities are benefiting from the high-paying jobs created through innovation and research," said Member of Parliament for Fredericton Keith Ashfield. "Investments in research and development are ensuring that our scientists – and the businesses they support and start – can compete globally."

NSERC grants researchers funding for major project

Posted by [UNB](#) on 2/14/12

A University of New Brunswick chemical engineering professor will receive \$598,260 for his innovative research in the field of biorefining of wood and agriculture biomass.

Principal investigator Dr. Kecheng Li, professor and director of graduate studies in UNB's department of chemical engineering, was chosen by the Natural Sciences and Engineering Research Council of Canada (NSERC) under its Strategic Project Grants program. He submitted the application with Prof. Emma Master from the University of Toronto and Prof. Aicheng Chen from the University of Lakehead.

The grant program is designed to fund

projects that could strongly influence Canada's economy, society or environment in the next 10 years.

"The research we are doing allows us to develop technologies and processes for the pretreatment of biomass substrates that can later be used for fuels and biochemical production," said Dr. Li. "Second-generation liquid biofuels made from lignocellulose biomass, including agricultural residues, forestry waste, grasses and trees can be a sustainable alternative to fossil oil."

"The pretreatment for biomass is a complex and costly process. Dr. Kecheng Li's work in the chemical engineering department moves our country another step closer to being able to efficiently and effectively use biomass as a renewable

energy source," said Dr. Greg Kealey, UNB Provost and Vice-President (research). "The Natural Sciences and Engineering Research Council of Canada contributes to the continued success of researchers like Dr. Li. At the University of New Brunswick, we appreciate that they continue to support and recognize the important of work of our experts."

Projects funded through NSERC's Strategic Project Grant program, must be proven to be scientifically sound and technically feasible, and promise to generate new knowledge or apply existing knowledge in an innovative manner.

Dr. Li's project has also received funding from Irving Paper Inc., and Resolute Forest Products.

UNB professor wins national innovation award

Posted by [UNB](#) on 2/27/12

Collaboration between industry and the University of New Brunswick has garnered national recognition and a research grant for a local professor.

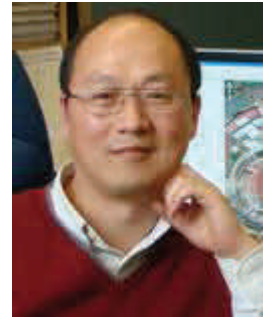
UNB Geodesy and Geomatics Engineering professor Dr. Yun Zhang has been working with PCI Geomatics since 2001. The technology they've developed is being used around the world by organizations such as NASA, the United States Geological Survey, Natural Resources Canada, Google Earth and national security and intelligence agencies.

Recently, this collaboration earned Dr. Zhang a Synergy Award for Innovation from the Natural Sciences and Engineering Research Council of Canada (NSERC) and a \$200,000 research grant.

"The Synergy Awards for Innovation recognize outstanding achievements that have resulted from partnerships between university researchers and industry," said Suzanne Fortier, NSERC President. "These awards honour collaboration as the foundation of achievement and highlight Canadian innovations."

With PCI Geomatics, Dr. Zhang has created complex algorithms that can fuse images from satellites with a processing

speed and image quality that's the best in the world. The technology makes it possible for satellites to provide imagery of hard-to-reach places without being as slow, expensive and difficult to process as it has been in the past. They've also developed and commercialized other breakthrough technologies for colour correcting satellite images and making remote sensing imagery look more like traditional aerial photography.



Dr. Yun Zhang

This has the potential to provide more and better information to improve the safety of marine travel, protect the environment, develop resources in remote areas and respond to climate change.

"Through UNB's partnership with PCI Geomatics, we've developed technology that's addressing a wide variety of industry applications including the environment, agriculture, security and intelligence, aerospace and defence, and satellite receiving stations," said Dr. Zhang. "We're making a global impact and funding agencies like NSERC play a fundamental role in making that possible."

New Grants Funded at UNB, 2011-12

ADM Systems Engineering Ltd.
Dubay, Rickey

American Genetic Association
Nedelcu, Aurora

Atlantic Association for Research in Mathematical Sciences
Wang, Lin

Atlantic Hydrogen Inc.
Tokaryk, Dennis

Atlantic Metropolis Centre
Therault, Luc

Atomic Energy of Canada
Cook, William

Australian Department of Environment, Water, Heritage & Arts
Saunders, Gary

Autism Speaks
McCloskey, Rose

AV Nackawic
Ni, Yonghao

Blue Zone Technologies Ltd.
Eic, Mladen

Bombardier Aerospace
Hall, Joseph

C-Therm Technologies
Bremner, David
Yao, Sophie

Canada Research Chair Secretariat
O'Sullivan, Lucia

Canadian Breast Cancer Foundation
Gray, Christopher

**Canadian Council on Learning
Canadian Foundation for Innovation**
O'Sullivan, Lucia
Reyes-Prieto, Adrian

Canadian Institutes of Health Research
Duffy, Lynne
Getty, Grace
Kuruganti, Usha
Kyberd, Peter

McCloskey, Rose
McGibbon, Chris
Reading, Stacey
Weaver, Kathryn
Wilkins, Krista
Wuest, Judith

Department of National Defence
Milner, Marc

Department of Indian & Northern Affairs
White, Joseph

Forest Protection Ltd.
Gerber, Andrew

First Nations Educational Initiative
Whitty, Pam

Fredericton Area Pollution Control Commission
Afzal, Muhammad

Fredrick & Catherine Eaton
Duffy, Michael (2)

Gagnon Ornamental Work
Smith, Ian

iCommunications Inc.
Kent, Ken

International Science & Technology Partnership Canada
Chang, Liuchen

Inversa Systems Ltd.
Aubanel, Eric

Irving Pulp & Paper
Li, Kecheng

Jasco Applied Sciences
Gerber, Andrew
Hall, Joseph

JD Irving Limited
Arp, Paul

KnowCharge Inc.
Eisler, Sara

Lockheed Martin Aerospace
Shaw, Ruth

New Grants Funded at UNB, 2011-12 (continued)**LuminUltra**

McGrady, Sean

Milco Enterprises Inc.

Zheng, Ying

MindMeld Multimedia Inc.

Du, Weichang

Muriel McQueen Fergusson Foundation

Arseneault, Rina

NanoNB

McGrady, Sean

Natural Resources Canada

Cook, William

Leblon, Brigitte

Natural Sciences & Engineering Research Council

Adam, Allan (2)

Afzal, Muhammad

Al, Tom

Arp, Paul

Aubanel, Eric

Baird, Donald

Baker, Christopher

Barbeau, Myriam

Benfey, Tillmann

Benoy, Glenn

Boley, Harold

Bremner, David

Chang, Liuchen

Chui, Y. H.

Cook, William

Couturier, Michel

Curry, Allen

Diduch, Chris

Du, Weichang (2)

Dubay, Rickey (3)

Eic, Mladen (2)

Eisler, Sara

Fleming, Michael

Gerber, Andrew (3)

Ghorbani, Ali

Hall, Joseph

Hamza, Abdelhaq

Jesson, Linley

Kent, Ken

Kershaw, John

Krasowski, Marek

Lawrence, Janice

Lees, Ronald

Li, Kecheng

Light-Thompson, Janice

Martyniuk, Chris

McGibbon, Chris

McGrady, Sean (2)

Monson, Barry

Munkittrick, Kelly (2)

Ni, Yonghao (3)

Nickerson, Brad

Parker, Phillip

Patten, Cheryl

Pureswaran, Deepa

Reyes-Prieto, Adrian

Richard, Evelyn

Romero-Zeron, Laura

Santos, Marcelo

Smith, Ian

Spray, John (3)

Tokaryk, Dennis

Xiao, Huining

Yao, Sophie (2)

Yuan, Zhirun

Zhang, Huajie

Zhang, Yun(2)

NB Association of Social Workers

Arseneault, Rina

NB Community College

Zheng, Ying

NB Department of Agriculture, Fisheries & Aquaculture

Afzal, Muhammad

NB Department of Health

O'Sullivan, Lucia

NB Health Research Foundation

Campbell, MaryAnn

Clark, Denise (2)

Doucet, Shelley

Kyberd, Peter

McGibbon, Chris

Reading, Stacey

Weaver, Kathryn

NB Innovation Foundation

Afzal, Muhammad (2)

Bremner, David

Calhoun, Larry

Chen, Zengtao

Chrzanowski, Adam

Cook, William

Curry, Allen

Dubay, Rickey

New Grants Funded at UNB, 2011-12 (continued)**NB Innovation Foundation, con't**

Duffy, Michael
 Dyker, Adam
 Eic, Mladen
 Eisler, Sara
 Englehart, Kevin
 Gong, Meng (2)
 Gray, Christopher (2)
 Hall, Joseph
 Hudgins, Bernard
 Jayachandran, P. T.
 Kent, Ken
 Kyberd, Peter
 Leblon, Brigitte
 Li, Howard
 Martyniuk, Chris
 Mastikhin, Igor
 McGrady, Sean (2)
 Mohany, Atef
 Ni, Yonghao (2)
 Nickerson, Brad
 Passmore, Jack
 Piercey, Darren
 Quiring, Daniel
 Rajora, Om
 Reyes-Prieto, Adrian
 Rochette, Rémy
 Simoneau, Andy (2)
 Singh, Kripa
 Smith, Ian
 Villemure, Gilles
 Yao, Sophie
 Zheng, Yin (3)
 Zhong, Ming (2)

NB Regional Development Corp.

Kyberd, Peter

NB Soil & Crop Improvement Association

Afzal, Muhammad

Networks Centres of Excellence

Coleman, David
 Curry, Allen
 Eic, Mladen
 Hall, Joseph
 Hughes-Clarke, John (3)
 Hunt, Heather
 Kent, Ken (2)
 Kidd, Karen
 Leblon, Brigitte
 Ni, Yonghao (2)
 Peterson, Patricia

Sloat, Elizabeth
 Wachowicz, Monica
 Zhang, Yun

Open Ocean Systems Inc.

Dubay, Rickey

Oval International

Ni, Yonghao

PCI Geomatics

Zhang, Yun

**Quebec – New Brunswick Cooperation
Advanced Education & Research**

Lawrence, Janice

Resolute

Li, Kecheng

Royal Society of Canada

Valk, John

Sentrex Wind Services

Diduch, Chris

Shift Energy Inc.

Du, Weichang
 Ghorbani, Ali
 Zhang, Huajie

SmartSkin Technologies Inc.

Light Thompson, Janet

**Social Sciences & Humanities Research
Council**

Ball, John
 Benjamin, Amanda
 Gill, Carmen
 Hirschhorn, Mark
 Morton, Erin
 Patterson, Stephen
 Richard, Chantal
 Willms, Doug

Springboard Atlantic Inc.

Gerber, Andrew
 Ni, Yonghao (2)
 Zhang, Yun

Strategic Directions Consulting Inc.

Martyniuk, Chris

ViTrak Systems Inc.

McGibbon, Chris

WiredTrust

Fleming, Michael