



# CANADA'S UNIVERSITIES: PARTNERS FOR PROSPERITY

ASSOCIATION OF UNIVERSITIES AND COLLEGES OF CANADA

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“That’s the role of a university, not just to give theory and great books – it’s also about the hands-on concrete experience that really makes a better workforce.”

GABRIEL BRAN LOPEZ, FOUNDER AND EXECUTIVE DIRECTOR, YOUTH FUSION  
CO-FOUNDER, FIRST ROBOTICS QUEBEC  
Bachelor of Arts, major in communication studies from Concordia University, Class of 2007

## SUMMARY

This fall, Canada’s universities welcomed the Class of 2017. The skills, knowledge and experiences these students acquire will contribute directly to Canada’s economic growth for decades to come. Universities are at the heart of discovery and innovation in Canada, working in partnership to build a better Canada. They help drive prosperity and strengthen communities. Universities help Canadians achieve their aspirations for the future.

Through partnerships with business, non-profit organizations and government, universities leverage their assets and resources to improve the quality of life for Canadians. University education remains the greatest protection against unemployment and a powerful source of innovation.

Budget 2014 is an opportunity to position Canada to scale-up innovation, to advance our competitive position in the global marketplace, and to equip a new generation of young people to achieve their potential.

Sustainable research funding will ensure Canadians benefit from university discovery over the long term. Support for research excellence and global collaboration will ensure an internationally competitive research environment. Funding for research infrastructure will allow Canadians to push the boundaries of knowledge and solve the greatest challenges facing Canada and the world.

Investments in Canada’s universities will help young Canadians, fuel innovation and strengthen economic prospects in communities across the country.



UNIVERSITY OF GUELPH

## ⇒ INTRODUCTION

Students who began their studies at Canadian universities this fall will form the class of 2017. They will graduate in the spring of Canada's 150<sup>th</sup> anniversary, full of hope and confidence as they chart their own futures.

Sesquicentennial celebrations and projects will be underway across the country that year, markers that show how far we've come as a nation. Canada's universities will be part of that celebration.

We propose to honour the date with much more than a monument or edifice that will tell future generations "we were here." Together, we can start now to bolster the capacity for research and teaching in our universities that will ensure the first class of the next 150 years will be even more focussed, engaged and ready to take on the challenges ahead. They will be the ones who will say, not that "we were here" but rather "we know where we are going."

They will define our place in the world.

The students now in their first year of university are getting an education that will transform their lives. They'll meet and learn from classmates and faculty from around the world. More than half will gain experiential or global learning opportunities that will prepare them for their careers. They'll improve their critical thinking, writing and reasoning skills. And they'll get the kinds of hands-on

research, innovation and knowledge-sharing experiences they'll need and use in the workplace.

Higher education is an investment in Canada's future. Through the students that universities educate and the research they conduct, universities are critical to job creation, economic and social growth, and prosperity for Canadian families and communities – and for the country as a whole.

As the Board of Trade of Metropolitan Montreal put it recently, "Universities contribute not only to our prosperity, but also improve our quality of life. In that sense, they encourage the creation of high value-added industries and enhance the employability of our labour force."

Canada can be proud of its record of achievement in higher education and research. Investments by provincial and federal governments continue to transform our economy and society. Our universities aspire to be the best in the world. And they are giving Canada's young people the opportunity to compete with the best as well.

We've laid the foundations. Now it's time to ensure they remain strong and that our country continues to prosper and grow.

“Universities encourage the creation of high value-added industries and enhance the employability of our labour force.”

BOARD OF TRADE OF METROPOLITAN MONTREAL

## JOBS FOR CANADIANS

Picture yourself a century ago preparing students for future employment. Typesetters, blacksmiths, stonemasons, telegraph operators, delivery people – all of those might have seemed promising long-term occupations. Needless to say, no one today is planning a career delivering milk to your door.

Many of tomorrow’s jobs haven’t yet been created or even dreamt of. That’s why Canadian universities are preparing their students not only for 21<sup>st</sup> century careers that currently exist, but also for those that have not yet been envisioned.

A university education takes place in a culture of innovation, intellectual rigour and lifelong learning. Universities know that their graduates need to be able to analyze complex data, solve problems, think globally and adapt to rapidly changing workplace demands – and universities are committed to ensuring that graduates have the essential skills they need to succeed in their future careers.

Getting a bachelor’s degree remains among the best protections against unemployment in Canada.

The 2010-11 unemployment rate for 25- to 64-year-olds without a university degree in Canada was 6.9 percent. But for those with bachelor’s degrees earned in Canada it was just 3.7 percent. In fact, from July 2008 to July 2013, the net increase in new jobs for university graduates was 810,000. At the same time, the available jobs for those who had not completed any postsecondary education dropped by 540,000.

Universities play a critical role in preparing students for employment. In a December 2012 report, CIBC World Markets Inc. developed a list of the top 25 jobs showing signs of skills shortages in Canada. Most of them required university degrees. On that list of in-demand careers were engineers, accountants, investment professionals, social workers and managers in education, social and community services. Not surprisingly, given the growing demands anticipated as baby boomers age, the CIBC report concluded that many positions in traditional health care roles, such as doctors, nurses and dentists, are in high demand, as are pharmacists, dieticians and nutritionists. Mining and science occupations are also facing skills shortages – often for managerial positions.

Organizations such as the Canadian Chamber of Commerce and the Canadian Council of Chief Executives also understand that postsecondary education is key to ensuring the employability of young Canadians. Identifying skills shortages as one of the top 10 barriers to competitiveness, the Chamber of Commerce suggests that forming links and partnerships with universities and colleges is one of the best ways business can address this problem.

“The fundamental contours of the skills story are unsettling,” Michael Dunham, Canadian president and country managing director for Accenture, told the Toronto Board of Trade in April. “Canada is facing a growing shortage of skilled workers, as baby boomers begin to exit the workforce. At the same time, the nature of work itself is, in many fields, growing increasingly complex, requiring specific skills that often need to be honed over years.”



UNIVERSITÉ DE SHERBROOKE



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## University works

Getting a university degree doesn't just pay off in terms of higher salaries and lower unemployment. University graduates also improve the quality of life in our communities across the country.

## Throughout their lifetimes, university graduates:

- Volunteer more
- Are more likely to vote
- Pay higher taxes
- Rely less on government benefits such as social assistance and services
- Lead healthier lives
- Place less strain on our health care system
- Influence the educational, health and social values of their children – and encourage their children to get the education they need to be productive citizens.

In other words, the skills shortage facing Canada goes well beyond trades and services and cuts across the corporate landscape. Do we need electricians? Yes, of course. But we also need BA and BSc grads. Banks, Mr. Dunham pointed out, are building sophisticated analytics capabilities – requiring not only investments in technology but also workers who can generate insights from the data. “And just to ramp up the degree of difficulty [of dealing with the skills shortage] a little more: in a globalized world, other countries are facing similar shortages of skilled workers – and as governments, as countries, as individuals, they too are racing to find solutions, and a new way forward.”

## University-business collaboration

In growing numbers, employers are calling on business and academia to work together on improving connections between education and the world of work, and universities are responding by collaborating with the business community to meet this challenge. That's why internships for academic credit, co-op programs and other kinds of work experiences are increasingly being integrated into the curriculum of universities across the country.

Universities and colleges are also working together more frequently to ensure that high school students and adult learners can choose from a range of options. Getting a college diploma, learning a trade, getting a bachelor's degree or going on to graduate school to earn a master's or PhD – all are valuable when Canadians look for jobs. That's why the Association of Universities and Colleges of Canada and the Association of Canadian Community Colleges recently struck a task force of university and college presidents to identify more ways to enhance learning pathways for Canadian students.

“Out of university I was able to get in with a large national company, AOL, and I certainly feel that without my degree I wouldn’t have had a chance to get that job. University gave me a good foundation for how to learn new things and where to go to seek out things. ...and I certainly find that’s what I look for when I hire someone.”

IAN BEZANSON. PRESIDENT OF DIGITAL MARKETING AGENCY, BITS INTERACTIVE.  
Bachelor of Computer Science, Dalhousie University, Class of 2004

You’ll hear some commentators talk about a crisis in under-employment, referring to university graduates who work in coffee shops or in other retail areas. Are there some? Sure. But that simply isn’t the reality for most graduates of Canadian universities. The facts don’t support the myth. In reality, policymakers and university leaders alike are concerned that this corrosive message will keep young people from considering a university education – a choice that would put Canada at a significant disadvantage globally.

The Organisation for Economic Co-operation and Development (OECD) recently released *Education at a Glance 2013*, which points out that Canada has a substantial economic advantage, since it has the highest proportion of 25- to 64-year-olds with college or university education among OECD countries. It’s important to remember that, while Canada ranks first in the world among those aged 25- to 34- years old for college graduates, it ranks only 15<sup>th</sup> for university graduates, after countries including the United States, Israel and Norway.

Some critics have charged that universities – and university students – are slow to respond to the needs of the Canadian economy. That’s an easy caricature. But here’s the real picture: the fastest-growing programs of study on Canadian university campuses match closely with rising demand in Canada’s labour markets – enrolment in the physical and life sciences, engineering, business (including management, finance and accounting) and law were all up by from eight to 20 percent between 2005 and 2010. Enrolment in the health professions is up more than 30 percent over the same period and computer science enrolments are rebounding after declining in response to the “dot.com bust” in the early part of the last decade.

And while many university programs – such as medicine, engineering, law, business, pharmacy, public health and psychology – have graduates who are obviously “job-ready,” leading directly to a well-defined career, graduates with degrees in the humanities or social sciences are getting good jobs too. You do not have to graduate with a career title to be highly employable.

What’s the average salary for a history graduate from a Canadian university, for example? You might be surprised to know that it’s the same as graduates from biological and biomedical sciences.

For more stories on how university students are succeeding in today’s job market, visit [www.universityworks.ca](http://www.universityworks.ca)



UNIVERSITY OF SASKATCHEWAN



## Indigenous education and programs at universities

Canadians can be proud of our country's record of making a university education achievable for young people who want a degree.

But there's a significant gap that remains troubling. Fewer than 10 percent of Aboriginals between the ages of 25 and 64 have a university degree. That's about one-third the rate of non-Aboriginals. This means Indigenous people, on average, earn less on the job, are under-represented in managerial and professional occupations, and are more likely to be unemployed.

With the population of young Aboriginals growing 30 times faster than non-Aboriginal youth, closing that education gap must be a top priority for our country.

Universities are responding to the challenge with new and creative programs aimed at making a difference – including courses, outreach and financial assistance, as well as programs and physical spaces where First Nations, Métis and Inuit students can find counselling, support and connection to their culture.

The University of Winnipeg, for example, offers four different transition programs ranging from a course to a full year, which are designed to equip students with the academic and personal coping skills they need to succeed in their studies. The University of Saskatchewan's College of Engineering runs outreach programs to engage Aboriginal youth well before they are of univer-

sity age. And at Lakehead University, the Native access program assists students in making a successful transition to higher education.

On a broader scale, the LYNX: Aboriginal Student Career and Employment Program is a partnership between 12 universities and 10 corporations that was created in response to an increased volume in Aboriginal student and graduate recruitment activity from companies. The program provides opportunities for Aboriginal students and recent graduates from various universities and technical institutes in Canada to connect directly with potential employers who are seeking to recruit qualified Aboriginal employees for internships, co-ops, summer employment and full-time positions.

A recent survey of universities by AUCC shows that programs and services specifically designed for Indigenous students have increased significantly in recent years and continue to grow in scope and scale.

For more information on the kinds of innovative programs and services universities across the country offer to close the Aboriginal education gap, see AUCC's online inventory at [www.aucc.ca/Aboriginal-directory](http://www.aucc.ca/Aboriginal-directory)

“Community engagement through university really helped me build my skills as a person going out in the world and I was able to get an amazing job just because of some of the experiences I had and skills I developed.”

DAVE LA ROSE, INVENTORY ANALYST, WESTERN GROUP  
Bachelor of Business Administration, Memorial University, Class of 2013.

## BUILDING CANADIAN COMMUNITIES

Across the country, community leaders understand that universities help their cities and regions prosper.

The City of Thunder Bay, Ontario considers Lakehead University among its economic drivers. “Lakehead University is a catalyst for social, economic and cultural development in Northwestern Ontario and an intellectual force in local, regional, national and global communities.” Halifax Mayor Mike Savage counts the area’s six universities as strategic assets on par with ports and airports: “Universities provide real potential. I want to make sure we take advantage of it.” And the City of Waterloo, Ontario sees the value of providing higher education. “You do not have to leave the City of Waterloo for your education. We are home to high-quality educational institutions that can take you from the first day of school to university graduation and beyond with continuing education.”



UNIVERSITY OF TORONTO

Universities, quite simply, are drivers of prosperity and renewal, and a compelling source of civic pride. Consider the words of Naheed Nenshi, mayor of Calgary, who stated recently, “I have always said that great cities need great universities to succeed. We need great universities to help us attract talent; we need great universities to help fuel the economic and innovation engine.”

From coast to coast, the contributions of universities to their local communities are evident.

University of Windsor nursing and social work students and professors are helping improve living conditions and reduce crime at a low-income housing complex in downtown Windsor. The project earned a community development award for its contribution to urban renewal.

*Cours ta réussite*, a project of the faculty of medicine at Université Laval, aims to get potential school drop-outs back on track. The program offers marathon training, advice on healthy eating and academic and psychological support. Its objective is to provide participants with a framework to complete their studies *and* run a marathon .

The Community Development Institute at the University of Northern British Columbia is helping Kitimat prepare for a new smelter project. An influx of construction workers, while welcome, can drive up local prices of goods and saturate the housing market, pressuring low-income people out of rental accommodation. Advance planning involving communities can help shape solutions. The institute is assisting with that.



CONCORDIA UNIVERSITY

“The time has come to establish a new, more aggressive and coordinated approach to ending heart disease and stroke, so we’ve partnered with some of the highest performing researchers in Canada to get the job done.”

IRFHAN RAWJI

Past Chair of the Heart and Stroke Foundation and one of the architects of the research leadership circle

Universities are responding to the need for partnerships with community groups. In fact, university researchers collaborate on more than \$1 billion worth of research with community and non-profit community groups every year, particularly in the health field.

These growing links are clear evidence of a new understanding of the power of research at Canada’s universities. Canada’s Heart and Stroke Foundation recently took what it called an “extraordinary” step in making a multi-year \$300 million commitment to a newly formed research leadership circle, which includes almost 20 universities and university hospitals across the country. The funds are aimed at saving more lives, faster. Merit-based and peer-reviewed, these funds will go toward major new research projects, greater collaboration and attracting even more of the world’s best researchers from outside Canada to Canadian campuses and universities.

“The time has come to establish a new, more aggressive and coordinated approach to ending heart disease and stroke, so we’ve partnered with some of the highest performing researchers in Canada to get the job done,” says Irfhan Rawji, past Chair of the Heart and Stroke Foundation and one of the architects of the research leadership circle, who calls the new fund a “bold commitment.”



UNIVERSITY OF LETHBRIDGE

## **ADVANCING RESEARCH TO BENEFIT CANADA**

Partnering with Canadian universities is widely recognized as key to Canada's economic and social growth. In addition to working with community and not-for-profit groups, university researchers are keen to link with the private sector, creating ideas and solutions to benefit businesses across the country. In fact, Canada's universities conduct almost \$1 billion worth of research in collaboration with the private sector annually, providing the "intellectual raw material" that drives innovation and builds prosperity.

Consider the work of one university alone. More than 1,000 researchers at the University of Alberta are collaborating on the responsible development of Canada's oil sands. David Lynch, dean of engineering says, "In the next 20 years, I see entirely new breakthrough technologies being implemented...It's the only way you get better solutions faster."

In fact, a number of Canadian universities are working with partners in the energy field to speed up innovation. For example, a new technology has been developed by researchers from the University of Calgary together with a team from the University of Newcastle in England to use naturally occurring microbes in oil reservoirs to convert them into natural gas – over a period of months, not the millennia that it would otherwise take. This patented technology is now being tested in the field, and could be speeding up the process of converting heavy oil reservoirs in a few years. The new technology will open up previously unrecoverable energy more quickly and effectively, and create a cleaner fuel as well.

The University of New Brunswick has partnered on several fronts with forestry company J.D. Irving to create new techniques to preserve wildlife habitat, improve pest management, protect fish populations and increase the understanding of forestry's potential to offset climate change. While the forestry company wants to be an effective land steward, there are financial motivations as well. Greg Adams, J. D. Irving's Manager of R&D, Nurseries and Tree Improvement says, "Sustainability is related to operational efficiency and decision-making...Unless you've got a growing forest, and unless you can stay modern and efficient, you won't be able to survive in the global marketplace and keep pace with the international competition. Innovation is essential to our survival and growth."

### **Accelerating innovation**

New ventures are given a boost through innovation accelerators that have been set up at several universities across Canada. Among them are Simon Fraser University's RADIUS (RADical Ideas, Useful to Society), an interdisciplinary social-innovation lab and venture incubator. The initiative brings together students from all faculties across SFU to develop and nurture practical solutions to pressing social problems and provide opportunities for deeper learning.

Similarly, the Digital Media Zone (DMZ) at Ryerson University is an incubator and multi-disciplinary co-working space for entrepreneurs. The DMZ brings together undergraduates, faculty, intellectual property expertise and venture capital to help students to bring their ideas to market. Bionik Labs, a medical engineering research and development corporation with a focus on prosthetics and



## Revitalizing resources

Canadians' ambitions and education have moved us far beyond the limits of being only "hewers of wood and drawers of water." Still, with the help of universities across the country, our traditional resource industries are being revitalized and regenerated to make them globally competitive.

Take, for example, the forestry industry. A recent parliamentary report on the future of Canada's forest sector confirms the important role that universities play in creating jobs and transforming the Canadian economy through research and innovation. It highlights the research that universities are already doing to improve the forestry industry. The report calls for enhanced funding to allow universities to do more, including a new multi-disciplinary research push in forestry, architecture and engineering and the launch of international competitions for students using wood products, aimed at stimulating the creativity of tomorrow's professionals.

Just as in forestry, university researchers and educators are working with sectors such as mining and agriculture to give these industries a boost. "Having a world-class university in our backyard is a real plus for us," says Angie Robson, corporate affairs manager at Vale Canada Ltd. Laurentian University's Goodman School of Mines is educating a new generation of potential employees based on the idea that "they'll need to master not just the technical aspects of mining, but also have to deal with environmental issues, socio-political issues and our relationship with First Nations."

University research, in short, is key to the industry's survival. Says Ms. Robson: "We're looking ahead and applying research that will hopefully keep mining here for another hundred years."

rehabilitation devices, launched in 2009 by two undergraduate biomedical engineering students, operates out of the DMZ to great success. Today Bionik Labs employs more than 20 people and is working with major hospitals in the U.S. and Canada. It's just one of dozens of innovations DMZ has brought to the Canadian economy.

### Growth in research results

The Association of University Technology Managers has measured university technology transfer in Canada and the United States since 1991. Their surveys demonstrate a strong record of growth in research results. From 1991 to 2010, for example, the average number of inventions and discoveries made at Canadian universities has increased by 70 percent. Patents applied for have grown from 6.4 per responding institution to 24.4, while the average number of patents issued to a Canadian university from the U.S. patent office went from zero to 8.3 a year. At the same time, the average number of licences went from five to 14, while income from licensed IP (adjusted for inflation) has more than doubled.

Successive expert reports have also shown the progress Canada is making in raising its research game. The most recent study by the Council of Canadian Academies on the state of science and technology in Canada found, for example, that Canadian university researchers are punching above their weight when it comes to the full range of disciplines. Even though Canada has less than 0.5 percent of the world's population, we produce nearly five percent of the world's most frequently cited papers.

“I had the opportunity to do a semester abroad and learned a different way of doing business. We are living in a globalized world and we are asked to be more and more mobile and know different languages, so getting that experience is highly valuable.”

SOPHIE ROY, COMMUNICATIONS CONSULTANT IN A GLOBAL COMMUNICATIONS FIRM  
Bachelor of Commerce, McGill University, Class of 2010

## PROMOTING CANADA ON THE GLOBAL STAGE

Just as our mining, agriculture and forest sectors look beyond our borders, so do Canada's universities. And we have earned our place in the global community. Whether it's from innovation in nanotechnology, quantum computing, understanding the human genome or digital media, we have caught the eye of the world. International partnerships in research and innovation are vital to building prosperity in the new knowledge-driven economy. So we must be dogged in harnessing that attention and building on our reputation to take full advantage of emerging opportunities.

Postsecondary education has long been part of an international community with universities attracting professors from around the world. In fact, more than 40 percent of Canada's full-time faculty earned one degree abroad. But today, not only are we learning from experts from elsewhere, but more faculty members, whether Canadian-educated or not, are internationally engaged. They are a new generation, and their knowledge speaks to the global community in which we live. Their research doesn't stop at the 49<sup>th</sup> parallel. They are connected with colleagues around the world and they think in global terms. As a result, they are twice as likely to produce jointly authored international work, which makes them among the most collaborative in the world. In fact, top-cited international researchers recognize their Canadian peers as leaders in terms of the originality, impact and rigour in their field of research.

There is much more we can do to nurture that. Just this year, an agreement was signed between the AUCC and the Association of University Heads, Israel. We have agreed to collaborate to promote the internationalization of higher education and exchange information to help increase research links between Canadian and Israeli universities.

AUCC is also a member of a consortium that recently received funding from the European Commission to promote science, technology and innovation collaboration between Canada and the European Union. As you read this, in fact, the EU is launching its latest Framework Programme for Research and Innovation with an expected budget of more than €70 billion (CAD \$92 billion). The ERA-Can Plus project, launched in October of this year, aims to raise awareness of the multiple research and innovation program opportunities for Canadians. It builds on previous efforts to expand Canadian participation in European ventures.

Beyond Europe, many countries are newly vested in growing their capacity for higher education and research. So for Canada, building international collaboration is increasingly about reaching out to emerging nations – countries that are spurring prosperity by investing heavily in research and innovation.

### **Potential in Brazil**

Brazil is an excellent example. This dynamic Latin American country is poised to become a top-five economy in the next five years and has set a research expenditure target of 2.5 percent of its GDP by 2022.

In an unprecedented mission, 25 presidents of Canadian universities travelled to Brazil under AUCC's auspices last year to meet with leaders of Brazilian universities and research networks, government officials and private sector partners who share our objective of advancing research, innovation and higher education connections between our two countries. In just one week, 75 new university partnerships and scholarship programs were announced, in addition to a commitment to host up to 12,000 Brazilian students in Canada over the



BRESCIA UNIVERSITY COLLEGE

following four years through Brazil's Science Without Borders (SWB) program. Since the program's outset in September 2012, Canadian universities have hosted more than 3,300 SWB students from Brazil. Beyond that, meaningful discussions are setting the stage for even greater collaboration in the years ahead. There are already close to 200 active exchange agreements between Canadian and Brazilian universities. Just think of how much more we can achieve.

The steps that Canada and Brazil are taking together will open the door to new worlds that we can only imagine for our students and faculty. They are investments that will benefit our economies through innovation, our societies through higher education, and the world as a whole through the creation of new knowledge through research.

### **Opportunities in India**

India, one of the fastest-growing economies, will need rapid growth both in the number and size of universities to meet its demand for higher education in the coming decade. The central government has plans to establish 45 new institutes of academic excellence, and India's research output is rapidly growing.

In 2010, the same year that AUCC led a mission of 15 Canadian university presidents to India, the governments of Canada and India signed an MOU on higher education cooperation, a commitment to increase two-way student flows and foster joint academic programming and research. Canada and India also have a treaty-level cooperation agreement on science and technology, which emphasizes the need for collaboration on basic research, academic exchange and technology commercialization. Canadian universities will continue to play a key role in

linking and leveraging the activities of these two bilateral cooperation mechanisms.

The possibilities for higher education connections with India are endless. The country currently sends about 160,000 students abroad each year, many of them to Canada, already home to more than one million people of Indian heritage.

### **Global benefits**

The benefits we reap by hosting international students are substantial. A recent federal government study found that the economic impact in Canada of international students overall is about \$8 billion a year. Those who return home become our best ambassadors for Canadian goods and services. Some stay in Canada, contributing their skills to our workforce.

What's perhaps even more important are the pedagogical benefits international students bring to Canadian university classrooms, labs and residence halls. Canadian students gain intercultural knowledge and skills – expertise that they will need when they join an increasingly global job market.

As a nation, Canada is positioning itself as a world leader in research and innovation. That will come, in part, through enhanced partnerships and collaborations with emerging nations and by achieving our ongoing mission of attracting the best and brightest minds from around the world to our universities.



MARTIN FORTIER/ARCTICNET



## Arctic research with international impact

The Network of Centres of Excellence known as ArcticNet, a consortium of Canadian scholars focused on Arctic issues, is revolutionizing the way research is conducted in the North.

ArcticNet brings together 155 principal researchers from 30 Canadian universities and has brokered 125 international collaborations.

The research icebreaker CCGS Amundsen is celebrating its 10<sup>th</sup> year of operation as a cutting-edge, floating lab in Canada's remote northern expanses. On a recent voyage as part of ArcticNet, researchers used a remotely operated vehicle to observe methane emissions from the sea floor and 900-metre-deep cold water corals.

What makes ArcticNet a global trailblazer is its broad range of specialties. Support from funding bodies in the natural, social and health sciences reflects its

mission of exploring the impacts of climate change on all those interconnected aspects of Arctic life. For example, breaking down broad forecasts of changing sea-ice, contaminant propagation and other conditions into specific, regional analyses has allowed researchers to map the impacts of permafrost on infrastructure and, by extension, to show where construction should be avoided.

The purpose of all this collected expertise is to find practical answers to the challenges facing the changing North. "The backbone of ArcticNet is the idea that we have to go from knowledge to action in the Arctic," says scientific director Louis Fortier, a Université Laval oceanographer.



LAKEHEAD UNIVERSITY

## DRIVING PROSPERITY



Across the globe, leaders recognize the need to invest in university research in all its stages, from the most fundamental parsing of the human genome to developing a new and improved way to manufacture a consumer product. At its heart, wherever it lies on the continuum of basic to applied, university research is about creativity. In all disciplines – and often across disciplines – researchers at Canadian universities advance knowledge, often working collaboratively and virtually.

That advance in knowledge has a momentum. It moves well beyond the lab door. In the C.D. Howe Institute's June 2013 commentary *From Curiosity to Wealth Creation: How University Research Can Boost Economic Growth*, university research is described as, "the source of the basic building blocks of many of the core sectors of the economy, in everything from information technology to pharmaceuticals to much more."

As Canada looks to continue creating jobs, strengthening its economy and widening prosperity in the years ahead, research and discovery will be a key strategy. Studies across many OECD countries have shown the strong value of university research on long-term economic growth and productivity.

"Innovation has always been an important driver of growth," Angel Gurría, OECD's secretary-general, said recently. "However, in recent times, its importance has grown significantly. More than ever, we need to reboot our economies with a more intelligent type of growth, driven by new start-ups, by the most innovative small and medium enterprises and banks, and by our need to develop efficient renewable energies and green technologies for a low-carbon era."

Investing in research today will lead to lasting economic benefits in the future. Canada's universities have hired more than 20,000 faculty members in the last decade. These new researchers are in the prime of their careers. At the same time, the number of graduate students at Canadian universities has grown 80 percent since 2000.

The federal government has an opportunity to capitalize on the unprecedented pool of talent on campuses across Canada. Investments in research will enable professors and students to make the groundbreaking research discoveries and acquire the critical skills that will help drive innovation, economic growth and global competitiveness for decades to come.

# MOVING FORWARD

Canada has a strong record of investing in higher education and research. How do we ensure that research continues to lead to innovation and prosperity?

On behalf of our 97 member universities located in communities across the country, AUCC recommends that Canada:

## 1. RESOLVE TO MAKE GROWTH IN RESEARCH FUNDING A FUNDAMENTAL PRINCIPLE

Innovation fuels Canada's prosperity. Universities are at the heart of discovery and innovation. To build a more prosperous Canada, the budget should commit to the principle of sustainable, predictable research funding for the federal research granting agencies. They are vital to ensuring Canadians benefit from university research. The research they support is the foundation for innovation including solving problems, improving our quality of life and opening new markets. Sustained, predictable research funding sends a strong signal globally about Canada's ambitions for research leadership.

To drive innovation and prosperity, Canada needs a long-term and consistent research strategy that would see its investments through the granting agencies lead the rate of growth in the economy.

## 2. COMMIT TO RESEARCH EXCELLENCE AND GLOBAL AMBITIONS

The high quality of Canada's university enterprise – research and teaching – is recognized around the world. Following through on a 2013 Budget announcement, the government should enhance funding either to the indirect costs program, or through a new research excellence fund, to address longstanding barriers to achieving the highest levels of excellence and sustaining a globally competitive research environment in Canada.

## 3. SUPPORT STATE-OF-THE-ART RESEARCH INFRASTRUCTURE

Sustained predictable and long-term funding for research infrastructure will allow researchers to push the boundaries of knowledge, explore the unknown and generate outcomes recognized around the world. The government of Canada should commit to longer-term sustained and predictable support for state-of-the-art research infrastructure through the Canada Foundation for Innovation.



ALGOMA UNIVERSITY

Canada's universities are focussed on moving forward. They have never been more innovative, creative and globally connected. They look for opportunities to partner with industry, their communities and colleagues from around the world. And, in turn, potential partners are increasingly turning to Canada, recognizing the teaching, research and academic excellence we have built over the decades.

We are informing Canada's future, educating students, ensuring they are equipped with the knowledge and skills they will need to meet the requirements of rapidly changing job markets.

The one million students who will graduate from Canada's universities between now and 2017 will in large part determine our country's prosperity for decades to come. It's time to invest in this next generation of leaders. What better way to mark the sesquicentennial than building a better base for research, enhancing our universities' capacity for contributing to Canada's prosperity, and graduating the class of 2017 better equipped with the skills, knowledge and experiences that will see its members take their place in the world as resourceful, resilient people, entrepreneurs and citizens.

For more information, please contact [Christine Tausig Ford](mailto:Christine.Tausig.Ford@aucc.ca), Vice-President, Association of Universities and Colleges of Canada, [vp@aucc.ca](mailto:vp@aucc.ca), 613-563-1236

## AUCC MEMBER INSTITUTIONS

Acadia University	Kwantlen Polytechnic University	St. Thomas University	University of New Brunswick
Algoma University	Lakehead University	TÉLUQ	University of Northern British Columbia
Athabasca University	Laurentian University/ Université Laurentienne	The King's University College	University of Ontario Institute of Technology
Bishop's University	Luther College	Thompson Rivers University	University of Ottawa/ Université d'Ottawa
Brandon University	MacEwan University	Trent University	University of Ottawa/ Université d'Ottawa
Brescia University College	McGill University/ Université McGill	Trinity Western University	The University of British Columbia
Brock University	McMaster University	Université de Moncton	University of Prince Edward Island
Campion College	Memorial University of Newfoundland	Université de Montréal	University of Regina
Canadian Mennonite University	Mount Allison University	Université de Saint-Boniface	University of Saskatchewan
Cape Breton University	Mount Royal University	Université de Sherbrooke	University of St. Michael's College
Carleton University	Mount Saint Vincent University	Université du Québec	University of Sudbury/ Université de Sudbury
Concordia University/ Université Concordia	Nipissing University	Université du Québec à Chicoutimi	University of the Fraser Valley
Concordia University College of Alberta	NSCAD University	Université du Québec à Montréal	University of Toronto
Dalhousie University	OCAD University	Université du Québec à Rimouski	University of Trinity College
Dominican University College/ Collège universitaire dominicain	Queen's University	Université du Québec à Trois-Rivières	University of Victoria
École de technologie supérieure	Redeemer University College	Université du Québec en Abitibi-Témiscamingue	University of Waterloo
École nationale d'administration publique	Royal Military College of Canada/ Collège militaire royal du Canada	Université du Québec en Outaouais	University of Windsor
École Polytechnique de Montréal	Royal Roads University	Université Laval	The University of Winnipeg
Emily Carr University of Art + Design	Ryerson University	Université Sainte-Anne	Vancouver Island University
First Nations University of Canada	Saint Mary's University	Université Saint-Paul	Victoria University
HEC Montréal	Saint Paul University/ Université Saint-Paul	University of Alberta	Western University
Huron University College	Simon Fraser University	University of Calgary	Wilfrid Laurier University
Institut national de la recherche scientifique	St. Francis Xavier University	University of Guelph	York University
King's University College	St. Jerome's University	University of King's College	
	St. Paul's College	University of Lethbridge	
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