CALDO

Connecting you with top Canadian universities
Joignez des universités canadiennes d'excellence

WWW.CALDO.CA

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graduate.coordinator@caldo.ca

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What is CALDO?

CALDO is a leading academic gateway for Latin American students to pursue their studies in Canada. Made up of nine of Canada's U15 research universities, we aim to make Canada the destination of choice for funded university students across Latin America. We do this by serving as a single point of contact for students and their sponsors.

The CALDO Consortium aims:

- to promote Canada as a destination for international students and researchers;
- to encourage and support two-way international mobility among students and faculty;
- to increase recognition of the global leadership of Canada's research universities;
- to support member participation in, and leadership of, global knowledge networks.

Our Services

• 1. Advice on graduate programs at any of our universities.

• 2. The use of the CALDO Pre-Assessment platform that enables you to contact supervisors of your choice at any of our universities. This pre-assessment is eligible for thesis-based Master's (Master's with research) as well as for PhD programs, since both will require a supervisor. To use this service, candidates need to consider applying for financing from their home country.

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UNIVERSITY OF ALBERTA

The University of Alberta is one of Canada's top five research universities and ranks consistently among the top 100 in the world. Home to 39,000 students, UAlberta provides a multicultural and inclusive learning environment where students from all over the world conduct research alongside world-renowned experts in world-class facilities.

Located in Edmonton, the capital city of the oil-rich province of Alberta, UAlberta is well-connected to industry and business, offering strong research and employment opportunities for students and graduates.

Priority Research Areas:

- Energy & the environment
- Food and Agriculture
- Health and Wellness
- Nanotechnology
- Northern/circumpolar research

Established 1908

18 Faculties

500+ Master and PhD Programs

94 Position in the 2017 QS World University Ranking

$460 Million External Research Funding

107 Canada Research Chairs* in 2017

3 Canada Excellence Research Chairs in 2017

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

UNIVERSITY OF ALBERTA

UNIVERSITY OF ALBERTA
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University of Alberta Highlights (Hyperlinks in color)

The UAlberta International Student Centre offers specialized advising for international students, including immigration advising. In addition, the Centre offers special events and programming, including a 3-day orientation for new international students as well as a friendly airport greeting on arrival.

UAlberta North Campus is home to Canada's National Institute for Nanotechnology, one of only a few such facilities in the world. Labs include Canada's quietest research space, which allows for research at the nano-scale.

The Physical Activity and Wellness (PAW) Centre is brand new and is available to UAlberta students with a ONEcard (student ID). It includes a world-class climbing wall, two work-out floors, a swimming pool, and more.

The Li Ka Shing Institute of Virology at UAlberta is home to some of the world's best researchers working to cure virus-based diseases.

The Timms Centre at UAlberta is Canada's leading theatre training facility, contains a 289-seat proscenium theatre, specialized lighting and tracking systems, video and sound equipment, all designed for student learning.

The University of Alberta has built a foundation of research excellence in energy, delivering scientific discoveries and technologies that have advanced the energy sector in western Canada and around the world.

Edmonton, Alberta is known as Canada's Festival City, with over 300 festivals each year held in all seasons, ranging from music to culture to food to carnivals and more.

UAlberta has Canada's 2nd largest research library system, ranks first in volumes available per student thanks to a library consortium that arranges access to 10.6 million items, and provides access to more than one million electronic books and more than 1,500 electronic databases.

The School of Public Health at UAlberta is Canada's first fully accredited, stand-alone faculty dedicated to public health with a focus on safety, wellness, and disease prevention.

The Alberta Rocky Mountains are located just a few hours away from UAlberta, offering some of the most beautiful scenery in the world as well as the chance to see Canadian wildlife up close.

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UNIVERSITY OF CALGARY

The University of Calgary is Canada's top young university under 50 years of age and top six research-intensive university. It is located near the Rocky Mountains, in Calgary, Canada's energy capital and the 5th most livable city in the world. A community of 30,000+ exceptional students from all over the world. Around 26% of graduate students and 36% of faculty are international. Their 155,000+ alumni reside in 123 countries.

Priority Research Areas:

- Energy Innovations
- New Earth Space Technologies
- Infections, Inflammation and Chronic Diseases
- Human Dynamics in a Changing World
- Engineering Solutions for Health: Biomedical Engineering
- Brain and Mental Health

Established 1966

14 Faculties

150 Master and PhD Programs

196 Position in the 2017 QS World University Ranking

$360.5 Million External Research Funding

148 Research Chairs (not specifically Canada Research Chairs)

1 Canada Excellence Research Chair in 2016
(Canada Excellence Research Chair in Materials Engineering for Unconventional Oil Reservoirs)

UNIVERSITY OF CALGARY

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University of Calgary Highlights (Hyperlinks in color)

The University of Calgary is Canada's top young university and is seventh among the top research universities in Canada. The community is made up of 30,000+ exceptional students from all over the world.

We are Canada's leading next-generation university – a living, growing and youthful institution that embraces change and opportunity with a can-do attitude.

We are located near the Rocky Mountains in Calgary, Canada's energy capital and the **fifth most livable city in the world**.

The university offers an **Entrepreneurship and Innovation Option** for all graduate students to develop the knowledge and skills that support the creation of new products and processes.

Advancing Canadian Wastewater Assets (ACWA) is a unique-in-the-world research partnership, tackling global remediation questions that nobody else can to ensure clean drinking water for the planet.

University of Calgary **biomedical researchers** are at the forefront of advancing neurosurgery, joint repair and stem cell production and are producing unprecedented insights into global healthcare research challenges.

Among our most influential research facilities is the **Human Performance Lab (HPL)** that specializes in research relating to human neuro- and musculo-skeletal health from birth to advanced age.

The **Host-Parasite Interactions (HPI)**, a leading-edge international training program, prepares graduate students to tackle global issues such as parasite control, drug resistance, ecosystem impacts, food and water safety.

Our **energy research** is focused on creating a low carbon energy system while assessing the effects of energy-related processes and harnessing unconventional hydrocarbon resources. The Department of Chemical and Petroleum Engineering houses a number of **exceptional research laboratories**.

A **Graduate Academic and International Specialist** is a main point of contact on campus for international graduate students and offers an extended orientation for first year graduate students.
Crowsnest Hall is the university's newest residence and was built just for graduate students. The building houses 394 residents in semi-furnished studio, one-and two-bedroom apartments with private bathrooms and full kitchens.

DALHOUSIE UNIVERSITY

Located on Canada's East Coast, the university blends world-class academic programs with breakthrough thinking and leading-edge research. Dalhousie was ranked as the 125th Most International University in the World by the Times Higher Education World University Rankings in 2016. As a key driver of economic growth and knowledge generation, Dalhousie delivers groundbreaking work in fields such as oceans, advanced materials and clean technology, health and wellness, governance, society and culture, information science and communication, energy and the environment, and agriculture. Research collaborations extend through nearly 100 countries.

Priority Research Areas:

- Ocean Studies
- Advanced Materials and Clean Technology
- Health and Wellness
- Governance, Society and Culture
- Information Science and Communication
- Agriculture and Food Technologies
- Energy and the Environment

Established 1818

12 Faculties

136 Master and PhD Programs

283 Position in the 2017 QS World University Ranking

$140 Million External Research Funding

50 Canada Research Chairs* in 2016

1 Canada Excellence Research Chair in 2016

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

DALHOUSIE UNIVERSITY 1818 2018

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Halifax, NS
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Dalhousie University Highlights (Hyperlinks in color)

The Collaborative Health Education Building is a transformative health education facility enabling integrated learning experiences for medicine, dentistry and health profession students. The state-of-the-art skills and simulation labs mimic realistic homecare, rehabilitation and hospital settings.

The Steele Ocean Sciences Building is a one-of-a-kind space that clusters ocean experts and innovators under one roof. It is home to the Aquatron laboratory, one of the best aquatic research facilities in the world.

The Institute for Big Data Analytics creates knowledge and expertise in the field of Big Data Analytics by facilitating fundamental, interdisciplinary and collaborative research, advanced applications, advanced training and partnerships with industry.

Tesla Motors has partnered with Dalhousie researcher Dr. Jeff Dahn and his team to help create longer lasting, cost-effective batteries that will pack a punch against climate change.

The Global Ocean Tracking Network, a $168-million conservation project, is headquartered here.

The Life Science Research Institute is a state-of-the-art facility. The open-concept design presents new opportunities for collaboration that begins with laboratory research and moves on to the commercialization of new products and processes and the incubation of new companies, all of which results in improved healthcare and a stronger economy.

Dalhousie is home to three "sandboxes" — collaborative spaces that bring together students, mentors and external advisors from multiple disciplines to take business concepts from idea to execution.

The Precision Agriculture lab works to improve agricultural practices and protect environment. Dr. Qamar Zaman and his team are developing innovative technologies for famers to increase crop productivity and reduce cost of production.

Halifax's urban charm is complemented by its natural beauty. The ocean is part of our life here-Dalhousie is just 300 metres from the Atlantic-so sailing and water sports are enjoyed through spring, summer and fall, with surfing being popular year-round.

Our Agricultural Campus is located an hour outside of Halifax. Students can fill their spare hours with amazing trails and water falls, check out the world's highest tides in the Cobequid Bay and visit the Truro's Farmer's market for great food, local produce and live music.

UNIVERSITÉ LAVAL

Located in Québec City, Université Laval (UL) is the first francophone university in the Americas. The university accounts for 270 research groups and chairs and more than 1 350 professors with international recognition. UL has advanced labs and academic facilities and provides students with one of the biggest sports complexes in Canada housing 14 Rouge et Or sport clubs.

Priority Research Areas:

- Agriculture, food sciences and forestry
- Obesity, cancer, infectious and cardiovascular diseases
- Genomics and proteomics
- Optics-photonics and laser
- Economics, policy and poverty

Established 1663

17 Faculties

150 Master and PhD Programs

372 Position in the 2017 QS World University Ranking

$325 Million External Research Funding

81 Canada Research Chairs* in 2015

4 Canada Excellence Research Chairs in 2015

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

UNIVERSITÉ LAVAL
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Université Laval Highlights (Hyperlinks in color)

Université Laval (UL), one of Canada's top French-speaking universities, has built an international reputation in many different academic fields. Our talented professors understand well that the secret to student satisfaction lies in being available and attentive to student needs. Most of our undergraduate programs offer internship opportunities and five different study profiles— International, Entrepreneurial, Sustainable development, Honours and Research— that bring added value to a degree.

UL is ranked among the largest research universities in Canada and receives around $325 million in research funding annually. With 270 different research groups and chairs and 1,350 internationally reputed research professors, the campus hums with intellectual energy and excitement. UL is also the only Québec institution to house 3 Networks of Centres of Excellence of Canada: ICIP (optics-photonics), GEOIDE (geomatics) and ArcticNet (northern studies and climate changes). In all, UL houses scientific infrastructure valued at an estimated $500 million.

With six million documents, the Library plays a central role in UL's academic work. It is well known for the extent and scope of several of its specialized collections, including music, educational material, statistical and geospatial data. It also has hundreds of databases and thousands of electronic journals and monographs. Our Library also publishes information on the latest publications and provides access to the catalogues of university libraries all around the world.

As a certified sustainable campus, UL encourages a range of sustainable development initiatives. UL offers basic training in sustainable development to help all students to become responsible and committed citizens.

Due to its location in the heart of Québec City, UL offers a unique opportunity for French immersion which allows the students to gain additional skills and stand out in the job market.

PEPS, UL's impressive sports complex, is a reference for athletes of all disciplines. It's also the home and training grounds of UL's 14 elite-level "Rouge et Or" teams.

The student life at UL offers many different activities giving our campus a vibrant atmosphere, and the possibilities are almost endless joining one of the 225 student associations, developing an artistic side, embarking on a new experience or adventure or simply having some fun. Discover student life at UL for more information.

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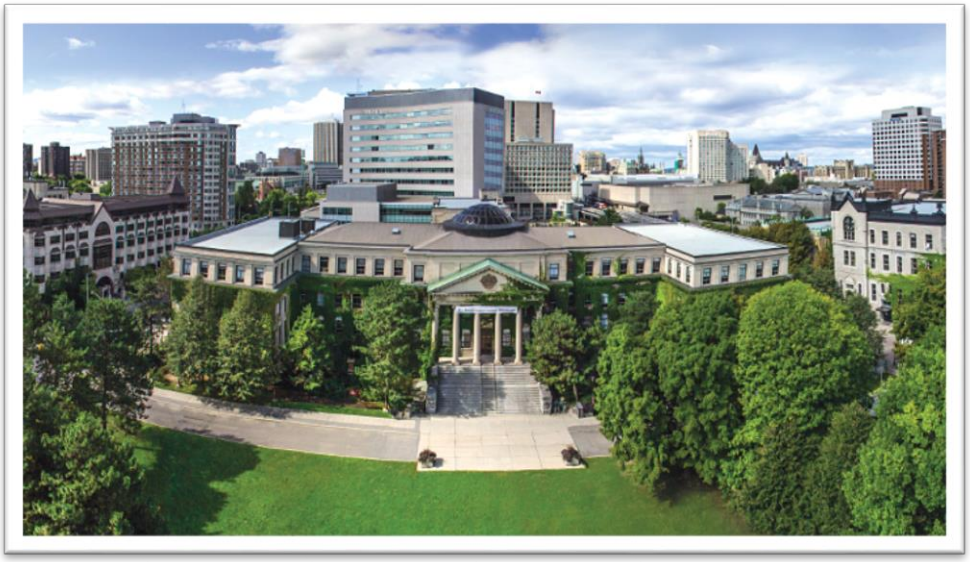

UNIVERSITY OF OTTAWA

Situated in the heart of Canada's capital city, the University of Ottawa is the world's largest bilingual French-English university. UOttawa operates 30 research centers and institutes is a leader in medical photonics and catalysis research.

It is also famous for promoting campus environmental sustainability measures.

Priority Research Areas:

- Canada and the World
- Health
- e-Society
- Molecular and Environmental Sciences

Established 1848

10 Faculties

299 Master and PhD Programs

291 Position in the 2017 QS World University Ranking

$294 Million External Research Funding

76 Canada Research Chairs* in 2015

1 Canada Excellence Research Chair in 2015

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

uOttawa

UNIVERSITY OF OTTAWA
75 Laurier Ave E,
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K1N 6N5
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www.uottawa.ca

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University of Ottawa Highlights (Hyperlinks in color)

Situated in the heart of Canada's capital city, the University of Ottawa is the world's largest bilingual French-English post-secondary institution. The University of Ottawa operates 40 research centers and is a leader in medical photonics and catalysis research.

Since 2012, the Max Planck- University of Ottawa Center for Extreme and Quantum Photonics, the third Centre in North America and linked two of the world's foremost research teams in the field of photonics has been established.

The Advanced Research Complex offers world-class facilities for CRPuO researchers, including: 16 dedicated photonics laboratories, anti-vibration construction for ultimate stability, nanofabrication facilities, clean rooms, industry lab and offices to host industrial partners

Eighteen professors from the faculties of science and engineering form the core of the CRPuO. The CRPuO also trains tomorrow's photonics scientists and engineers, including over 100 graduate students and 40 postdoctoral fellows, technologists and research assistants

Students and professors benefit from the close relationship that the University of Ottawa maintains with the main hospitals and their research institutes:

- The Ottawa Hospital Research Insitute
- *Institut de recherche de l'Hôpital Montfort*
- CHEO Research Institute
- University of Ottawa Heart Institute
- The Royal's Institute of Mental Health Research
- Bruyère Research Institute

The university is committed to facilitating students' cultural and academic integration as a new student on campus. It has a Sponsored Students Program that acts as a "one-stop shop" offering support to sponsored students throughout their studies.

The city of Ottawa offers both an urban and country like lifestyle. The vibrant city has a range of attractions that meets different interests, such as the Parliament Hill, **National cultural museums,** the ByWard Market and the Rideau Canal.

The beautiful countryside surrounding and the Gatineau Park allow a variety of outdoor recreational activities (skiing, walking, hiking, biking and much more!).

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QUEEN'S UNIVERSITY

For more than 175 years, Queen's University has made its mark in Canadian higher education with a commitment to both research excellence and an unparalleled student experience. International students currently comprising about 23 per cent of the graduate student population. Queen's offers an impressive range of graduate programs in faculties of Arts and Science, Engineering and Applied Science, Business, Health Sciences, Education, Law, and Graduate Studies. Queen's ranks fourth among medical-doctoral universities in Canada and its 20 university- and faculty-based research centres provide dynamic and collaborative settings for scholars across many fields.

Priority Research Areas:

- Astronomy, astrophysics, and experimental particle astrophysics
- Cancer, molecular and biomedical sciences, and aging
- Mining, sustainability and green energy, the environment, engineering and applied sciences
- Social/policy issues, surveillance, communications
- Mental health and healthy relationships

Established 1841

7 Faculties

125 Master and PhD Programs

223 Position in the 2017 QS World University Ranking

$187 Million External Research Funding

42 Canada Research Chairs* in 2016

1 Canada Excellence Research Chair in 2016

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

Queen's University

QUEEN'S UNIVERSITY
99 University Ave,
Kingston, ON
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www.queensu.ca

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Queen's University Highlights (Hyperlinks in color)

Queen's University is home to more than 20 specialized **research centres and institutes**, all of which involve graduate students and post-doctoral fellows.

Queen's Professor Emeritus Dr. Arthur B. McDonald was a co-recipient of the 2015 Nobel Prize in Physics and received the 2016 Breakthrough Prize in Fundamental Physics for his research on **neutrinos**. In 2016, Queen's announced the opening of the Canadian Particle Astrophysics Research Centre, which is part of a network of Canadian universities and will investigate many of the world's leading dark matter and neutrino physics problems.

The **Queen's Cancer Research Institute** fosters transdisciplinary investigation of cancer control, and extends from population studies of cancer etiology, through tumor biology and clinical trials, to outcomes and health services research.

Similarly, bringing together researchers from medicine, health science, computer science, and other fields, the **Human Mobility Research Centre** helps people live fuller, more mobile lives by pioneering the development of innovative and effective treatment strategies for bone and joint disorders caused by arthritis, osteoporosis, injury, and related problems.

Queen's mining engineers are at the forefront in developing computer applications for engineering design in mineral extraction and in its on social responsibility and management in the industry. **Mining Engineering** has extensive laboratory facilities and Queen's is the only Canadian university with a well-equipped explosives test facility.

Queen's facilities support projects involving interdisciplinary research teams of faculty, post-docs, and graduate students from multiple institutions and industry. The **Robotics and Computer Vision Lab** investigates technologies in pose determination, object recognition, master-slave tele-robotics, and haptic control. Discoveries have translated into applications in biomedical engineering, aerospace technology, geological surveying, and computer gaming.

Queen's **Fuel Cell Research Centre** focuses on sustainable, clean energy technologies complementing the research conducted at the **Centre for Energy and Power Electronics (ePOWER),** which has developed new energy-efficient, cost-effective, and environmentally friendly power electronic technologies.

Kingston has consistently ranked in the top four cities to live in Canada and BBC ranks Kingston as one of the world's top 5 university towns – another reason why Queen's is a destination of choice for graduate students who innovate, think and do.

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UNIVERSITY OF SASKATCHEWAN

One of Canada's top research universities, the University of Saskatchewan in Saskatoon hosts world-class centres, including the Canadian Light Source, VIDO-InterVac, global institutes for food and water security, and a wide range of colleges including engineering, medicine, and veterinary medicine. Ranked number 47 in the world for veterinary science by the 2015 QS World University Rankings.

Priority Research Areas:

- Agriculture
- Water security
- Energy/mineral resources
- Aboriginal scholarship/engagement
- Synchrotron sciences
- "One Health" – an integrated approach to human/animal/ecosystem health

Established 1907

15 Faculties

154 Master and PhD Programs

471-480 Position in the 2017 QS World University Ranking

$216 Million External Research Funding

25 Canada Research Chairs* in 2016

2 Canada Excellence Research Chair in 2015

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

UNIVERSITY OF SASKATCHEWAN

UNIVERSITY OF SASKATCHEWAN
105 Administration Place
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www.usask.ca

University of Saskatchewan Highlights (Hyperlinks in color)

Situated on an architecturally stunning century-old campus in a safe city of 250,000 known for its rich quality of life, the U of S is the core of a dynamic research hub that addresses challenges faced by people locally and around the world. With some of the best facilities and analytical tools in the country and 13 colleges and four schools (including a full range of professional colleges such as engineering, agriculture, business and law), the U of S attracts more than 22,000 students from Canada and around the world. Almost 38 per cent of our graduate students are international students. The U of S has more than 120 graduate programs and is known for its low student/supervisor ratio. Student support includes language training bursaries, on-site top-notch academically focused language school, new affordable student housing, extended health and dental benefits, conference travel funding, and peer mentoring for international students.

The U of S is a powerhouse for agri-food research:

- The Global Institute for Food Security addresses the increasing global demand for safe, reliable food.
- Our $37.2-million **Canada First Research Excellence Fund grant**—one of only five such grants awarded in Canada in 2015—will transform crop breeding and provide innovative solutions to national and global food security. More than 300 grad students will be hired over seven years.
- Our Crop Development Centre has developed more than 400 commercial crop varieties. Due to our crop research, Saskatchewan leads the world in exporting peas, lentils, and chickpeas—staple foods in fast-growing countries.

With stellar research teams, the U of S is renowned for its diverse cluster of world-class science facilities which include:

- The Canadian Light Source, one of the world's leading synchrotron facilities, is used by scientists from around the globe for cutting-edge research ranging—from mine tailing remediation to cancer research and cutting-edge materials development.
- VIDO-InterVac, a world leader in developing vaccines and technologies to fight infectious diseases in humans and animals, has commercialized eight vaccines, six of which were world firsts.
- The U of S Toxicology Centre is the largest academic toxicology research and training centre in Canada and one of the world's top five interdisciplinary toxicology graduate programs
- The Global Institute for Water Security, led by a Canada Excellence Research Chair, develops improved tools to sustainably manage one of the world's most important resources.
- The new Health Sciences building fosters a unique approach that enables faculty and students to work together across areas of practice and research that include dentistry, kinesiology, medicine, nursing, pharmacy, nutrition, physical therapy, public health and veterinary medicine. The U of S is a leader in community-engaged scholarship, linking research, teaching and learning with the needs and interests of local and global communities. Our more than 145,000 alumni are spread across the globe.

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UNIVERSITY OF WATERLOO

The University of Waterloo is Canada's top innovation university. With more than 36,000 students we are home to the world's largest co-operative education system of its kind. Our unmatched entrepreneurial culture, combined with an intensive focus on research, powers one of the top innovation hubs in the world. Best known as an IT and engineering research hub, Waterloo is the top comprehensive research university in Canada, has 41 research centres and has 10 subjects ranked in the top 100 in the 2015 QS World University Rankings.

Priority Research Areas:

- Mathematical, Sciences and computer Science
- Quantum information and Nanotechnology
- Manufacturing and devices
- Discovery and design of materials and systems
- Environment and Energy
- Health and well-being
- Society, Culture and Governance

Established 1957

6 Faculties

190+ Master and PhD Programs

152 Position in the 2017 QS World University Ranking

$183 Million External Research Funding

62 Canada Research Chairs* in 2015

2 Canada Excellence Research Chairs in 2015

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

UNIVERSITY OF WATERLOO

UNIVERSITY OF WATERLOO
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University of Waterloo Highlights (Hyperlinks in color)

In the heart of Waterloo Region, at the forefront of innovation, the University of Waterloo is home to world-changing research **and inspired teaching**.

You create it, you own it. As a national leader in the transfer of ideas and technology to the private sector, our International Property (IP) Rights Policy grants ownership to the inventor.

Entrepreneurship **is in our DNA**. UWaterloo is the #1 Canadian university for venture-backed capital enterprises.

UWaterloo is ranked **#1 for career preparation** (Globe and Mail University Report). Experiential learning, co-operative education, and our GRADventure program prepare students for career success.

One of 10 global universities invited to lead the UN Women's HeForShe IMPACT 10x10x10 initiative. HeForShe is a global effort to engage men and boys in removing the social and cultural barriers that prevent women and girls from achieving their potential, and together positively reshaping society.

Our **internationally acclaimed** Mike and Ophelia Lazaridis Quantum-Nano Centre houses groundbreaking research through the Institute for Quantum Computing (IQC) and the Waterloo Institute for Nanotechnology (WIN).

UWaterloo Established **Canada's first graduate programs** in Kinesiology, Gerontology, and Recreation and Leisure Studies.

Our Cheriton School of Computer Science is the **largest academic computer science research centre in Canada**.

UWaterloo is home to:

- The first LEED Platinum certified building on an Ontario university campus
- A **new, state-of-the-art** digital arts and media campus in Stratford, Ontario.
- The Water Institute, one **of the top ten water research institutes in the world**
- The **largest** Actuarial Science **program in North America**.
- **World-class schools** of Optometry and Vision Science, and Pharmacy.

Our location

- The City of Waterloo is a safe, mid-size city. With two universities and a community college, it is student-focused and has a vibrant student population.
- Waterloo Region is home to more than 1,000 technology companies.

WESTERN UNIVERSITY

Located in London, Ontario, with annual research funding of $240 million and a strong international reputation, Western University ranks as one of Canada's top research-intensive universities. If you choose to study at Western, you will benefit from internationally renowned faculty members, world-class research facilities, excellent graduate-level funding, and high-calibre graduate programs.

Priority Research Areas:

- Neuroscience/Brain and Mind
- Imaging
- Materials and Biomaterials
- Wind Engineering and Natural Disaster Mitigation
- Environmental Sustainability and Green Energy
- Planetary Science and Exploration
- Musculoskeletal Health
- Philosophy of Science

Established 1878

12 Faculties

159 Master and PhD Programs

198 Position in the 2017 QS World University Ranking

$230 Million External Research Funding

66 Canada Research Chairs*

1 Canada Excellence Research Chair

* Canadian Government program to attract and retain some of the world's most accomplished and promising minds.

Western UNIVERSITY · CANADA

WESTERN UNIVERSITY
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London, ON
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Western University Highlights (Hyperlinks in color)

Unique research facilities and labs

- Brain and Mind Institute; Biomedical Imaging Research Centre
- Biotron Experimental Climate Change Research Facility
- Boundary Layer Wind Tunnel Laboratory
- Canadian Surgical Technologies & Advanced Robotics
- Centre for Planetary Science & Exploration
- Centre for Advanced Materials and Biomaterials Research
- Fraunhofer Centre for Composites Research
- Global Bone & Joint Health Innovation Institute
- Soochow-Western Centre for Synchrotron Radiation Research
- WindEEE (Engineering, Energy and Environment) Institute

Ground-breaking research

- Dr. Chil-Yong Kang has developed an **HIV vaccine**, now in human clinical trials; Western is the only Canadian site, and a key member of the European AIDS Vaccine Initiative (EAVI2020).
- Western is a world-leader in "**brain and mind**" with some of the most accomplished scientists at the forefront of neuroscience research.
- Western's **wind engineering** expertise has tested many of the world's tallest or unusual buildings and longest bridges. A pioneer in wind engineering since the 1960s, Western is now home to the world's first hexagonal wind tunnel and the most significant complement of wind-related research infrastructure in the world.
- Western's **Centre for Planetary Science and Exploration** was the first affiliate of the NASA Lunar Space Institute (now named the Solar System Exploration Research Virtual Institute) outside of the United States and is affiliated with the Canadian Space Agency. The Centre is a world leader in Earth observation, monitoring and protection; exploration technologies; planetary processes; planetary materials and meteorites; and galactic and stellar processes.

Student Services:

- The International and Exchange Student Centre helps welcome you, provides orientation activities and offers support programs, social events, and individual assistance throughout your time at Western.
- The Student Success Centre offers job postings, classes and workshops, career fairs, employer information sessions, and individual counselling and career assessments.
- The Student Development Centre offers learning skills, writing support, counselling, leadership development and other essential services to ensure your success.
- At the Graduate level, the Teaching Support Centre provides resources and training for those involved in teaching, including courses just for international students.
- Health and Wellness resources include a dedicated team of doctors and health professionals available to students for free, and right on campus.
- The University Students' Council and Society of Graduate Students both provide services, events and resources specifically for students. More than 175 clubs operate on campus, including more than 40 cultural clubs as well as academic, political, philanthropic or special interest.
- Sports and Fitness: Western's 46 varsity sports teams and clubs compete in national athletics each year.

Priority Research Areas

UNIVERSITY OF ALBERTA

UNIVERSITY OF CALGARY

DALHOUSIE UNIVERSITY 1818 2018

UNIVERSITÉ LAVAL

uOttawa

Queen's UNIVERSITY

UNIVERSITY OF SASKATCHEWAN

UNIVERSITY OF WATERLOO

Western UNIVERSITY · CANADA

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WWW.CALDO.CA

Society and Culture

- Education curriculum and pedagogy
- Measurement and assessment
- Integration of technology and science education
- Life-long learning
- Human rights, political economy and government studies

Science and Technology

- Advanced materials and surface sciences
- nanotechnology and nanoscience's
- Carbohydrate sciences, analytic, organic, and physical chemistry
- Pure mathematics
- Astronomy and astrophysics

Energy and Environment Health and Wellness

- Resource geosciences, including seismic modeling and analysis;
- Geophysics of mining and mineral processing; catalytic, interfacial and transport engineering, geotechnical and geo-environmental engineering;
- Clean coal, oil sands and natural gas exploration, recovery, processing, with emphasis on mitigating environment impact; clean coal;
- Carbon capture; alternate energy sources; renewable energy sources - photovoltaics, wind, geothermal, fuel cells, fusion; unconventional and shale gas and oil;
- Mine waste technology; power systems and "smart grids" for distribution of renewable energy sources

Humanities and Fine Arts-Social Structures and Systems

- Digital social sciences and humanities
- Cultural studies
- Comparative experimental linguistics
- Design studies
- Humanities and computer gaming

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PRIORITY RESEARCH AREAS

Energy Innovations

- Discovery new sources
- Extract with minimal environmental impact
- Export to markets
- Plan for future

Infections, Inflammation and Chronic Diseases

- Natural resources and environment
- Climate change
- Infection and immunity
- Inflammation
- Family and social health

Engineering Solutions for Health: Biomedical Engineering

- Integrated approaches for prevention and healthy aging
- Technologies for improved diagnostics
- Engineered novel therapeutics
- Optimized health care system performance

New Earth Space Technologies

- Sensor and sensor webs
- Global navigation satellite systems including GPS
- Environmental monitoring
- Space sciences
- Geospatial modelling

Human Dynamics in a Changing World

- Smart cities
- Secure Societies
- Cultural understanding
- Economy
- Creativity

Brain and Mental Health

- Optimizing child and adolescent development and behaviour
- Enhancing healthy brain aging
- Stimulating Spinal cord, nerve recovery and regeneration
- Preventing and treating concussion and brain injury

Ocean Studies

- Marine Biological Resources and Conservation of Biodiversity
- Marine Technologies
- Ocean Environmental Processes
- Arctic Studies
- Ocean Law and Governance
- Atmospheric Science
- Marine Bio-Resources
- Marine Affairs

Advanced Materials and Clean Technology

- Clean Energy and Storage
- Semiconductors
- Environmentally Sustainable Materials and Clean Manufacturing
- Sustainable Civil Infrastructure
- Water Management

Health and Wellness

- Biological Structures and Mechanisms
- Medical Products, Vaccines and Technologies
- Clinical Patient-Oriented Research and Translation to Health Outcomes, Services and Policy
- Social, Cultural and Environmental Determinants of Health and Wellness
- Life Course Development

Governance, Society and Culture

- Peace, Conflict Management, Mediation and Security
- Ethics, Values and Expert Knowledge
- Studies of Europe
- Social Justice and Development
- Cultural Studies, including Aboriginal and Migration Research
- Cultural Aspects of Digital and Social Media

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AREAS OF EMERGING RESEARCH STRENGHTS

Information Science and Communication

- Computer and Wireless Information Networks
- Information Systems
- New Media

Energy and the Environment

- Sustainable Energy
- Non-Renewable Energy
- Reduction of Energy Use

Agriculture and Food Technologies

- Sustainable Agro-Ecosystems
- Applied Molecular Biology, Genomics and Biotechnology
- Bio-Product and Bio-Resource Management

Create a society where health and well-being are sustainable

- Make decisive progress in the treatment of physical and mental disease
- Leverage the positive impact of nutrition research and improve food security
- Contribute to the smooth and efficient functioning of the healthcare system
- Develop innovative strategies for disease prevention and health promotion
- Harness the power of science and technology to improve health at every phase of life
- Develop healthcare approaches centered on individuals and their well-being

Explain how humans develop in their environment

- Better understand the individual and support eco-friendly human development
- Shed light on the multiple individual, social, and occupational facets of human life paths
- Comprehend the economic dimension of human development
- Meet the challenge of community-building in a context of demographic and climate change
- Optimize educational approaches to create the schools of tomorrow

Understand societies, their cultures, and their arts

- Develop research at the interface of culture and digital technology

- Analyze the facts and symbolic productions of language
- Expand the study of Québec and other francophone cultures, in historical and contemporary contexts
- Stimulate creative endeavours in the university setting and continue to develop research-creation
- Study the various dimensions of history and heritage from new methodological perspectives
- Consolidate the integration of artistic disciplines within knowledge ecosystems
- Continue to develop new forms of socially relevant expression

Model intelligent communities, invent their technologies and logistics

- Explore social, cultural, economic, and digital challenges
- Understand social issues in communication
- Produce a new generation of innovative materials
- Accelerate the technological revolution, notably in the field of intelligent systems
- Make significant breakthroughs in data processing, management, and analysis
- Make major advances in modeling and simulation
- Develop the intelligent machines and systems of tomorrow

Manage and develop natural resources in a responsible manner

- Enhance our understanding of the living world and the changes that affect it
- Develop sustainable natural resource management approaches
- Develop environmentally responsible processes, products, and methods to better produce and consume energy
- Reduce natural and human-made hazards and enhance ecosystem conservation and rehabilitation

Consolidate and develop northern sustainability

- Refine our understanding of northern ecosystems and human geography
- Develop effective strategies for adapting to climate change and reducing environmental risks
- Comprehend the technological and economic aspects of northern development
- Clarify the human and social challenges related to northern development
- Facilitate access to the North

Engage actively in ethics, sound governance, and social organization

- Elucidate contemporary ethical issues
- Analyze in greater depth the foundations of governance, including risk management and entrepreneurship
- Promote citizen participation in democratic life
- Envision ways of living together harmoniously in societies shaped by immigration
- Integrate an international perspective in the study of social organization

Canada and the World

- Human Rights, Diversity and Social Justice
- la Francophonie
- Linguistics, Official Languages and Bilingualism
- Governance, International Studies and Public Policy
- Multijuralism

e-Society

- Enabling Technologies
- Digital Media and Communications
- Technology & Society
- Photonics

Health

- Brain and Mind Health
- Vascular Health
- Regenerative Medicine and Innovative Therapeutics
- Human Development and Health Promotion
- Genetics and Systems Biology of Disease
- Practice-Changing Research

Molecular and Environmental Sciences

- Catalysis and Nanotechnology
- Environmental Genomics
- Sustainable Environment
- Renewable Energy
- Materials

Exploring Human Dimensions

- Society, Culture, and Human Behaviour
- Human Health and Wellness

Understanding and Sustaining the Environment and Energy Systems

- Human aspects of Healthy Environments
- Ecology and the Natural Environment
- Energy Systems
- Energy and Environmental Policy

Creating, Discovering and Innovating

- Creative Production and Expression
- Natural and Physical Sciences
- Materials
- Advanced Technologies

Securing Safe and Successful Societies

- Democracy, Economy, and Public Policy
- Information and Communications
- Infrastructure

Water Security: Stewardship of the World's Freshwater Resources

- Climate Change and Water Security
- Land-Water Management and Environmental Change
- Sustainable Development of Natural Resources
- Water and Health
- Socio-hydrology

Synchrotron Sciences: Innovation in Health, Environment and Advanced Technologies

- National Centre for synchrotron research and its applications
- Understand the structural and chemical properties of materials at the molecular level.
- Analysis of physical, chemical, geological and biological processes
- Applications in health, environment, materials science

Agriculture: Food and Bioproducts for a Sustainable Future

- Optimizing food production
- Soil and water conservation,
- Climate adaptation, pest control,
- Crop and livestock development,
- Crop and livestock management.

Energy and Mineral Resources: Technology and Public Policy for a Sustainable Environment

- Workplace health and safety,
- Exploration, mining, and processing,
- Economics of global commodities
- Clean Energy Solutions
- Environmental stewardship and risk management
- Policy for sustainable development.

One Health: Solutions at the Animal-Human-Environment Interface

- Chronic Disease; Infectious Diseases
- Reproductive Health
- Public and Community Health and Wellness
- Molecular Design and Drug Development

Aboriginal Peoples: Engagement and Scholarship

- Health and Wellness
- Protection of Heritage and Culture
- Law and Governance
- Economic Development and Resource Management
- History and Social Justice

Society, Culture and Governance

- Analyzing complex systems and decision-making techniques
- Advancing understanding of governance at levels ranging from regional to global
- Understanding how health and wellbeing are enhanced through the effective use of leisure, including its social, psychological, economic and environmental aspects
- Improving financial management and economic forecasting related to social security, pension plan and the needs of an aging population
- Guiding strategic policy planning on public health and developing practices and policies that shape how individuals and communities receive care
- Transforming urban landscapes and architectural design

Mathematical, Sciences and computer Science

- Applying mathematical theories to human-machine interaction, cyber-physical systems and artificial intelligence
- Designing fast algorithms and memory efficient data structure to improve software performance
- Modelling complex systems from the smallest units of light and matter to the behaviour of black holes, galaxies and large-scale structure in the universe
- Analysing processes underpinning technological innovation including implementation, diffusion, adaptation and the socio-economic ramifications of technology
- Mathematical and statistical problems ranging from conceptual foundations of mathematical logic and probability to applies issues in econometrics, finance and health

- Statistical models and methods for analysis in finance and insurance
- Innovative methods for studies for clinical and population health research

Quantum information and Nanotechnology

- Connecting quantum theory with gravity
- Investigating quantum aspects of photonics, optical information processing, superconducting devices, circuit cavity electrodynamics, and fault-tolerant computation
- Exploring nanomaterials critical to novel nanometre-sized devices such as field-effect transistors, self-assembled drug delivery systems, energy storage/generation materials, and molecular recognition elements
- Creating nano-sized sensors to monitor and regulate engine combustion temperature
- Using nanotechnology to address issues such as watershed management, climate change, emerging contaminants and water treatment

Manufacturing and devices

- Improve efficiencies and reducing costs in the automotive sector
- Research in Radio frequency technologies including RF Micro-Electro-mechanical systems (MEMS), miniature RFDID, wireless intelligent systems, filters and multiplexers, superconductivity, novel materials, computer-aided circuit diagnosis, simulations and modelling;
- Developing intelligent transportation systems
- Corrective devices to treat diseases and illness
- Assistive technologies to promote independence and work related health, reduce the risk of injury, assess mobility of older adults and guide decision making
- Telescope and satellite technology
- Decision making, reduce transportation time, lower costs and boost productivity

Discovery and design of materials and systems

- Studying the mechanical behaviour of metals, composites and intermetallic
- Enhancing microsystem functionality through materials and process integration
- Investigating the interaction between living systems and “soft matter” which has applications in biotechnology, biophysics and materials biocompatibility
- Creating self-driving autonomous vehicles
- Conducting research in nanophotonics, quantum materials, nanoelectronic materials, modelling and fabrication
- Participating in the design, planning and construction of civil infrastructures and the analysis of their reliability

Environment and Energy

- Creating new battery technologies
- Studying renewable energy and energy harvesting
- Ecotourism urban recreation geography
- Decreasing emissions and improving vehicle weight reduction
- Investigating environment fluid dynamics and developing mathematical and computational models in the management of natural environments
- Analysing earth surface processes
- Using nanotechnology to create high-performance and high-function products
- Developing sustainable systems for providing high quality drinking water
- Research in air quality assessment, weather analysis, atmospheric chemistry and modelling and greenhouse gas-source analysis

Health and well-being

- Geriatric, rehabilitation and management of age related conditions in primary and long term care;
- Developing new modelling approaches to characterize the morphology and mechanics of both diseased and healthy tissue;
- Identify both natural and synthesized compounds that serve as therapeutics for conditions such as cancer, Alzheimer, heart disease, diabetes and infectious diseases caused by bacteria and viruses
- Mathematical, statistical and computational research into brain activity
- Improving performance of diagnostic equipment used in healthcare settings

Information and communication technology

- Optimization models for the management of a variety of organizations
- Machine intelligent systems to learn behaviour and anticipate responses
- Human side od game related technologies and interactions in order to understand the compelling user engagement of games
- Explore health bioinformatics to research how chronic diseases can be monitored by wearable sensors
- Developing complex algorithms, intelligent antennas and embedded software
- Enhancing the development of practical quantum computing

Neuroscience/Brain and Mind

- Internationally recognized research in a variety of disciplinary areas pivotal to understanding the brain, its function and health, including links to cell biology, brain imaging and psychology
- Home to the Brain & Mind Institute and Canada Excellence Research Chair, Adrian Owen

Imaging

- Acknowledged leadership in the use and development of imaging technologies across the disciplinary spectrum, including sophisticated tools used in medical diagnostics
- Home to the *Biomedical Imaging Research Centre* and the *Centre for Imaging Technology Commercialization*

Materials and Biomaterials

- Broadly recognized leadership in synthesis, characterization and application of materials, including lightweight composite materials
- Home to the *Centre for Advanced Materials and Biomaterials*, *Surface Science Western*, *Fraunhofer Project Centre @ Western* and the *LANXESS Global Butyl Research Centre*

Wind Engineering and Natural Disaster Mitigation

- Global leadership in wind tunnel testing of some of the world's most recognizable buildings, bridges and structures
- Related work in hazard assessment, simulated structural testing and policy development to mitigate the effects of natural disasters

Environmental Sustainability and Green Energy

- State-of-the-art climate change research facilities and leading work in alternative energy and biomass conversion to bio-oil
- Home to the *Biotron Experimental Climate Change Research Facility*, *Ontario Bioindustrial Innovation Centre* and *ICFAR*

Philosophy of Science

- Leaders in research related to conceptual issues concerning the origins and nature of scientific theories, relations among theories, as well as between theories and the world, and the impact of scientific theories on contemporary society
- Home to the *Rotman Institute of Philosophy*

Planetary Science and Exploration

- The *Centre for Planetary Science and Exploration* advances efforts to understand Earth's formation, explore planets and apply technologies and techniques to mining, robotics and healthcare
- Focused on the collection and analysis of extraterrestrial materials, and procurement of specialized equipment that allows for the characterization of materials brought back to Earth

Musculoskeletal Health

- Identified as a rapidly emerging area of research strength, this health science and technology-based cluster builds on multi-faculty excellence in skeletal biology, bioengineering, medical devices and clinical application
- Trans-disciplinary approach to improving understanding of, and developing novel therapies for, debilitating bone and joint disorders, with the goal of maintaining lifelong mobility

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