

University of Waterloo
GRADUATE STUDIES

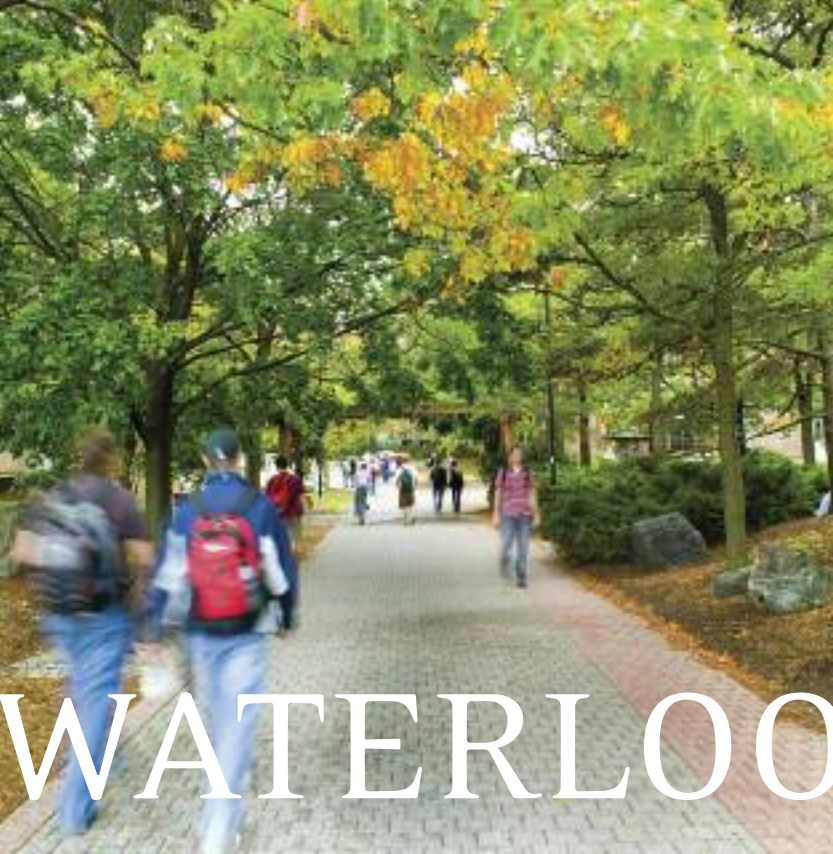
UW

Applied Health Sciences
Arts
Engineering
Environmental Studies
Mathematics
Science
Theology

Your Mind, Our Mentors

Waterloo

GRADUATE STUDIES



WATERLOO

University of Waterloo

CANADA'S MOST INNOVATIVE UNIVERSITY
TOP LEADERS OF TOMORROW
BEST OVERALL

- Canadian university reputation survey, *Maclean's* magazine

THE UNIVERSITY

In just 50 short years, Waterloo has become one of Canada's foremost universities. Beyond its park-like setting and state-of-the-art labs and classrooms, it was the first in the country to offer a co-operative system of study, which balances classroom learning with real-life experience in the workplace.

Look around our campus today and it's easy to see that our spirit of innovation means we are continuing to grow. Right now we're home to approximately 3,600 graduate students and more than 22,000 undergraduate students. While many of our scholars live close to Waterloo, our international students come from around the world and represent more than 80 countries.

INNOVATIVE AND ENTREPRENEURIAL

Maclean's, Canada's national news magazine, has consistently ranked Waterloo as the most innovative university with the best overall reputation in its annual survey. Why? Quite simply, our faculty, programs, students, graduates and our entrepreneurial spirit make us a force to be reckoned with. Waterloo President David Johnston says it's this challenging spirit of inquiry, of asking "why not?" as well as "why?" that makes Waterloo unique.

Ideas born and developed at Waterloo have an impact on local, national and international communities. We've developed tobacco control policies, produced the computerized Oxford English Dictionary, formulated the idea of common European currency and developed techniques for removing metal pollutants from groundwater. Waterloo students went on to establish Research In Motion (RIM), which developed the BlackBerry. RIM founder and co-CEO, Mike Lazaridis, now serves as Waterloo's chancellor.

Imagine a university that embraces innovation and cutting-edge research by some of the most driven graduate students and supportive, award-winning faculty in Canada. Imagine a university where Bill Gates says he finds the best talent in the world; one that fosters a diverse offering of disciplines, from philosophy to kinesiology, from tourism to electric power engineering. Imagine a university on a spacious campus located in a beautiful, welcoming city that boasts numerous parks, sports facilities, museums, restaurants and shopping destinations.

Imagine yourself at the University of Waterloo.

UNIVERSITY

Many companies spun off from UW research make their home in Waterloo, which in 2007 was named the world's top intelligent community by the Intelligent Communities Forum.

This track record can be partially attributed to our enlightened approach toward intellectual property. Professors and graduate students retain rights to the intellectual property they develop at the university. What better way to spur entrepreneurial spirit than to let professors and students own their work?

INTERNATIONALLY RECOGNIZED PROFESSORS

Waterloo has one of the highest percentages of professors with PhDs in Canada (95.7%), and they win a higher percentage of national awards than faculty at any other Canadian comprehensive university. But while our strong graduate programs and reputation as a research-intensive university attract some of the best researchers in the world, our faculty are also known for something no textbook can touch - a mentorship approach to supervision that supports and fosters academic excellence.

Looking for a potential supervisor relevant to your area of study? Search our website by department or research field.

www.grad.uwaterloo.ca/students/prospective/research.asp

CAMPUS AMENITIES

Our self-contained campus gives you everything you need to make life comfortable while you're here including: Athletics, Career Services, Child Care, Counselling Services, Graduate Student Association, Graduate Studies Office, Health Services, Department of Housing and Residences, Waterloo International Office, Library, Office for Persons with Disabilities, Teaching Resources and a Writing Centre.

www.studentservices.uwaterloo.ca

GRADUATE STUDENT ASSOCIATION

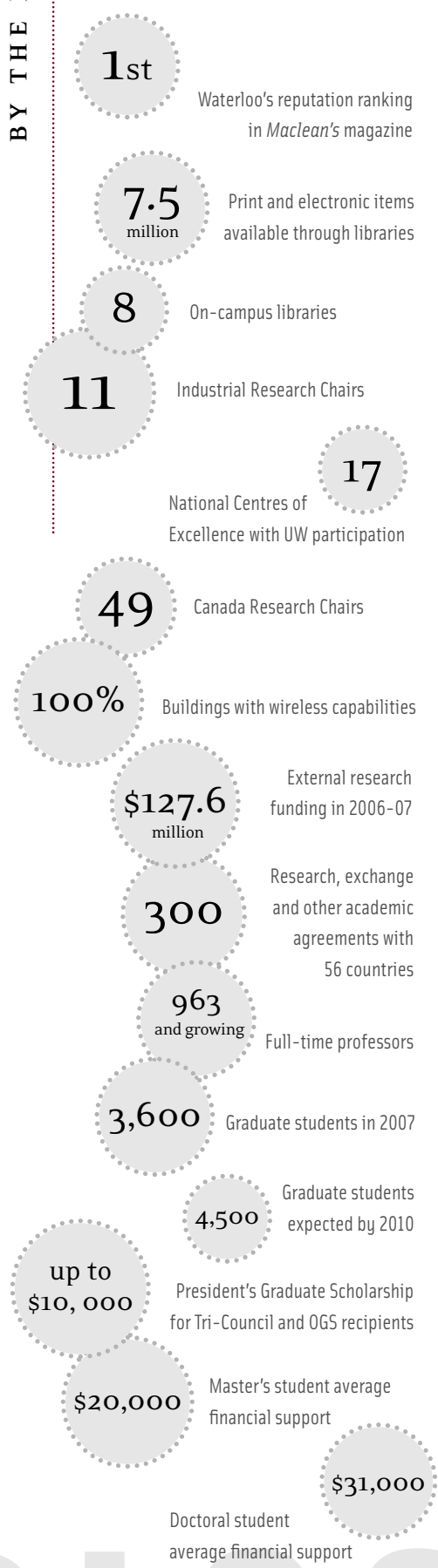
The Graduate Student Association advocates concerns to university administrators and external agencies, communicates regulations and manages the Grad House, a restaurant and bar staffed by students.

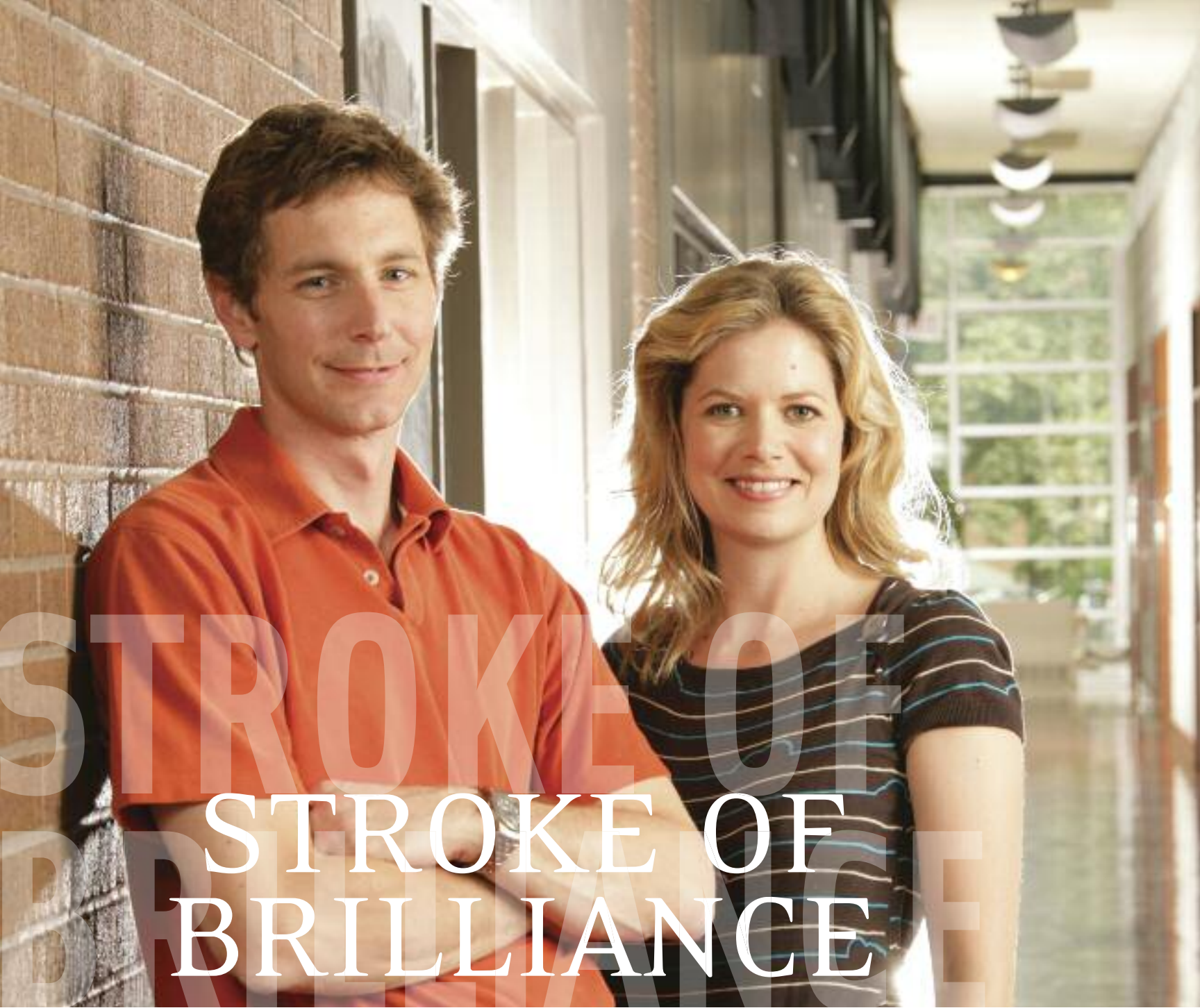
www.gsa.uwaterloo.ca

GRADUATE STUDENT RESEARCH CONFERENCE

Keep the spirit of graduate innovation alive and show off your work. The annual Graduate Student Research Conference promotes excellence by highlighting the types of research that are currently under way and helps students share information to encourage more interdisciplinary research on campus. Students have the option of an oral or poster presentation.

www.grad.uwaterloo.ca/conference





STROKE OF BRILLIANCE

faculty of
**APPLIED HEALTH
SCIENCES**

With strokes affecting more than 50,000 Canadians and costing \$2.7 billion in health care costs each year, no wonder we're looking for innovative solutions. But it will take a multidisciplinary research approach to make headway. Fortunately, University of Waterloo professors and students are leading the way.



It takes a certain kind of professor to inspire students to follow him, especially if that means to another city and another university. But that's exactly what happened when Richard Staines left his former school and took a position as Canada Research Chair in Sensorimotor Control and assistant professor at the University of Waterloo in January 2005.

A few months later, Alison Smith, one of his former undergraduate and master's students, joined him to continue her own work on the effects of bimanual - or two-handed - training in stroke victims. Now a second-year PhD candidate in the Department of Kinesiology, she's glad she made the leap.

"After so much time working together, there's a lot of give-and-take in the relationship. I have a lot of input into where my work is going. Meanwhile, he's making sure I stay on the right path," she says of Staines's mentoring and assistance.

Staines, along with other University of Waterloo professors, is a core scientist in the Heart and Stroke Foundation of Ontario's Centre for Stroke Recovery, a virtual institute affiliated with Sunnybrook Health Sciences Centre in Toronto. They study how the central nervous system network adapts following a brain injury.

"We really want to understand what it is that's changing the way the brain is representing information," he says, excitedly describing Smith's project that uses a videogame-like machine to entice subjects to move their wrists while electrodes record brain activity. "I couldn't imagine a better job."

And Smith can't imagine a better place than the University of Waterloo to finish her studies. In the past five years there has been an exceptional expansion in neurosciences with more hirings, links out to the community, and collaborative groups between kinesiology, core biology, psychology, and clinical disciplines - something rare at other schools.

"I'm learning the broad spectrum of neuroscience instead of just concentrating on my own research," says Smith. "As a student, I really appreciate that." ■

Degrees:

- Health Studies and Gerontology (HSG) – MSc, PhD
- HSG (Aging, Health, and Well-being) – PhD
- HSG (Behavioural and Cognitive Neuroscience) – PhD
- HSG (Work and Health) – PhD
- Kinesiology (KIN) – MSc, PhD
- KIN (Aging, Health, and Well-being) – PhD
- KIN (Behavioural and Cognitive Neuroscience) – PhD
- KIN (Work and Health) – PhD
- Public Health – MPH
- Recreation and Leisure Studies (RLS) – MA, PhD
- RLS (Aging, Health, and Well-being) – PhD
- RLS (Tourism Policy and Planning) – MA
- RLS (Work and Health) – PhD

Key areas of research:

- aging, health, and well-being
- behavioural and cognitive neuroscience
- biomechanics
- health behaviour
- health biology (biohealth)
- health informatics
- leisure behaviour and cultural resources
- management of recreation and leisure services
- physiology and nutrition
- population health
- public health
- psychomotor behaviour
- recreation and leisure resources
- tourism policy and planning
- work and health

Why Waterloo for graduate studies in Applied Health Sciences?

- Every full-time student in the faculty is guaranteed to receive a teaching assistantship, research assistantship, and/or scholarship.
- In recent years, over 30% of our students have acquired valuable external scholarships.
- Applied Health Sciences faculty members are national and world leaders with very high levels of research funding and well-equipped facilities to support your research goals.
- You can gain intensive specialization while benefiting from active collaborations and multidisciplinary approaches to the study of health and well-being.
- 10 research centres/groups, such as the Research Institute for Aging, provide opportunities spanning from basic to applied research, and extensive community connections.



BREATHING LIFE INTO HISTORY

faculty of
ARTS

When historians get it right, virtually anyone can pick up their work and learn how the past influences our present. But when a history advisor gets it right, students come away from their graduate experience with a new vision of what it means to work with passion and live with purpose.

FE

When Wendy Mitchinson (*left*), history professor and Canada Research Chair at the University of Waterloo, isn't teaching, researching or writing, she's tending to her immense, stunningly fragrant garden that winds peacefully around her country farmhouse.

Fostering interests that fall outside her academic expertise - the history of women's medical treatment - was something she learned from her own mentor, the illustrious historian Ramsay Cook, an avid bird watcher and music aficionado.

"It's something I'm very clear about with my own students. They have to have a life," she says.

Fortunately for Renée Bondy, who recently completed and defended her dissertation on reform in Canadian women's religious communities, she was able to reap the rewards of Mitchinson's philosophy - and her student-friendly attitude. In fact, after hearing such positive things about Mitchinson back in 2002, she was thrilled Mitchinson could take her on.

"If I were to make a list of people I wanted to work with, she certainly would have been at the top of the list for name recognition alone," she says.

While there were some similarities between their study topics, what Bondy really required was an advisor - a mentor - who could partner with her, help set deadlines and keep her on the right track.

"I was always worried about how I was going to pull it all together," Bondy says. "Wendy gave me the big picture."

For her part, Mitchinson, who was nominated for an Award of Excellence in Graduate Supervision, says mentoring is a two-way street - and Bondy made it easy.

"With someone like Renée, it's a joy simply because she writes beautifully," she says.

Writing is Bondy's passion and she took Mitchinson's advice to live large to heart, writing for the popular media and travelling south.

"If I hadn't taken a holiday, or written something fun, I would have been bogged down and spun my wheels with the research," she says. "It was probably the best advice I could have been given." ■

ARTS

Degrees:

Accounting – PhD
 Accounting (Finance) – MAcc
 Anthropology (Public Issues) – MA
 Applied Economics – PhD
 Economics – MA
 English – PhD
 English (Literary Studies) – MA
 English (Rhetoric and Communication Design) – MA
 French – MA, PhD
 German – MA, PhD
 Global Governance – MA, PhD
 History – MA, PhD
 Philosophy – MA, PhD
 Political Science – MA
 Psychology – MA, MAsc, PhD
 Psychology (Behavioural and Cognitive Neuroscience) – PhD
 Psychology (Developmental Communication Science) – MAsc
 Religious Studies – PhD
 Russian – MA
 Sociology – MA, PhD
 Sociology (Survey Methodology) – MA
 Studio Art – MFA
 Taxation – MTax

Graduate Diplomas:

Business Information Technology (ACC)
 Information System Assurance (ACC)
 Taxation (ACC)

Why Waterloo for graduate studies in Arts?

- The Faculty of Arts at Waterloo offers over 32 distinct graduate degree programs designed to respond to today's real-world needs.
- We balance scholarship with applied approaches within traditional, innovative or interdisciplinary fields.
- Many programs allow inter-university course options and offer co-op work opportunities.
- Our research is enhanced by over 20 research centres housed within or closely affiliated with the Faculty of Arts.
- We forge strong connections with business, government and other organizations to ensure successful knowledge mobilization to serve society.
- Waterloo researchers own the rights to their intellectual property.
- Arts is the largest faculty at Waterloo with over 7,000 undergraduate and graduate students.



faculty of
ENGINEERING

Cold, clear – but safe? That's what engineers and chemists who specialize in water treatment must decide when testing for organic contaminants and by-products in drinking water. The best way to learn the intricacies of bacteria, protozoa and viruses relies on hands-on experience – and a knowledgeable mentor to show the way.



There must be something in the water at University of Waterloo's Department of Civil and Environmental Engineering. Take Susan Andrews (*left*), associate professor, and Erin Moffat, a first-year master's student studying under Andrews's tutelage. Their CVs reveal a surprising number of similarities. Launch academic undergraduate career in science. Check. Specialize in analytical chemistry. Check. Get a job in a research lab working on projects related to water treatment. Check. Fall in love with the drinking water industry and decide to stay put. Check.

"Drinking water is something everybody can relate to. But I get to learn about what isn't known about drinking water - and how much of it is chemically related," says Andrews.

Moffat, who has been working with Andrews since she was an undergrad student in environmental science, admits it's been a happy accident that she's ended up where she is, spending a quarter of her time at the Region of Waterloo's Mannheim biofiltration plant as part of her studies.

"When I graduated I really didn't see myself working with engineers or getting any sort of engineering post-graduate degree. But it's pretty cool being here in the plant. It's different than being in the lab all day," she says.

The women work closely together, but often on different projects that focus on organic contaminants in drinking water, including by-products created as a consequence of introducing chlorine and other disinfectants. Moffat is currently helping out on a project that tests different filter media to determine which best removes particles and bacteria.

"To be honest, most research these days is more about tweaking than pure eureka moments, but it's still very important," says Andrews. "Even a tweak of one per cent in the cost of running a plant can mean millions of dollars."

Moffat agrees seemingly small gains in the industry are fascinating, but it's the community of Kitchener-Waterloo, the friends she's made, and the inspiring professors that make her want to stay.

"We have really great faculty here," she says. "They're excited by what they do and they teach great classes." ■

www.eng.uwaterloo.ca

Degrees:

- Architecture – MArch
- Business, Entrepreneurship and Technology – MBET
- Chemical Engineering – MASC, MEng, PhD
- Civil Engineering – MASC, MEng, PhD
- Civil Engineering (Nuclear Engineering) – MEng
- Electrical and Computer Engineering – MASC, MEng, PhD
- Electrical and Computer Engineering (Electric Power Engineering) – MEng
- Electrical and Computer Engineering (Software Engineering) – MASC
- Management Sciences – MASC, MMSc, PhD
- Management Sciences (Management of Technology) – MMSc
- Mechanical Engineering – MASC, MEng, PhD
- Mechanical Engineering (Design and Manufacturing) – MEng
- Systems Design Engineering – MASC, MEng, PhD

Key areas of research:

- advanced manufacturing
- advanced materials (polymers, composites, light metals)
- automotive systems
- biotechnology and health engineering
- fire safety
- green auto powertrain
- green energy
- nanotechnology
- software engineering
- sustainable energy
- water resources
- wireless communications

Why Waterloo for graduate studies in Engineering?

- More than 1,400 exceptional people like you study with world-renowned experts and conduct leading-edge research in our advanced facilities.
- Scholarships, assistantships and other funding opportunities are available to attract and reward outstanding students.
- In 2006/2007, Waterloo Engineering attracted \$44 million in research funding.
- In the last three years, two of our graduates have been awarded the NSERC doctoral prize, the highest award in Canada.



HOT TOPIC

faculty of
ENVIRONMENTAL
STUDIES

It's not your imagination. Climate change dialogue is heating up. And when it comes to linking global warming, tourism and the environment, the University of Waterloo's environmental studies graduate program provides unparalleled leadership in the field – and mentorship to its students.

ENVIRONMENT



When she's not publishing papers or giving presentations on the impact of global warming on tourism, you might find Jackie Dawson bumping over northern Manitoba's vast ice fields on a tundra buggy searching for polar bears.

"They're the icon of climate change," she says simply.

As a growing heap of research shows, climate change, when you consider its multi-faceted derivations, outcomes and responses, is hardly a simple topic. And Dawson, a University of Waterloo PhD student in the Faculty of Environmental Studies' Department of Geography, knows she's incredibly fortunate to have the support - and ear - of her supervisor, Daniel Scott, to help her wade through it all.

Right from the beginning, Dawson says, she's always felt at ease discussing her PhD topic - climate change and the New England ski industry - with Scott, associate professor and Canada Research Chair in Global Change and Tourism who is also the chair of the joint World Meteorological Organization - World Tourism Organization Expert Team on Climate and Tourism. He's a dream of an advisor, providing funding, writing joint papers and showing enthusiasm for her ideas. But it wasn't until last year that she realized how coveted his expertise and time really were. At conferences other PhD students told her they were jealous she was working with Scott. A student from Spain flew to Canada just to work with him for a week.

"That's when I realized, 'Gee, I'm lucky I can just walk down the hall and talk to him whenever I want,'" she says now.

For his part, Scott says he's happy to pass the torch to the next generation of academics, just as University of Waterloo professors Geoff Wall and Geoff McBoyle, pioneers in climate change and tourism, did for him when he was a master's student and post-doc at Waterloo.

"We have an international reputation for being leaders in this field and it's great that we get to keep it going," he says.

Dawson says Scott's support of her work will leave its mark for years.

"He is making me a better academic, a better writer, a better researcher and I will eventually be a better supervisor to my own students." ■

Degrees:

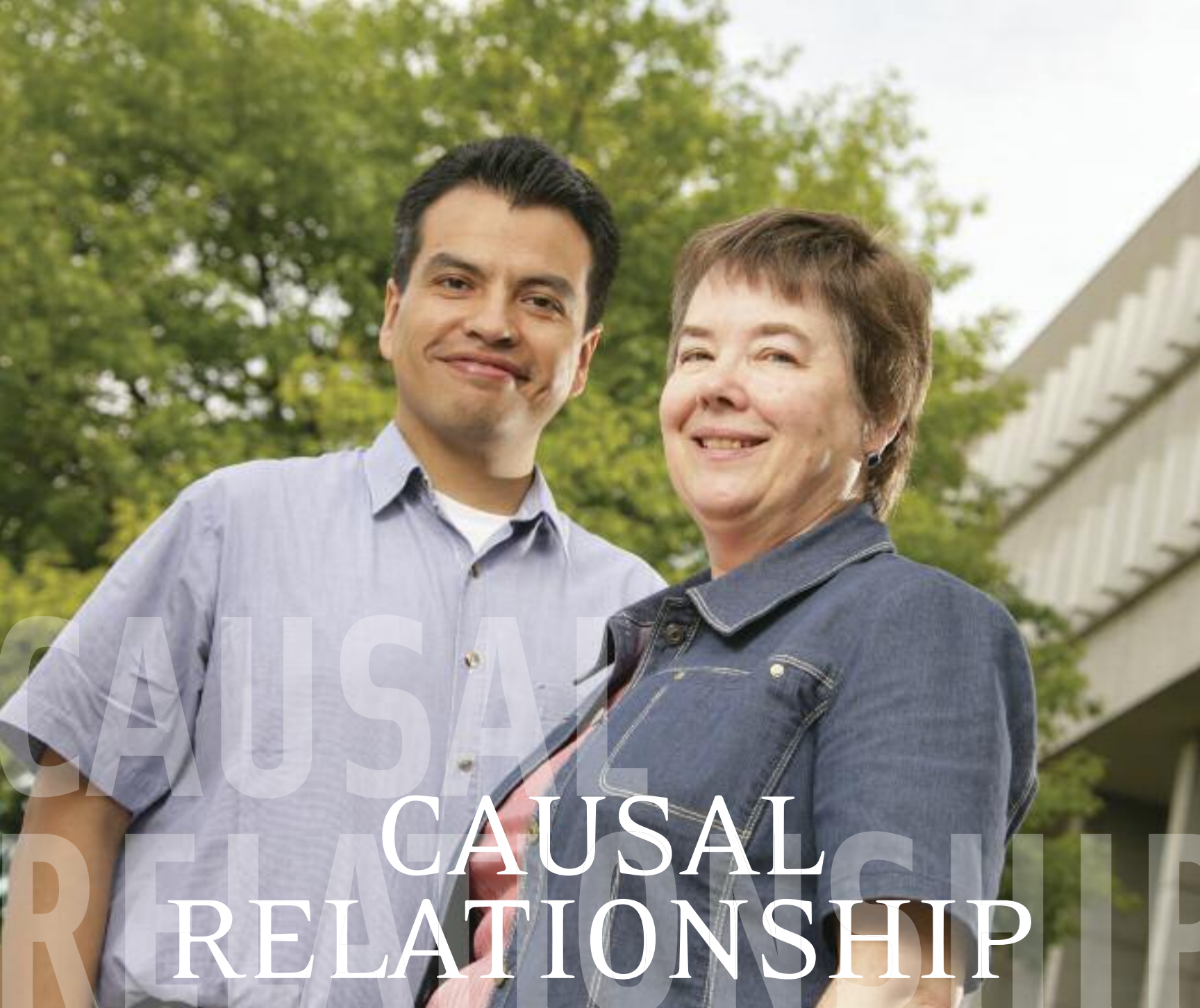
- Environment and Resource Studies – MES
- Geography – MA, MES, PhD
- Global Governance – MA, PhD
- Local Economic Development – MAES
- Planning – MA/MES, MAES, PhD
- Tourism Policy and Planning – MES

Key areas of research:

- adaptations and hazards
- advocacy
- climate change
- conservation of biotic areas
- earth systems sciences
- ecological sciences
- environment and health
- environmental informatics (geomatics, GIS)
- infrastructure and transportation
- policy and governance
- physical geographic sciences
- regional analysis
- resource management
- science-policy-governance interface
- sustainable community planning
- sustainable local economic development
- urban design

Why Waterloo for graduate studies in Environmental Studies?

- 38 years of experience researching and advancing the study of the environment – our graduates create tomorrow's smart, green solutions.
- The small size of this faculty, 270 graduate students, means you'll have lots of opportunity to interact one-on-one with your advisor and other experts.
- 14 research centres and groups you can connect with to further develop your research.
- Gain first-hand experience in our research facilities – Ecology lab, GIS labs, Hydrology lab, Restoration Ecology lab.
- One of the few Canadian universities granting the Master of Applied Environmental Studies (MAES) and Master of Environmental Studies (MES) degrees.



CAUSAL RELATIONSHIP

faculty of
MATHEMATICS

Any statistician will tell you correlation does not imply causation. But how can you deny that brilliant and supportive supervisors help students achieve their academic goals?



Ask Norberto Pantoja Galicia, a University of Waterloo statistics PhD candidate, to describe what makes Mary Thompson a superb advisor and mentor, and he's quick with a response.

"That would take a lot of room on the page," he says, smiling broadly.

It should. Just consider her accomplishments. The professor of statistics and actuarial science, who has been with the university since 1969, is a leader in her field, specializing in survey methodologies, with a current focus on health. She is the author of *Theory of Sample Surveys*, co-director of the University of Waterloo Survey Research Centre, and past president of the Statistical Society of Canada. In 2003 the Statistical Society of Canada presented her with their Gold Medal.

Yet beyond academic success, Pantoja Galicia says it's Thompson's personal touch that makes her truly golden.

"She's the ideal supervisor, but she's also a very kind human being," he says. "When you work with her, you don't feel like you're talking to a boss."

Their relationship, which began when he was still a University of Waterloo master's student from Mexico, has evolved over the years. Pantoja Galicia has come to depend on Thompson's thoughtful suggestions on his work by developing methods for modelling linked events like smoking cessation

and pregnancy, while Thompson says she gets just as much back from Pantoja Galicia, whom she calls a "natural statistician."

In fact, when Pantoja Galicia discovered that he was accepted for a Mathematics of Information Technology and Complex Systems Internship with the National Program on Complex Data Structures and Statistics Canada in Ottawa, he had concerns about leaving Waterloo - and Thompson. Would he lose her guidance for the six months he was away?

The pair came up with a plan. Pantoja Galicia emailed Thompson on Fridays; she would take the weekend to think and then get back to him with suggestions. In the meantime, Pantoja Galicia could interact with the people who design and analyze complex surveys, offering him real-world experience.

"I didn't lose anything," says Pantoja Galicia. "On the contrary. I gained a lot." ■

www.math.uwaterloo.ca

Degrees:

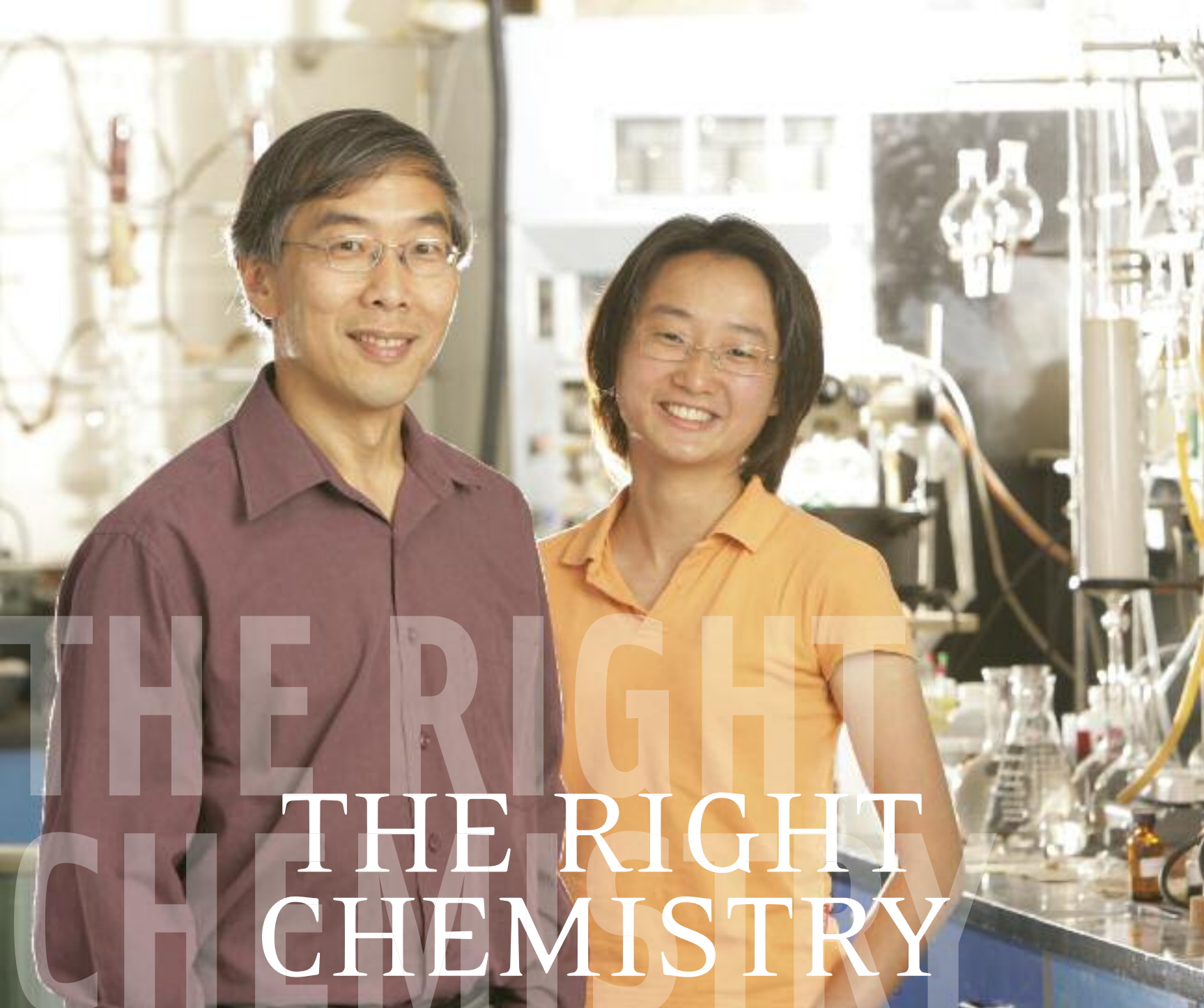
- Actuarial Science – MMath, PhD
- Applied Mathematics – MMath, PhD
- Biostatistics – MMath, PhD
- Combinatorics and Optimization – MMath, PhD
- Computational Mathematics – MMath
- Computer Science – MMath, PhD
- Finance – MMath
- Pure Mathematics – MMath, PhD
- Statistics – MMath, PhD

Key areas of research:

- algebra and logic
- algorithms and complexity
- analysis and functional equations
- artificial intelligence
- bioinformatics
- control theory
- cryptography
- databases and text management
- differential equations and dynamical systems
- fluid mechanics
- geometry and topology
- graph theory
- graphics and human/computer interfaces
- mathematical physics
- networks and distributed systems
- number theory
- programming languages
- quantum computing
- scientific and statistical computing

Why Waterloo for graduate studies in Mathematics and Computer Science?

- You'll find the largest concentration of researchers in the mathematical and computing sciences in North America.
- Over 500 graduate students and 200 professors, 19 of whom are recognized with research chairs.
- NSERC funding awarded to UW Math faculty researchers is significantly above the national average.
- In 2006 alone, Waterloo researchers were recognized with three of the four research prizes awarded by the Canadian Mathematical Society and two were named as Fellows of the Royal Society of Canada.
- Strong connections to industry bring exciting applied research opportunities for faculty and graduate students.



THE RIGHT CHEMISTRY

**faculty of
SCIENCE**

Worldwide, countries are trying to find ways to defeat crop and tree destroying insects without resorting to harmful pesticides. Organic chemists at the University of Waterloo are helping to develop one innovative solution – by working together.



It didn't take long for Alice Chan, a second-year organic chemistry master's student, to realize that she wasn't in Canada anymore. Stepping down onto a Hong Kong subway platform, she was amazed by the swirling mass of commuters around her.

"I haven't seen so many people in one month at Waterloo as I'm seeing right now in this station," she thought while visiting her home city.

It's a common observation made by international students: There are a lot of green, open spaces on campus - and enough room for students to roam without knocking elbows with anyone.

But that's hardly to say the campus feels lonely. Climb the stairs to Prof. Michael Chong's organic chemistry lab and it's easy to feel the ease of camaraderie between students and faculty, a feeling no doubt fostered by the extroverted Chong.

"Dr. Chong is so willing to teach," says Chan. "He's so patient and spends so much time with every one of his students. That's the reason I came back."

Chan originally came to Waterloo back in her second year of undergraduate study for an 11-month exchange program with the Hong Kong University of Science and Technology. She enjoyed her time at Waterloo so much, learning new science and getting out on the rivers and lakes to canoe and kayak, that applying for a graduate spot with Chong just made sense.

Today her research reflects one of his areas of expertise, asymmetric catalysis. The goal of asymmetric catalysis is to create chiral compounds. The demand for chiral compounds in the pharmaceutical, agricultural and chemical industries has been escalating, and these industries look to labs such as Chong's to develop new ways of converting molecule A into molecule B.

Insect pheromones is another area of interest. Females secrete pheromones to attract males, so farmers use them as a potent chemical guardian to interfere with the insects' ability to find mates.

"On one hand you get this relatively simple chemistry, but it has a real end-use," says Chong. "I get a kick out of that." ■

Degrees:

Biology – MSc, PhD
Chemistry – MSc, PhD
Earth Sciences – MSc, PhD
Physics – MSc, PhD
Vision Science – MSc, PhD

Key areas of research:

- analytical chemistry
- animal physiology
- aquatic biology
- astrophysics and gravitation
- atomic, molecular and optical physics
- biochemistry
- biomedical ocular research
- biotechnology
- chemical physics
- condensed matter and material physics
- contact lenses
- developmental biology
- genomics
- geochemistry and hydrogeology
- immunology
- inorganic chemistry
- low vision rehabilitation
- microbiology
- molecular biology
- organic chemistry
- plant physiology
- quantum computing
- subatomic physics

Why Waterloo for graduate studies in Science?

- The Faculty of Science at the University of Waterloo is one of Canada's leading institutions for graduate studies.
- In keeping with our hands-on philosophy, many programs incorporate practical experience through industry-related research projects, field work, practicums, or internships. Some programs are also available through the co-op system.
- Our reputation for excellence and innovation provides our graduate students an edge in a competitive world. Many have gone on to promising careers in business, industry, and government along with major universities in Canada and around the world.

PROGRAMS/AREAS OF RESEARCH



Accounting MAcc (Finance)
www.arts.uwaterloo.ca/finance/index.html

Accounting PhD
• Empirical/Archival Accounting Research
• Judgement and Decision-Making Research
www.accounting.uwaterloo.ca/phd

Actuarial Science MMath, PhD
• Credibility and Ruin Theory
• Demography
• Funding of Pension Plans
• Investments
• Risk Theory
• Stochastic Modeling
www.stats.uwaterloo.ca

Aging, Health, and Well-being PhD
• Alzheimer Research and Education
• Cardiovascular Disease and Cognitive Impairment
• Functional Abilities and Falls Prevention
• Health Services Research Assessment
• Healthy Lifestyles and Slowing the Aging Process
• Research Translation to the Continuum of Care
www.ahs.uwaterloo.ca/facgrad/ahwb.html

Anthropology (Public Issues) MA
• Archaeology
• Physical and Medical Anthropology
• Socio-cultural Anthropology (Governance, Public Discourse and Expressive Culture)
www.anthropology.uwaterloo.ca

Applied Mathematics MMath, PhD
• Control Theory
• Differential Equations and Dynamical Systems
• Fluid Mechanics
• Quantum Theory
• Relativity and Cosmology
• Scientific Computation
www.math.uwaterloo.ca/AM_Dept

Architecture MArch
• Armatures and Envelopes
• Cultural Design
• Digital Design
• Small Buildings
• Urban Design
www.architecture.uwaterloo.ca

Behavioural and Cognitive Neuroscience PhD
• Brain Structure and Activity Relationship
• Electrophysiological Methods for Recording Neuronal Activity
• Human Neuroanatomy and Neuropathology
• Integrated and Adaptive Behavioural Responses
• Study of Large Neuronal Systems in the Orchestration of Behaviour
www.psychology.uwaterloo.ca/gradprog/programs/phd/behavioural/index.html

Biology MSc, PhD
• Animal Biology
• Bioinformatics
• Environmental Biology
• Microbiology
• Plant Biology
www.biology.uwaterloo.ca

Business, Entrepreneurship and Technology MBET
www.cbet.uwaterloo.ca

Catholic Thought MCT
• Roman Catholic Theology
www.sju.ca/MCT.html

Chemical Engineering MEng, MAsc, PhD
• Biochemical and Biomedical Engineering
• Green Reaction Energy
• Interfacial Phenomena, Colloids and Porous Media
• Nanotechnology
• Polymer Science and Engineering
• Process Control, Statistics and Optimization
• Separation Processes
www.chemeng.uwaterloo.ca

Chemistry and Biochemistry MSc, PhD
• Analytical Chemistry
• Biochemistry
• Inorganic Chemistry
• Organic Chemistry
• Physical Chemistry
• Polymer Chemistry
• Theoretical Chemistry
www.chemistry.uwaterloo.ca

Civil Engineering MEng, MAsc, PhD
• Environmental and Water Resource Engineering
• Geotechnical Engineering
• Nuclear Engineering
• Structures, Mechanics and Construction Engineering
• Transportation Engineering
www.civil.uwaterloo.ca

Combinatorics and Optimization MMath, PhD
• Algebraic Combinatorics
• Continuous Optimization
• Cryptology
• Discrete Optimization
• Graph Theory
• Quantum Computing
www.math.uwaterloo.ca/CandO_Dept

Computational Mathematics MMath
• Computational Optimization
• Computational Statistics
• Discrete Computational Mathematics
• Machine Learning
• Numerical Methods
• Scientific Computing
www.math.uwaterloo.ca

Computer Science MMath, PhD
• Algorithms and Complexity
• Artificial Intelligence
• Bioinformatics
• Databases and Text Management
• Graphics and User Interfaces
• Networks and Distributed Systems
• Programming Languages
• Scientific and Statistical Computing
• Software Engineering
• Symbolic Computation
www.cs.uwaterloo.ca

Earth Sciences MSc, PhD
• Aqueous and Organic Hydrogeochemistry
• Hydrogeology
• Isotope Hydrology and Geochemistry
• Solid Earth Sciences
• Water Cycle Modelling
www.earth.uwaterloo.ca

Economics MA, PhD
• Applied Economics
• Economics of Technology and Management
• Public Economics
www.economics.uwaterloo.ca

Electrical and Computer Engineering MEng, MAsc, PhD
• Antennas and Microwaves
• Circuits and VLSI
• Communication and Information Systems
• Computer Hardware and Software Engineering
• Mechatronics and Controls
• Nanotechnology and Silicon Devices
• Power and Sustainable Energy
• Quantum Computing and Photonics
www.ece.uwaterloo.ca

English MA, PhD
• Communication Design
• Critical Media Studies
• Historical and Contemporary Literary Studies
• Literary Theory and Discourse Analysis
• Rhetoric
www.english.uwaterloo.ca

Environment and Resource Studies MES
• Ecological Restoration and Rehabilitation
• Human and Environment Relations
• Local and Global Governance for Sustainability
• Sectoral Issues and Options (e.g., energy, water)
• Sustainable Communities/Sustainable Societies
• Sustainable Social and Biophysical Systems
www.es.uwaterloo.ca/ers/

Finance MAcc, MMath
www.accounting.uwaterloo.ca/finance

Fine Arts (Studio Art) MFA
• Drawing
• Electronic Imaging
• Painting
• Sculpture
www.finearts.uwaterloo.ca

French MA, PhD
• Cultural Studies in a Francophone Context
• Early Modern French Literary Studies and Theory
• Electronic Archiving, Editing and Publishing
www.french.uwaterloo.ca

Geography MA, MES, PhD
• Earth Surface Processes
• Environment, Economy and Society
• Geomatics
www.es.uwaterloo.ca/geography

German MA, PhD
• Applied Linguistics/Second Language Acquisition
• Classical German Literature
• German Film Studies
• Literary and Cultural Theories
• Literatures of the Weimar Republic and Post-WWII
www.germanicandslavic.uwaterloo.ca

Global Governance MA, PhD
• Conflict and Security
• Global Environment
• Global Justice and Human Rights
• Global Political Economy
• Multilateral Institutions and Diplomacy
www.globalgovernance.uwaterloo.ca

Health Studies and Gerontology MSc, PhD

- Aging, Health, and Well-being
- Behavioural Research and Program Evaluation
- Biostatistics and Health Informatics
- Cancer Prevention
- Human Nutrition and Chronic Disease
- Intervention and Prevention Strategies
- Population Health

www.ahs.uwaterloo.ca/hsg/prospective/graduatestudies.html

History MA, PhD

- Canadian, British, Scottish and Early Modern European History
- Histories of Gender, Women and Family
- History of Race and Class, Imperialism and Slavery
- History of Science, Medicine and Technology
- History of War, the Military and Society
- Historiography

www.history.uwaterloo.ca

Kinesiology MSc, PhD

- Aging, Health, and Well-being
- Behavioural and Cognitive Neuroscience
- Biomechanics
- Neural Mechanisms and Determinants of Human Motor Behaviour
- Physiology and Nutrition
- Work and Health

www.ahs.uwaterloo.ca/kin/graduate

Local Economic Development MAES

- Business, International and Sustainable Development
- Entrepreneurship (Private and Social)
- Local, Community, or Regional Economic Development
- Strategic Economic Planning

www.es.uwaterloo.ca/led/

Management Sciences MMSc, MAsC, PhD

- Energy
- Health-Care Management
- Human-Computer Interaction
- Innovation and Entrepreneurship
- Management of Technology
- Optimization

www.mansci.uwaterloo.ca

Mechanical Engineering MEng, MAsC, PhD

- Fluid Mechanics and Fire Behaviour
- Mechatronics Research
- Nanotechnology and Materials Engineering
- Solid Bodies, Mechanics and Mechanical Design
- Thermal Engineering

www.mme.uwaterloo.ca

Philosophy MA, PhD

- History of Philosophy
- Metaphysics and Epistemology
- Philosophy of Mind and Cognitive Science
- Philosophy of Technological and Scientific Developments
- Theoretical Ethics and Moral Psychology

www.philosophy.uwaterloo.ca

Physics and Astronomy MSc, PhD

- Astrophysics and Gravitation
- Atomic, Molecular and Optical Physics
- Biophysics
- Chemical Physics
- Condensed Matter and Material Physics
- Industrial and Applied Physics
- Quantum Computing
- Subatomic Physics

www.physics.uwaterloo.ca

Planning MA/MES, MAES, PhD

- Decision Support Tools and Analysis and Planning
- Environmental Planning
- Heritage Planning
- Infrastructure Planning
- Strategic Planning
- Sustainable Community Planning
- Urban Design

www.es.uwaterloo.ca/planning

Political Science MA

- Bioethics and Contemporary Political Theory
- Conflict and Conflict Resolution
- Gender Politics and Interest Group Politics
- Globalization and International Relations
- Political Economy and Politics of Developing Areas
- States and Societies

www.politicalscience.uwaterloo.ca

Psychology MA, MAsC, PhD

- Behavioural and Cognitive Neuroscience
- Clinical Psychology
- Cognitive Psychology
- Developmental Communication Science
- Developmental Psychology
- Health Psychology
- Industrial/Organizational Psychology
- Social Psychology

www.psychology.uwaterloo.ca

Public Health MPH

- Disease Prevention
- Environmental Health
- Health Promotion
- Health Protection
- Policy, Planning, Evaluation
- Social Determinants of Health

www.ahs.uwaterloo.ca/hsg/mpH

Pure Mathematics MMATH, PhD

- Algebra and Logic
- Analysis and Functional Equations
- Geometry and Topology
- Number Theory

www.math.uwaterloo.ca/PM_Dept

Recreation and Leisure Studies MA, PhD

- Administration and Management of Services
- Aging, Health, and Well-being
- Leisure Behaviour and Cultural Studies
- Recreation and Leisure Resources
- Tourism Planning and Policy
- Work and Health

www.ahs.uwaterloo.ca/rec/graduate

Religious Studies PhD

- Ethnicity and Religious Diversity
- Religious Diversity in North America
- Socio-cultural Approaches

www.religiousstudies.uwaterloo.ca

Russian MA

- Belarusian and Croatian Studies
- Comparative Literature and Literary Theory
- Memoir and Album Literature
- Russian Literature (Medieval to Contemporary)
- Russian Folklore, Drama and Lyrical Prose

www.germanicandslavic.uwaterloo.ca

Sociology MA, PhD

- Industry, Work and Leisure
- Self, Culture and Society
- Social Inequality
- Theory and Methodology

www.sociology.uwaterloo.ca

Statistics MMATH, PhD

- Biostatistics
- Finance
- Statistics and Computing

www.stats.uwaterloo.ca

Systems Design Engineering MEng, MAsC, PhD

- Ergonomics, Human Factors and Biomedical Engineering
- Modelling and Simulation
- Pattern Analysis, Machine Intelligence and Robotics
- Signal and Image Processing
- Societal and Environmental Systems Engineering
- Software Engineering and Optimization Software
- Systems Theory

www.systems.uwaterloo.ca

Taxation MTax

- Canadian income tax

www.mtax.ca

Theological Studies MTS

- Christian Theological Traditions

www.grebel.uwaterloo.ca

Tourism Policy and Planning MA, MES

- International Tourism
- Sustainable Tourism Development
- Tourism and the Environment
- Tourism as a Force for Local Economic Development

www.es.uwaterloo.ca/tourism

Vision Science MSc, PhD

- Biomedical Ocular Research
- Contact Lenses
- Low Vision Rehabilitation
- Optometric Education and Practice
- Visual Development and Refractive Correction
- Vision and Ophthalmic Standards

www.optometry.uwaterloo.ca/grad

Work and Health PhD

- Epidemiology of Workplace Injury, Illness, and Disease
- Interventions to Reduce Workplace Injury
- Risk Management and Disease Prevention
- Rehabilitation and Return to Workplace
- Social Determinants of Occupational Injury and Illness
- Work-leisure-family Balance

www.ahs.uwaterloo.ca/facgrad/wh.html



As an international student at the University of Waterloo, you're in good company. One-quarter of all graduate students come from 80 nations around the world, making our multicultural campus welcoming to all. Our international students attend UW for a high-quality education and the exceptional hands-on experience they receive through labs, research opportunities and our co-op system.

University of Waterloo
INTERNATIONAL STUDENTS

ONE OF THE WORLD'S BEST COUNTRIES

Walk through the University of Waterloo campus and listen. You'll hear students speaking a variety of languages - Cantonese, German, and Spanish, to name a few. Everyone is welcome in Canada, a safe country where people from many different ethnic backgrounds live peacefully together. Our education system is outstanding and our university degrees are recognized worldwide. No wonder the United Nations has consistently ranked Canada as one of the best countries in the world in which to live.

ADMISSION REQUIREMENTS

The minimum requirement for admission to a master's program is a four-year bachelor's degree from an approved university or college. Some departments admit directly into the PhD from a four-year bachelor's degree program, although most admit from the master's. Candidates must also demonstrate other superior qualifications, such as advanced research ability. Please see our International Admission Guide for a list of degree requirements and standings by country. Departments may set higher admission requirements. Please check with your chosen department or school for application deadlines and additional application requirements.

www.grad.uwaterloo.ca/students/prospective/international.asp

ENGLISH LANGUAGE REQUIREMENTS

If you were educated outside Canada in a country where English is not the official language, you will need to provide certification of English language proficiency. You will need one of these test scores for admission:

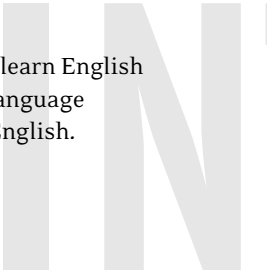
Computer-based TOEFL	TWE Essay	IB-TOEFL	MELAB	IELTS	CAEL	CanTest
213	4.0	90	85	6.5	70	4.5

NOTE: Some departments may require higher scores.

IMPROVE YOUR ENGLISH

Whether you're ordering a coffee or commenting on the weather, day-to-day living is the best way to learn English quickly. But if you want extra practice to improve your skills, Renison College offers two intensive language programs - English for Success and English for Academic Success - to develop spoken and written English.

www.international.uwaterloo.ca/study_english.html





SCHOLARSHIPS AND FINANCIAL SUPPORT

Waterloo is committed to providing financial opportunities and support for international students. The main sources of funding are international graduate student awards, UW scholarships, research assistantships and teaching assistantships. Academic departments offer guaranteed amounts at the time of admission.

INTERNATIONAL MASTER’S AND DOCTORAL STUDENT AWARDS (IMSA/IDSA)

Full-time international students starting a master’s program receive an International Master’s Student Award (IMSA) valued at \$1,456 a term for two years. Full-time international students starting a PhD program receive an International Doctoral Student Award (IDSA) valued at \$2,912 each term for three years. Students already receiving major external awards or sponsorship are not eligible.

HOW MUCH WILL IT COST?

International students pay tuition and incidental fees for each of the three academic terms: fall (September to December), winter (January to April) and spring (May to August). Here are approximate fees and expenses you can expect to pay per term in Canadian dollars.

Tuition and incidental fees (including health insurance)	\$5,400
Books and supplies	\$200
Rent, including heat, hydro	\$2,000
Food	\$1,400
Other (transportation, entertainment)	\$1,200
Total (per term)	\$10,000
Total (per year)	\$30,000

NOTE: Subject to change.

STUDY PERMIT

Every international student must have a study permit to study in Canada. Once you have been accepted into an academic program, apply for a study permit at a Canadian embassy, consulate or high commission in your home country. Don’t wait until the last minute! Visit the Citizenship and Immigration Canada website to find out more.

www.cic.gc.ca

WATERLOO INTERNATIONAL OFFICE

International student services exist to make your stay at Waterloo both enjoyable and academically fulfilling. Staff can help you with immigration issues, cultural adjustment, medical insurance, housing, international student exchange programs, and financial and academic advice. They host events designed to help you adjust to life in Canada, including orientation and English language programs.

www.iso.uwaterloo.ca

Four-Season Climate

Canadians love to talk about the weather. And for good reason. It’s always changing. Southern Ontario’s climate has four distinct seasons: cold, but not severe winters; cool springs; hot summers; and crisp, colourful autumns. The average temperatures during the winter months can range from 0°C to -11°C. Average summer temperatures range from 10°C to 30°C. So don’t forget to pack a warm hat – and sunscreen!

	Temperature	
	average daily maximum (°C)	average daily minimum (°C)
Jan.	-3.3	-11.4
Feb.	-2.5	-11.2
Mar.	2.9	-6.1
Apr.	11.2	0.4
May	18.6	6.3
June	23.2	10.7
July	26.1	13.6
Aug.	24.8	12.6
Sept.	20.1	8.5
Oct.	13.2	2.9
Nov.	6.3	-1.3
Dec.	-0.5	-7.6



Between attending seminars, researching, lab work, studying and defending a thesis, successful graduate study requires time and single-minded focus. Funding helps make that happen. The Graduate Studies Office works closely with departments to advertise, adjudicate and distribute awards to graduate students. In addition to government financial support and research grants, Waterloo offers a variety of internal and external awards.

University of Waterloo SCHOLARSHIPS AND FUNDING

PRESIDENT'S GRADUATE SCHOLARSHIP

The University of Waterloo President's Graduate Scholarship recognizes outstanding academic achievement. This scholarship provides up to \$10,000 each year to both incoming and continuing graduate students receiving tri-council (NSERC/SSHRC/CIHR) and provincial (OGS) competition-based scholarships.

FEDERAL AND PROVINCIAL GRADUATE SCHOLARSHIPS

External Agency	Value for 12 months	Website
OGS Ontario Graduate Scholarship	\$15,000	http://osap.gov.on.ca
NSERC Natural Sciences and Engineering Research Council	\$17,300 PGS Master's \$17,500 CGS Master's \$21,000 PGS Doctoral \$35,000 CGS Doctoral	www.nserc.ca
SSHRC Social Sciences and Humanities Research Council	\$17,500 CGS Master's \$20,000 Doctoral \$35,000 CGS Doctoral	www.sshrc.ca
CIHR Canadian Institutes of Health Research	\$17,500 Master's \$21,000 Doctoral \$30,000 CGS Doctoral	www.cihr.ca

UNIVERSITY OF WATERLOO SCHOLARSHIPS

Departments process the University of Waterloo Graduate Scholarship nominations and typically give them to full-time graduate students in research programs with a first-class (80 per cent) standing. Students receive \$1,000 to \$3,000 each term.

Other sources of funding processed through the Graduate Studies Office include: Maternity and Adoption Bursaries, Child Care Bursaries, Graduate Student Bursaries, Research Travel Assistantships and Doctoral Thesis-completion Awards.

RESEARCH ASSISTANTSHIPS

Research assistantships are offered at the time of admission by some academic departments.

TEACHING ASSISTANTSHIPS

Various academic departments offer teaching assistantships to students interested in demonstrating, marking and instructing while carrying on graduate work. Teaching assistantships are offered at the time of admission by some academic departments.

www.grad.uwaterloo.ca/scholarships/index.asp

ADMISSIONS

ADMISSION REQUIREMENTS

Like the thousands of graduate students who call UW home, the University of Waterloo has high expectations to drive academic excellence. The minimum requirement for admission to a master's program is a 75 per cent overall standing in the last two years of a four-year bachelor's degree program from an approved university or college. Some departments admit directly into the PhD from a four-year bachelor's degree program, although most admit from the master's. Candidates must also demonstrate other superior qualifications, such as advanced research ability.

Departments may set higher admission requirements. Please check with your chosen department or school for application deadlines and additional application requirements.

HOW TO APPLY

Applying to UW Graduate Studies is easy. Start by applying online and paying the application fee. Then, forward your completed application package directly to the academic department for review.

Your application package should include your application form, sealed official transcripts from each post-secondary institution attended, completed reference forms, and supplementary application materials. The materials might include test scores (English Language Proficiency, GRE, GMAT), a resumé, or statement of interest. Check with the academic department to verify what you will need to send.

Academic departments make admission decisions and offers of financial support. The Graduate Studies Office grants official admission.

APPLICATION DEADLINES

Application deadlines vary by department and program. Some departments only admit students for the fall term, while others admit students for fall, winter or spring terms. Check with the relevant department for its admission terms and application deadlines. International students may be required to apply earlier to allow for extra processing time.

YOUR GRADUATE STUDIES SUPERVISOR

The University of Waterloo is known for its exceptional and supportive graduate advisors. If your department requires you to select a potential supervisor when you apply for graduate studies, search the departmental website or on the Graduate Studies website under "Prospective Students."

www.grad.uwaterloo.ca/students/prospective/admissions.asp

Contacts/Services

Graduate Studies Office

gsoffice@uwaterloo.ca
www.grad.uwaterloo.ca

Graduate Student Association

www.gsa.uwaterloo.ca

Office of Research

www.research.uwaterloo.ca

Housing and Residences

housing@uwaterloo.ca
www.housing.uwaterloo.ca

Tuition and Fees

www.adm.uwaterloo.ca/infofin/students/stdfees.htm

Library

<http://library.uwaterloo.ca>

Athletics and Recreation

www.athletics.uwaterloo.ca

Child Care

www.hr.uwaterloo.ca/family-friendly/childcare/centres.html

Campus Visit

www.findoutmore.uwaterloo.ca/visitus



LIFE IN WATERLOO

life in WATERLOO

Are you looking for a city that boasts a thriving multicultural community with safe streets, plenty of green space, top-tier entertainment, museums, restaurants and shopping? Welcome to the region of southwestern Ontario centred by the twin cities of Kitchener and Waterloo – an integral part of Canada's "technology triangle."



With a population of just under 300,000, the community combines the advantages of a small city with easy access to metropolitan Toronto, Stratford's Shakespearean Festival and the sandy beaches of the Great Lakes. Waterloo is known for its charming blend of urban and rural, so don't be surprised if you see cornfields and Old Order Mennonite buggies just minutes away from busy streets.

GETTING AROUND WATERLOO

Travelling around Kitchener-Waterloo is often trouble-free. Being a smaller city, traffic jams are rare in Waterloo and there is usually enough parking for everyone. Or hop on a Grand River Transit bus to get from point A to B. Flying out to visit family or taking a vacation? Toronto's Pearson International Airport is just an hour from Waterloo. For those flying to destinations such as Ottawa, Vancouver or Calgary, the Region of Waterloo International Airport offers hassle-free air travel just minutes away.

GRADUATE HOUSING

Located within walking distance to campus, Columbia Lake Village is a great place to call home. This residence community offers graduate students and those with families a comfortable, safe, and convenient residence while studying at UW. As well, there are many off-campus options in Kitchener-Waterloo to meet your needs and budget.

www.housing.uwaterloo.ca

What can I do in Waterloo?

Starting or continuing your graduate studies sometimes means moving to a new city. Why not jump in feet first and take advantage of all the things Kitchener-Waterloo has to offer?

- Buy local apples, tomatoes or artisanal cheeses at one of the many nearby farmers' markets.
- Watch mainstream and foreign films at the Princess Cinemas.
- Snowboard or ski at Chicopee Ski Club when cold weather hits.
- Spend a Saturday afternoon shopping at Conestoga Mall or trendy boutiques in Uptown Waterloo.
- Ice skate at the outdoor rink in downtown Kitchener.
- Plan a weekend camping trip with friends or family at one of the many provincial parks.
- Take a walk through Waterloo Park or hop on your bike and ride the trails.
- Get dressed up and meet friends for dinner and dancing at Caesar Martinis.
- Check out live bands at UW's Grad House or at the Fox and the Fiddle.
- Hop on a bus to Toronto, Niagara Falls or Stratford.
- Throw on some lederhosen (or not), grab a beer stein and some schnitzel and make some noise at Oktoberfest.

INTELLIGENCE COMES HOME

Of course we have a lot to be proud of in Waterloo, but it is satisfying when outsiders pay us accolades too. Waterloo, best known as the home of BlackBerry development company, Research In Motion, was named Intelligent Community of the Year in 2007. Why? While Waterloo only represents 10 per cent of the labour force in the region, it accounts for 45 per cent of job growth and is home to 40 per cent of all the high-tech firms in the area. ■

Waterloo

GRADUATE STUDIES



University of Waterloo
GRADUATE STUDIES

Needles Hall, Room 2072
Waterloo, Ontario, Canada N2L 3G1
Telephone: 519-888-4567, ext. 35411
Fax: 519-746-3051
Email: gsoffice@uwaterloo.ca

www.grad.uwaterloo.ca

uw