

OUR RESEARCH VISION



UNIVERSITY
of GUELPH

IMPROVE LIFE.

Strategic Research Plan

University of Guelph
2017-2022

OUR RESEARCH VISION

Since its establishment in 1964, the University of Guelph has grown to become one of Canada's top comprehensive, research-intensive universities. As a research-intensive institution, the University places scholarly excellence at the core of our mission. We promote our established research strengths while exploring new scholarly opportunities in an environment that promotes excellence, partnership, diversity, and inclusivity.

The University of Guelph applies its knowledge and discoveries to shape understanding and improve life. Our guiding principles consist of the promotion of research excellence, connecting our research with the world, and catalysing and stewarding research partnerships.

Building on the University of Guelph's mission and history, we are committed to mobilise knowledge into action. This is why the University has a unique and deeply embedded relationship with industry and community partners. Such partnerships are integral to the academic process.

Our pursuit of research excellence is uniquely tied to the betterment of society. Our shared common purpose is to provide the best possible learning experience for all qualified learners in an affordable and financially sustainable way, ensuring high quality and globally competitive outcomes for students and the economy. We aspire to become a leader in experiential education and personalized learning in a technology-rich environment.

The University's approach to knowledge sharing, innovation, and research stands out. Unconstrained by traditional barriers and boundaries, we formulate scholarly questions and seek answers that catalyse discovery and change. Our research agenda is firmly grounded in our partnerships with communities and the private sector, and the work we do responds to our partners' needs.

When applied, our research solves real problems, and results in meaningful advances in innovation, employment, and the economy. Our close connection with government agencies and the private sector – especially in health, agriculture, and food – is a differentiator at the University of Guelph. It is part of our culture that stems from the mission of our three founding colleges.

This mission and history form our core values. From these core values, we define the principles and priorities that guide our research enterprise.



Malcolm Campbell,
Vice-President (Research)

PRINCIPLE I

PROMOTING RESEARCH EXCELLENCE

To build upon our established research strengths while forging new opportunities in emerging areas of scholarship, we enable individual researchers to realize their potential by sustaining a diversity of research approaches – from discovery-based research and creative scholarship to applied research and innovation.

We will nurture and sustain groundbreaking and discipline-leading research initiatives and build research capacity by sustaining established research excellence. We will pursue new and emerging areas of scholarship, where niche opportunity, alignment, and capacity exist. We will ensure that our research is delivered with impact and enable our researchers to realize their potential to be at the forefront of their disciplines.



Ajay Heble,
Social Sciences and Humanities Research Council
Impact Award recipient

CONNECTING OUR RESEARCH WITH THE WORLD

We mobilise our research to maximise its impact on and for communities by being thought-shapers within our disciplines. We communicate our research within scientific, practice, and academic communities, to help lead the thinking and scholarly directions within our disciplines.

We will share our discoveries with external and non-academic communities to translate our work into action by mobilising knowledge to support evidence-based decision-making, policy development, and social innovations.

We will solicit and address important questions from external and non-academic communities to generate research outcomes that come from and address local and global issues.



Bonnie Mallard,
Governor General's Innovation Award recipient

CATALYSING AND STEWARDING RESEARCH PARTNERSHIPS

We promote and create opportunities for productive research collaborations that connect colleges, disciplines, and a diversity of partners.

We will drive collaborative research and training initiatives within the University by harnessing the strengths of colleges and disciplines to drive research and training initiatives, encouraging diverse partnerships within and across disciplines and colleges of the University, and developing best practices for knowledge sharing to give faculty access to a wider range of research.

We will maximise external academic research partnerships by strengthening and growing provincial, national, and international partnerships, and by encouraging partnerships within and across disciplines with external colleagues.

We will enhance and sustain strategic public-sector and community research partnerships by strengthening and supporting our partnership with the Ontario Ministry of Agriculture, Food and Rural Affairs and other major public-sector partners, as well as promoting and expanding research engaged with communities.

We will advance and sustain strategic, private-sector research partnerships by promoting and expanding research linkages that connect our fundamental and applied research with the private sector, and also by strengthening and supporting partnerships that mobilise and commercialise research innovations where desirable and appropriate.



Leung Family Professorship in Food Safety Lawrence Goodridge (centre), with Department of Food Science students Jesse Huffman (left) and Vivian Ly

PRINCIPLE 4

ENHANCING RESEARCH CULTURE

We nurture a culture that inspires excellence, promotes inclusivity and encourages discovery among faculty, students, and staff.

We will promote research-driven analysis and improvement throughout our University by highlighting the strong continuum between research and learning, emphasizing the value for development of transferable skills, critical thinking, and evidence-based decision-making. We will challenge all members of the University community to deliver research excellence and to use research to continuously improve our output and processes.

We will provide opportunities for participation in research by students, post-doctoral researchers, and other members of the University community by attracting researchers to join our research enterprise, increasing the opportunities for participation in research, and sustaining and improving existing opportunities for participation in research.

We will incorporate current research into academic curricula by proactively seeking opportunities to share research achievements and projects in course content, while avoiding dilution of teaching important core competencies.



Shoshanah Jacobs (third from left) and Dan Gillis (centre) facilitate discussion with students in their Ideas Congress program

Photo by: Martin Schwalbe

BUILDING A SUPPORTIVE RESEARCH ENVIRONMENT

We steward resources and research infrastructure effectively to create a supportive research environment.

We will provide resources to support research initiatives and maintain a research focus utilizing efficient and effective administrative supports to benefit research efforts and leverage existing best practices and infrastructure to provide efficient administrative supports.

We will maximise utilisation of research infrastructure by communicating with our researchers about what research infrastructure exists and is available across colleges and providing sufficient supports for faculty, staff, undergraduate students, and graduate students to achieve quality research outputs.

We will advance knowledge dissemination infrastructure by developing appropriate supports for faculty, staff, and students for knowledge mobilisation and application.



Hannah Tait Neufeld (left) and Kim Anderson (right),
with Katie Meyer-Beck, Director of Research Support Services

Photo by: Martin Schwalbe

THEMES

Themes capture the comprehensive areas of research at the University of Guelph. Our core themes are:

- I. Fundamental Science and Its Application
- II. Cultural Inquiry and Creative Practice
- III. Social and Economic Welfare
- IV. Animal and Human Health and Well-Being
- V. Agriculture, Food, and the Bio-economy
- VI. The Environment



Fundamental Science and Its Application

Researchers in this theme build understanding of the continuum between curiosity-driven, discovery-based exploration of the properties of the universe and living systems on one hand, and the application of that knowledge and wisdom to real-world problems on the other.

Mario Monteiro is developing vaccines to prevent multiple human diseases.



Cultural Inquiry and Creative Practice

By leveraging deep inquiry and diverse material practices through scholarly and artistic processes, researchers in this theme discover, analyse, and contextualise an extensive range of topics from literature, history, philosophy, and culture.

Catharine Wilson holds the Francis and Ruth Redelmeier Professorship in Rural History.



Social and Economic Welfare

Organizational structures, institutions, and operational practices within communities, economies, and societies are examined in this theme, to understand how they function, and to provide insights into how they contribute to social justice and/or economic well-being.

Tamara Small studies the use and impact of digital technologies on Canadian political actors.



Animal and Human Health and Well-Being

A deeper understanding is created by researchers in this theme of the parameters that shape the health and well-being of diverse organisms, with a lens that extends from the molecular level to populations and whole ecosystems.

David Kelton holds the Dairy Farmers of Ontario Dairy Cattle Health Research Chair.



Agriculture, Food, and the Bio-economy

Researchers in this theme generate knowledge focused on agriculture, food, and bioproducts that transforms understanding, practice, and policy to promote safe, sustainable, secure food systems and a vigorous bio-economy.

Manish Raizada develops low-cost technologies to empower farmers in North America, sub-Saharan Africa and South Asia.



The Environment

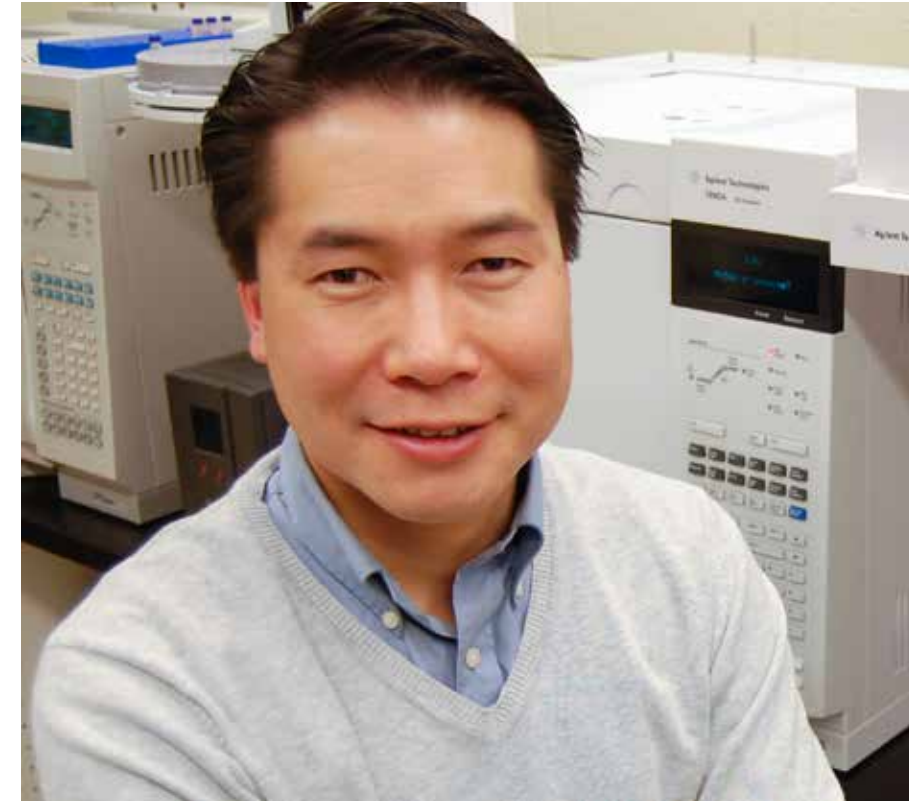
Our planet's environment and climate are explored by researchers in this theme, as well as their interplay with living and/or technological systems, as a fundamental underpinning for environmental stewardship and sustainability.

Merritt Turetsky researches permafrost degradation and changing wildfire regimes that are important to global change and policy development.

SIGNATURE AREAS

Signature areas differentiate the University of Guelph's areas of research focus from those of other Canadian universities. Our signature areas are:

- I. Food
- II. Agriculture and the Bio-economy
- III. Veterinary Medicine
- IV. One Health
- V. Environmental Stewardship and Biodiversity
- VI. Community-Engaged Scholarship
- VII. Creative and Critical Practice
- VIII. Data Science and Informatics



Food

Research on food spans all seven colleges and is embedded across multiple disciplines at the University of Guelph. Food research extends from the fundamental chemistry of foodstuffs to the private and public decisions that impact food production, food safety, food distribution, and the business of food – ultimately to study the impact on ecosystems, the economy, and society. This area also fuses the University's traditional strengths in food-related investigations with community-engaged research. Sustainable food systems and challenges relating to food security and food safety are strategic areas of emphasis for the University.

David Ma, director of the Guelph Family Health Study.



Agriculture and the Bio-economy

Agriculture and the related bio-economy are areas of research embedded in the 1964 University of Guelph Act. Building on this foundation, the University of Guelph leads in precision agriculture, in the sustainable production of healthy crops and livestock, and in diverse bioproducts. The University has been ranked globally for its impact on agricultural sciences. Through our partnership with the Ontario Ministry of Agriculture, Food and Rural Affairs, the University has an outstanding platform to conduct research with real-world application.

Amar Mohanty holds the Premier's Research Chair in Biomaterials and Transportation.



Veterinary Medicine

Founded on the great strengths of the Ontario Veterinary College, the University of Guelph is a leader in veterinary medicine. Veterinary medicine at the University covers the continuum from molecular and cellular processes to whole animal health and welfare to population medicine, with unique strengths in comparative medicine. Veterinary medicine research at the University of Guelph has global reach – it impacts companion animal and livestock health and welfare worldwide.

Adronnie Verbrugghe holds the Royal Canin Veterinary Diet Endowed Chair in Canine and Feline Clinical Nutrition.



One Health

One Health is an interdisciplinary framework focused on the complex interconnectedness among human, animal, and environmental health and welfare. Within One Health, University of Guelph researchers work across disciplines and sectors to interrogate the biological and social factors that impinge on the health of organisms, from molecules to ecosystems, with unique strengths in comparative medicine. This research also explores how these factors are shaped by environmental parameters, such as climate change, informing public health and environmental health practice and policy.

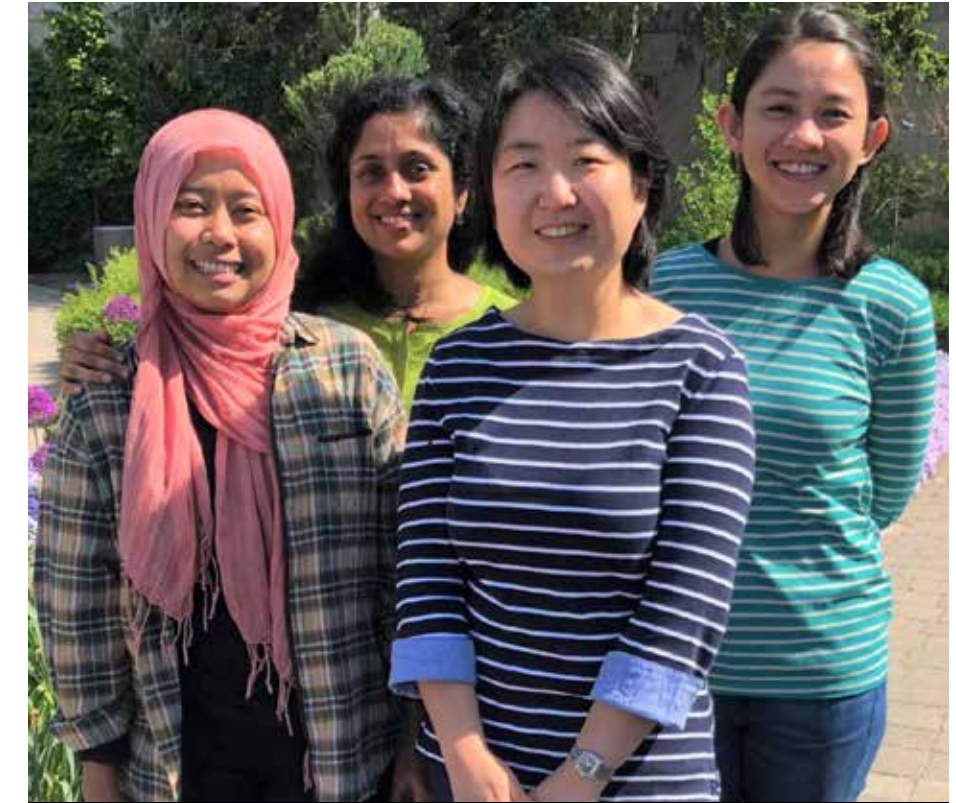
Cate Dewey is an expert in global public health and ecosystem approaches to health.



Environmental Stewardship and Biodiversity

Research into biodiversity, ecology, and the environment are core areas of distinction for the University of Guelph. The University places particular emphasis on soil, water, and air quality, providing a strong foundation for their preservation and wise, sustainable management. This research is conducted against a backdrop of global change, including human population growth, urbanisation, and climate change, to impact practice and policy.

Amy Newman and her research team study the effects of early-life stress on animals' physiology, behaviour and fitness.



Community-Engaged Scholarship

The University of Guelph has a deep history and prominent expertise in community-engaged research, including an extensive focus on Ontario's rural communities. Community-engaged scholarship allows researchers to collaborate with local and global populations, using scholarly approaches and evidence to address the challenges and opportunities they identify.

Sharada Srinivasan (back of group) leads a four-country research team studying impediments to young farmers.



Creative and Critical Practice

Artistic, creative, and critical practice is a vital mode of knowledge production and dissemination. University of Guelph researchers are solving problems through production and analysis of new cultural forms and exploring the boundaries of practice-based research. This involves critical and creative work in areas ranging from drama and prose fiction, oral traditions, and visual culture to improvisatory music-making and beyond. Practice-based research at the University of Guelph has produced important discoveries in interdisciplinary areas, and demonstrated leadership in the use of arts-based inquiry, techniques, and responses to address societal issues.

Catherine Carstairs is a Canadian historian and author, and expert in 20th-century cultural and social history.



Data Science and Informatics

Data science and informatics have deep roots at the University of Guelph. These activities have wide-reaching impacts on many aspects of life in our highly technological society. The University of Guelph's multidisciplinary expertise, including statistics, digital humanities, business analytics, robotics, bioinformatics, machine learning, and artificial intelligence, positions the University to integrate into our research and teaching innovative ways of creating, managing, combining, and applying data in the knowledge economy.

Rozita Dara is a computer science researcher who studies online data management and privacy.

The University of Guelph promotes time-honoured research strengths while exploring new scholarly opportunities. We do so in an environment that promotes excellence, partnership, diversity, and inclusivity. We use our knowledge and discoveries in impactful ways to shape understanding and improve life.



IMPROVE LIFE.

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