

University of Guelph  
Strategic Research Plan  
2017-2022

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IMPROVE LIFE.

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## 1 Introduction

### 1.1 Our institution

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.

To meet the challenges we face on this planet, the *status quo* is no longer enough. The future of life as we know it is uncertain. There is no sole solution, no one technology, no single game changer; what is required instead is collaboration, research that crosses boundaries (natural, artificial, and social), and solutions that mirror the complexities of sustainable living.

From how we feed the world and preserve its nature, to how we live, interact, and thrive in our communities and businesses, we must continue to evolve. We must improve.

The University of Guelph and everyone who studies here, explores here, teaches here, and works here is committed to that simple purpose: To improve life.

### 1.2 Our path forward

As a university, our strategic framework – entitled [Our Path Forward](#) – describes who we are, where we will focus and how we will move forward as a University. It reaffirms the University’s common purpose – the qualities that are essential to our future success – and provides guideposts to help in strategic decision-making.



The framework contains five intersecting themes of equal importance:

- Inspiring Learning and Inquiry
- Connecting Communities
- Catalyzing Discovery and Change
- Nurturing a Distinctive University Culture
- Stewarding Valued Resources

In 2016, the University's Senate and Board of Governors unanimously approved the new strategic framework, calling it "aspirational and visionary." Guelph's research enterprise reflects all intersecting themes, particularly Catalyzing Discovery and Change.

### 1.3 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, scholarly excellence is 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 include the promotion of research excellence, connecting our research with the world, and catalysing and stewarding research partnerships.

As part of 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 personalised 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 are effective in catalysing 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 forms our core values. From these core values we define the principles and priorities that guide our research enterprise.

## 2 Our Strategic Research Plan

### 2.1 Principles and priorities

Principles transcend any given college. They speak to broad directions and areas of focus that will help guide the research enterprise. Priorities are the way the research enterprise and individual researchers deliver on the principles and strategic themes.

#### 2.1.1 Promoting research excellence

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

#### **Priorities**

We will nurture and sustain ground-breaking and discipline-leading research initiatives and build research capacity by sustaining established research excellence, pursuing new and emerging areas of scholarship, where there is niche opportunity, alignment, and capacity, make sure our research is delivered with impact and enable our researchers to realise their potential to be at the forefront of their disciplines.

#### 2.1.2 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 by communicating our research within scientific, practice and academic communities, to help lead the thinking and scholarly directions within our disciplines.

## **Priorities**

We will share our discoveries with external and non-academic communities to translate our work into impactful action by mobilizing 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.

### 2.1.3 Catalysing and stewarding research partnerships

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

## **Priorities**

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

We will maximise external academic research partnership by strengthening and growing provincial, national, and international partnerships and 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 OMAFRA, 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 strengthening and supporting partnerships that mobilise and commercialise research innovations where desirable and appropriate.

#### 2.1.4 Enhancing research culture

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

#### **Priorities**

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

We will elevate 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.

### 2.1.5 Building a supportive research environment

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

#### **Priorities**

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 utilization 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 with regards to knowledge mobilization and its applications.

## 2.2 Success indicators of our principles and priorities

Success indicators are benchmarks against which university performance related to the research enterprise and thematic areas can be assessed.

## 2.2.1 Promoting research excellence

- Excellence against discipline, university, national and international benchmarks in our long-standing and emerging areas of strength.
- Quality of scholarly outputs at the level of the individual researcher
- Extent of research support, e.g., tri-agency support
- Prestigious external research awards and honours – e.g., CRCs, RSC Fellows

## 2.2.2 Connecting our research with the world

- Direct impact of our research on decision-making and policy by individuals, communities, organizations, or governments
- Breadth of innovations and ventures that originate from University of Guelph research
- Extent of impactful research outcomes that arise from and address issues from local to global levels

## 2.2.3 Catalysing and stewarding research partnerships

- Quality of diverse, successful, internal research collaborations that produce impactful outputs
- Academic and external research partnerships that strengthen capacity or expand the reach of our research

## 2.2.4 Enhancing research culture

- The extent of student and community participation in research initiatives and events
- Student, post-doctoral researcher and other members of the University community engagement in varied research efforts
- Effective immersion of research in academic curricula
- Extent of application of research-driven approach to inform University-based decisions
- Quality and quantity measures of student engagement in research

- New research initiatives that engage students

#### 2.2.5 Building a supportive research environment

- Access to research infrastructure across colleges – e.g., CFI supported infrastructure
- Utilization of knowledge mobilization resources by faculty, staff and students
- Extent of effectiveness of support for research initiatives and researchers

### **3 Research Themes**

Themes capture the comprehensive areas of research at the University of Guelph.

#### **3.1 Fundamental Science and its Application**

Fundamental Science and its Application builds 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.

#### **3.2 Cultural Inquiry and Creative Practice**

Cultural Inquiry and Creative Practice leverages deep inquiry and diverse material practices through scholarly and artistic processes to discover, analyse, and contextualise an extensive range of topics from literature, history, philosophy, and culture.

#### **3.3 Social and Economic Welfare**

Social and Economic Welfare examines organizational structures, institutions, and operational practices within communities, economies, and societies to understand how they function, and to provide insights into how they contribute to social justice and/or economic wellbeing.

#### **3.4 Animal and Human Health and Wellbeing**

Animal and Human Health and Wellbeing creates a deeper understanding of the parameters that shape the health and wellbeing of diverse organisms, with a lens that extends from the molecular level to that of populations and whole ecosystems.

### **3.5 Agriculture, Food, and the Bio-economy**

Agriculture, Food, and the Bio-economy generates knowledge focused on agriculture, food, and bio-products that transforms understanding, practice, and policy to promote safe, sustainable, secure food systems and a vigorous bio-economy.

### **3.6 The Environment**

The Environment explores our planet's environment and climate, as well as their interplay with living and/or technological systems, as a fundamental underpinning for environmental stewardship and sustainability.

## **4 Research Signature Areas**

Signature areas differentiate the university's areas of research focus from those of other universities.

### **4.1 Food**

Research on food spans all seven colleges and is embedded across multiple disciplines at the University. Food research at the University of Guelph 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.

### **4.2 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, and the sustainable production of healthy crops, livestock, and diverse bio-products. The University has been ranked globally for its impact on agricultural sciences. Through our partnership with Ontario Ministry of Agriculture, Food and Rural Affairs, the University has an outstanding platform to conduct research with real-world application.

### **4.3 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 University of Guelph has global reach – it impacts companion animal and livestock health and welfare worldwide.

#### **4.4 One Health**

One Health is an interdisciplinary framework focused on the complex interconnectedness between 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 the level of molecules to that of ecosystems, with unique strengths in comparative medicine. This research also explores how these factors are shaped by environmental parameters, such as climate change, ultimately informing public health and environmental health practice and policy.

#### **4.5 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, urbanization, and climate change, to impact practice and policy.

#### **4.6 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.



## 4.7 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 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.

## 4.8 Data Science and Informatics

Data science and informatics have deep roots at 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.

## **5 Implementation and Accountability**

The implementation and evaluation of the 2017- 2022 Strategic Research Plan will, at a fundamental level, abide by the principle that individual researchers ultimately drive university research. As such, this plan is largely realised through the diversity of activities of our researchers. This said, as the oversight of the university research enterprise as whole falls to the Office of Research, the Office of Research will play a role in supporting and sustaining the activities of our researchers to align them with the Strategic Research Plan.

The Office of Research will ensure this alignment, and will be accountable for it, as follows:

- Work with University executive offices as key institutional documents, (e.g. Strategic Mandate Agreement) are developed, to ensure alignment and coordination with the Strategic Research Plan.
- Work with Colleges, Centres and Institutes as they develop their Strategic Plans to ensure alliance with the Strategic Research Plan.
- Strategically execute key federal programs, including CFI and CRCs.
- Develop tools, building upon Success Indicators for Our Principles, to continuously elevate our progress in reference to the goals set out in the Strategic Research Plan.

## 6 Appendix: Process

In November 2016 and February 2017, workshops were held on campus to give faculty, staff and students an opportunity to shape key components of the 2017-2022 Strategic Research Plan, and its linkage to the University's Strategic Framework. The objectives of the November workshop were to reflect on the research-related feedback from the University's broader Strategic Renewal Process, and to provide guidance for the development of key components of the Strategic Research Plan. The February workshop was designed to provide guidance for the development of key components of the Strategic Research Plan, including themes and signature areas.

More than 100 people participated in these workshops, from all seven colleges. The result of their collective input is the University of Guelph 2017 – 2022 Strategic Research Plan.

### 6.1 SRP Renewal Workshop

#### I. November 7, 2016

- The workshop was an opportunity to shape key components of a Strategic Research Plan and its linkage to the University's Strategic Framework. The objectives of the workshop were:
  - To reflect upon the research-related feedback from the University's broader Strategic Renewal Process; and
  - To provide guidance for the development of key components of the Strategic Research Plan

#### II. Participants:

- 65 participants
- 31 women, 34 men
- 7 colleges, 3 campuses
- Early career researchers, established researchers, research centre/ institute directors, graduate students, RAB, research staff

### III. Methodology of the Workshop

- Context and Environmental Scan: The Scan captured some key concepts regarding research in the University and introduced the idea of viewing the Strategic Objectives from the Framework from a research perspective.
- Priorities Discussion: Following a short discussion about the environmental scan the workshop participants discussed the Strategic Themes, focusing on key concepts and Priorities that emerge, regarding research.
- Principles Refinement: After further discussion and refinement, the emerging concepts and Priorities were categorised into over-arching Principles. The participants refined the articulation of the Principles and further developed the Priorities within each Principle.
- Successes and Considerations: Following the development of the Principles and Priorities, participants defined success for each Principle and discussed associated considerations for the Research Enterprise with regard to each Principle.

## 6.2 SRP Renewal Workshop II

### I. February 22, 2017

- The workshop was an opportunity to shape key components of a Strategic Research Plan. The objective of the workshop was:
  - To provide guidance for the development of key components of the SRP including Themes and Signature Areas

### II. Participants:

- 43 participants
- 20 women, 23 men
- 7 colleges, 3 campuses
- Early career researchers, established researchers, research centre/ institute directors, graduate students, RAB, research staff

### III. Methodology of the Workshop

- Themes Discussion: Participants first individually reflected on what the Themes of emphasis are for the Research Enterprise at the University of Guelph, followed by a small group discussion and a full group discussion. The discussions resulted in the development of emerging Themes that largely resonated with the full group.
- Signature Areas Discussion: Participants first individually reflected on what the Signature Areas of emphasis are for the Research Enterprise at the University of Guelph, followed by a small group discussion and a full group discussion. The discussions resulted in the development of emerging Signature Areas and components of those Signature Areas for further refinement.

## 6.3 Governance Reviews and Approvals

### I. Principles and Priorities Draft - Reviews

- Research Advisory Board
  - November 23, 2016
  - December 6, 2016
  - January 3, 2017
  - January 9, 2017
- Senate Research Board
  - November 25, 2016
  - January 25, 2017
- Senate
  - December 12, 2016
  - February 6, 2017
- Board of Governors
  - January 23, 2017

**II. Principles, Priorities, Themes and Signature Areas Draft - Reviews**

- Research Advisory Board
  - February 15, 2017
  - March 8, 2017
- Senate Research Board
  - March 14, 2017
- Senate
  - April 4, 2017

**III. SRP in Total – Reviews and Approvals**

- Senate Research Board
  - May 1, 2017
  - Approval: May 12, 2017
- Senate
  - May 23, 2017
  - Approval: May 23, 2017
- Board of Governors
  - June 9, 2017
  - Approval: June 9, 2017