

MEMORIAL UNIVERSITY RESEARCH STRATEGY

Endorsed by Memorial's Senate on September 13, 2011

VISION

Memorial University is a leading knowledge community where research¹ excellence is valued and promoted for its contributions to the advancement of knowledge, to the professional and personal development of students and researchers, and to the wellbeing of Newfoundland and Labrador, Canada and the world.

MISSION

We will build upon Memorial University's vibrant culture of creativity, innovation, and research excellence to create, transform, interpret, share, and apply knowledge with integrity, excitement, vigor and purpose.

GUIDING PRINCIPLES

- Valuing and supporting the freedom of researchers to pursue research excellence that is based on their individual and collective intelligence, curiosity, ingenuity and creativity.
- Valuing and supporting all aspects of research including scholarship and creative activities, as well as the translation of knowledge into products, practices and policies, and other forms of community engagement.
- Valuing and supporting Memorial's special obligation to the people of Newfoundland and Labrador by supporting and building capacity for research excellence that:
 - o Addresses needs and opportunities for our province,
 - o Engages our researchers on matters of national and international significance,
 - o Contributes to Memorial's teaching and learning environment through academic programs of national and international caliber.
- Valuing and supporting overarching research themes that cut across academic units and address significant opportunities and challenges for which Memorial is particularly well-positioned to build nationally and internationally recognized research capacity.

¹ "Research" in this strategy includes the full range of fundamental and applied research, scholarship and creative activity

GOALS AND OBJECTIVES

Goal 1: Attract, retain, support and celebrate people engaged in and supporting research

Objectives associated with Goal 1:

- 1.1 Place high value on research success and excellence.
- 1.2 Promote Memorial's research opportunities.
- 1.3 Consider the prospect for research success and excellence in Memorial's research environment when recruiting.
- 1.4 Support faculty, students and research fellows and trainees to achieve excellence in research.
- 1.5 Support non-faculty researchers and research support staff.
- 1.6 Encourage mentoring for researchers.
- 1.7 Celebrate the achievements of researchers and research teams.

Goal 2: Support an environment of research excellence

Objectives associated with Goal 2:

- 2.1 Increase coordination, communication and responsiveness of administrative supports for research.
- 2.2 Foster interdisciplinary collaborations and research.
- 2.3 Maximize the impact of research chairs.
- 2.4 Enhance supports for researchers to obtain and manage funding.
- 2.5 Develop and maintain top-quality research infrastructure, space, equipment, and support technologies.
- 2.6 Implement integrated systems for tracking and reporting research activities and outputs.
- 2.7 Increase supports for sharing research findings and outputs, including across campuses.

Goal 3: Engage with community partners and collaborators locally, nationally and internationally to create, share and apply research

Objectives associated with Goal 3:

- 3.1 Place high value on research collaborations and sharing of research findings with external partners and collaborators.
- 3.2 Facilitate external engagement activities.
- 3.3 Encourage local, national and international research collaborations.

Goal 4: Support fundamental and applied research excellence in areas of strategic opportunity

Objectives associated with Goal 4:

- 4.1 Track and assess the outcomes and impacts related to the Strategic Research Themes.
- 4.2 Support research excellence within the Strategic Research Themes through hiring and funding practices.
- 4.3 Increase opportunities for Memorial researchers to communicate and collaborate with one another and with external partners and collaborators on research related to the Strategic Research Themes.
- 4.4 Secure funding in support of initiatives that advance the Strategic Research Themes.
- 4.5 Establish mechanisms to facilitate communication and collaboration across the Strategic Research Themes.

STRATEGIC RESEARCH THEMES

Introduction to Strategic Research Themes

The Strategic Research Themes identify both new areas of significant research opportunity for which Memorial is strategically positioned to achieve research excellence and existing areas of research strength which hold considerable potential for expansion of expertise, resources and contributions from our researchers in areas that offer potential to grow.

The Themes identify Memorial’s research priorities to other funders and partners, in areas where we have strengths to build on, where we see opportunity for growth. They also include research areas where there is a need for fundamental and applied research in our province. The titles of the Themes reflect issues and opportunities for research growth across multiple units at Memorial. The descriptions of each Theme capture our current strengths, how these cut across the university, and where we see potential for growth. While the Planning Process identified 10 Strategic Research Themes, it is recognized that there will be opportunities for researchers to address issues and opportunities outside of these thematic areas.

The Strategic Research Themes, in alphabetical order, include:

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| (1) Aboriginal Peoples | (6) Governance and Public Policy |
| (2) Arctic and Northern Regions | (7) Information and Communication Technology |
| (3) Community, Regional and Enterprise Development | (8) Oceans, Fisheries and Aquaculture |
| (4) Creative Arts, Culture and Heritage | (9) Social Justice |
| (5) Environment, Energy and Natural Resources | (10) Wellbeing, Health and Biomedical Discovery |

Strengths and Opportunities Across Strategic Research Themes

Memorial University has research strengths in all of the Strategic Research Themes that span the research spectrum – from fundamental to applied research, including creative activity and scholarship. The Strategic Research Themes also span geographies and in each Theme, Memorial has research strengths in addressing provincial, national and international contexts. In further developing the Strategic Research Themes, Memorial will continue to support the broad array of research activities and localities.

Much of the research associated with the Strategic Research Themes is not limited to any one Theme; the inter-connectedness among the Strategic Research Themes is as important as the classification of work under each. Implementation of the Research Strategy will foster cross-Theme collaborations as a key part of building strength in these areas.

Partnerships Across Strategic Research Themes

External engagement (i.e. sharing research findings and partnering on research activity with communities, governments, organizations, and the private sector) and inter-disciplinary collaboration are vitally important to realizing the significant opportunities presented through the Themes.

Memorial researchers working in the themes are internationally recognized for their achievements in engagement and sharing with Newfoundland and Labrador communities, nationally and internationally. However, participants of Research Plan consultations on the Themes repeatedly stressed that there is need for more dedication to building and maintaining connectivity with communities and other partners outside the university. The importance of developing Memorial's institutional recognition of external engagement activities and achievements (including the investments required to build relationships and share findings in innovative and effective ways) was emphasized.

Consultations on the Themes also revealed that increased collaboration across disciplines offers significant potential for researchers to benefit from one another's work. Implementation of the Research Strategy will include support for communication and coordination of research activities and the sharing of research across the Research Themes and academic disciplines at Memorial. Additionally, greater interaction across Memorial's campuses will be encouraged and supported.

Descriptions of Strategic Research Themes

(1) Aboriginal Peoples:

Research under this theme relates to the pre-history and history of Aboriginal peoples, as well as to contemporary issues and opportunities in Newfoundland and Labrador, nationally and internationally.

Key research areas include education, languages, society, culture, human rights, gender, literature, religion, ethics, politics, and social and economic development; contemporary issues around resource development, land claims, climate change, health, physical activity, and community development; indigenous expressive culture; youth engagement relating to social policy, social participation and youth programs; Northern Labrador climate change, resource development, transportation, new national parks, and collaboration with the Nunatsiavut Government; and traditional knowledge of Aboriginal peoples and its relation to contemporary issues.

(2) Arctic and Northern Regions:

Research under this theme relates to people and communities, environment and resources, approaches and technologies for sustainable resource development, and land, ocean and coastal zones in arctic and northern regions.

Key research areas include northern peoples and their languages, society, culture and communities; regional, national and international governance mechanisms such as environmental regulations and the Law of the Sea; distance education, telecommunications and learning technologies and their implications for northern peoples; technologies for and management of natural resource development, transportation, safety and survival, and health care and emergency response in harsh, remote locations; the geography and ecology of northern marine, terrestrial and ice environments; climate change and its impacts, significant resource developments, and assertion of Canadian sovereignty in the north; land claims, environmental assessment, transportation, and northern and remote infrastructure; economic and regulatory models and best practices to maximize benefits from resource developments.

(3) Community, Regional and Enterprise Development:

Research under this theme relates to building capacity of people, organizations, communities, industries, and enterprises to foster social and economic prosperity and development in rural and urban communities, neighbourhoods and regions.

Key research areas include influences affecting economic development and social well-being; the role of education, community health, and social policy and their impact on empowerment of individuals and groups in communities; land use, drinking water, waste management, transportation planning, affordable housing, and labour market development; economic diversification, new business development and improved business practices; impact of climate change, aging populations, migration and immigration on communities and regions; and rural-urban and local-global interaction, regional cooperation and governance, and innovation in policy and service delivery;

(4) Creative Arts, Culture and Heritage:

Research related to creative production and expression; curation and interpretation; and archaeological, historical, ethnographic and archival research in Newfoundland and Labrador, Canada and internationally.

Key research areas include the arts; all forms of creative production and expression (drama, music and sound, visual, performance, literature); education to preserve and strengthen culture and build identity; performance pedagogy; tangible cultural heritage; intangible cultural heritage, including language and music; cultural industries; history (Newfoundland, maritime,

Canadian, and European); expressive determinants of society and individual identity; contemporary and historical creative activity; the use of new media and technologies in the ongoing production of art, culture and heritage; interdisciplinary research in music, health and wellbeing, in music and engineering; the use of creative expression to critique understandings of culture and society.

(5) Environment, Energy and Natural Resources:

Research related to the environment, development of natural resources (oil and gas, mining, forestry), and the interaction of people, industry, and communities with the natural world, locally, nationally and globally.

Key research areas include human interactions with climate change and environmental impacts; energy efficiency; resource economics; cultural perceptions of the environment; environmental science; wildlife, marine, land, habitat resource and waste management; plant and forestry science; environmental engineering and sustainability; cellular and molecular biology and marine sciences; energy industry economics and policy; health, safety and survival in the oil and gas industry; harsh environment engineering, ocean observation systems; petroleum reservoir characterization and exploration geophysics; sustainable and alternative energy solutions; reclamation of non-renewable resource developments; social and economic benefits of the nonextractive values of natural resources; watersheds and water quality business opportunities, public policy, legal issues and regulatory regimes.

(6) Governance and Public Policy:

Research related to organizational and corporate governance, public policy and the relationships amongst governments and non-government organizations. Corporate governance consists of the collection of rules, processes, and practices that determine the relationship between managers of an organization and those who have a stake in the organization's performance, including shareholders, creditors, employees, customers, and society at large. Governance, more broadly, includes how government bodies develop and implement public policy, and how governments relate to non-governmental organizations in the shared allocation of decision-making and resources for achieving public policy purposes.

Key research areas include auditing, taxation, finance, leadership and corporate social responsibility; public and collective decision making in economic policy (including policy and governance arrangements relating to specific economic sectors, as well as to cross-cutting areas such as fiscal and monetary policy and trade policy), social policy (including health, education, and social services), cultural policy, environmental policy, defense policy and other policy fields; legal studies across all policy fields; local, regional and federal systems, as well as multi-lateral and inter-national governance relationships and organizations; immigration and population change; land-use and urban planning; and food security.

(7) Information and Communication Technology:

Research related to the theoretical foundations of information and communication technology (ICT), the design and deployment of ICT in a variety of settings, and the evaluation of the use of ICT and its impact on individuals, organizations, and society. It involves research into the study and design of systems that capture, store, transmit, process, and use information in a manner that is efficient, accurate, reliable, secure, profitable, and responsible.

Key research areas include foundational and design areas, including algorithms and complexity, data management, software engineering, computational modeling, computer networks, and intelligent computing; ICT impact, including telemedicine, distance education and e-learning technology, electronic commerce, and privacy; geographic information systems, autonomous ocean systems; managing (storing, retrieving, filtering, and processing) the vast amounts of data collected by businesses and other organizations using web-based and sensor-based data collection (data collection includes scientific, health, pharmaceutical, commercial, geographic, and social network data, remote sensing, communication networks, information technologies, and computational modeling; it spans traditional structured databases and unstructured text); electronic health service delivery in remote areas of the province (including tele-oncology, tele-psychiatry, tele-video resuscitation) and innovative interactive teaching programs for remote areas (i.e., electronic continuing medical education – MD.cme); and cultural and social impacts of ICT.

(8) Oceans, Fisheries and Aquaculture:

Research related to the maritime environment, the interaction of coastal people and communities with the ocean and maritime environment, and the scientific, technological and organizational requirements of industrial development in this environment, particularly relating to conditions in the North Atlantic. Fishery and aquaculture, more specifically, include fresh water and marine fish biology and environments and scientific, technological and organizational aspects of fishery and aquaculture industry development, and their related social, community, environmental and public policy characteristics.

Key research areas include cultures and societies around the North Atlantic Rim, and how they interact with the ocean and ocean industries, including economic and political agreements and relationships; technologies for natural resource development, transportation, and safety and survival in harsh, remote locations, and the geography and ecology of North Atlantic marine, terrestrial and ice environments; fundamental research in biology, ecology, environmental science, and ocean science; climate change; fisheries conservation and resource management; aquaculture and seafood development; food processing technology and processes to support industry development; research related to the people, organizations, history, economics and policies pertaining to fisheries and aquaculture; deep water and harsh environment marine and petroleum activity; and business development and marketing associated with fisheries and oceans industries.

(9) Social Justice:

Research related to systems and structures that contribute to more humane, equitable and just societies. Its focus is on building the capacity and enabling the civic engagement of vulnerable populations, locally, nationally and internationally, whose voices are seldom heard in addressing the barriers to their wellbeing and full participation in society.

Key research areas include Immigration, citizenship and labour market inclusion, and poverty reduction; empowerment of individuals through education, community health approaches, access to medical care and services, and child and family welfare; interdisciplinary aspects of diversity, difference, equity and ethics; labour relations, social and working class history, gender equality and sexuality; the impact of poverty on individual and community development in urban and rural neighbourhoods and communities; homelessness, affordable housing, and poverty; citizen engagement in communities, and how education is valued (to help explain the

low rate of high school graduation); mental health, aging, social development, and disabilities issues; national and international social justice issues; and corporate social responsibility.

(10) Wellbeing, Health and Biomedical Discovery:

Research related to improvement of health and wellbeing through building research and knowledge provincially, nationally and internationally especially for the people of Newfoundland and Labrador in areas of unique provincial need and opportunity.

Key research areas include genetics research that addresses both the need and opportunity presented by the founder population characteristics of the province (genealogy, community and population health, ethics and health policy development, as well as specific bio-molecular research and clinical care innovation); health services and health policy research as well as research related to special medical, nursing and other health professional education that respond to the province's aging, rural, northern and aboriginal populations and distinctive workforces; research related to efficient and accessible health care systems, and effective public health programs and policies and healthy and safe work places; biomedical sciences ranging from cellular and molecular processes to animal and cell modeling that respond to the province's high incidence of diseases such as obesity, diabetes, and cardiovascular disease; multi-national clinical trials of drug and device interventions; health promotion, public health, health policy, disease prevention and chronic disease management; and healthy aging.