

ATHABASCA UNIVERSITY STRATEGIC RESEARCH PLAN 2012-2016 PRIORITIES AND EXPECTED OUTCOMES

Athabasca University is one of four comprehensive academic and research institutions in Alberta and stands on its reputation for research leadership in technologically enhanced open and distance education and for excellence in research in other disciplines (Strategic University Plan 2011-2016). Athabasca University is committed to continuing to foster a robust and supportive culture that will effectively balance disciplinary and mission-critical research, ensure that research is conducted and disseminated in a climate of academic freedom and informs teaching and learning. Interdisciplinary approaches and partnerships within and outside the academy are encouraged to enlarge research contexts and paradigms and to generate new ways of thinking.

Strategic Research Objectives

The Athabasca University Strategic University Plan 2011-2016 sets out three strategic research objectives. These objectives are reflected in other fundamental planning documents, including the Athabasca University Comprehensive Institutional Plan (2014-2017) and this update to the Athabasca University Strategic Research Plan. Included are goals to:

- Provide appropriate support for faculty, staff and student research and scholarship;
- Enhance Athabasca University's international reputation in key research disciplines, including technology enhanced online and distance education; and
- Promote and expand the transfer of research findings for the benefit of students, society and the economy.

Disciplinary research is valued at Athabasca University for its own sake and as a resource for enriching students' learning. Priority disciplinary research areas identified in previous versions of the Athabasca University Strategic Research Plan remain, including business, computing science, environment and sustainability, globalization and cultural studies, Indigenous education, nursing and health, labor and Canadian studies, space science and astronomy, and workplace and community education.

Inquiry into mission-critical subject matter (i.e., pedagogical, cognitive, technological and student support aspects of distance learning, open access, learning technologies, and digital media studies) remains central to the mandate of Athabasca University and its teaching and research endeavors. The University also recognizes the importance of supporting new and emerging areas of research within the academy (e.g., architecture; analytics) and research emanating from evolving societal and global concerns (e.g., equitable access to quality learning resources).

In line with the research outcomes embedded in the Strategic University Plan (2011-2016), the Strategic Research Plan will foster a healthy research culture, increase supports to cultivate excellence in research and scholarship, and develop a clear and viable strategy to secure sustaining funding to support research within the academy. Attaining the goals set out in this



Strategic Research Plan will serve to further enhance Athabasca University's disciplinary and open and distance learning research profile and extend its research partnerships provincially, nationally and internationally. In addition, the University will foster the widest possible access to research outputs and promote the generation and dissemination of knowledge for the benefit of society. Essential to attaining the latter is the Athabasca University Press, with its focus on the dissemination of knowledge and research through open access digital journals and monographs, as well as through new electronic media. Other venues also exist within the university to foster open access publishing, including self-archiving of research outputs on AU Space and in other digital repositories, via the e-text initiative, and through the creation and diffusion of open educational resources. Together, initiatives such as these, as well as the work of its UNESCO/Commonwealth of Learning Chair in Open Educational Resources (OER), will expand Athabasca University's international leadership role in research in open access and online and distance education.

Consistent with its commitment to promoting excellence in research, Athabasca University seeks to achieve the following more specific goals during the term of this Strategic Research Plan. These goals emphasize both the expansion of research activity and the importance of involving students in research. As enrolment grows, the university must accelerate its capacity to engage students in research and to support their research activities.

1. Encourage and deepen involvement in research university-wide.
 - 1.1. Sustain research capacity across the university.
 - 1.2. Expand research initiatives within and across faculties.
 - 1.3. Expand collaborative research activities with partners with Campus Alberta and eCampus Alberta.
 - 1.4. Increase opportunities for undergraduate and graduate students to participate in research.
 - 1.5. Advance Athabasca University Press as a primary vehicle for open access publishing.

2. Build research capacity in four strategic areas: environmental sciences and studies, educational technologies and information communication technology, business change management and health disciplines.
 - 2.1 Pursue research chairs in the key research areas.
 - 2.2 Seek funding from governments, research agencies, donors and industry to sustain the research institutes and enable specific research projects.
 - 2.3 Engage with industry and other post-secondary institutions to contribute to Alberta's capacity for research and innovation in key areas such as health and technology.
 - 2.4 Foster capacity development and leadership in learning analytics research.
 - 2.5 Encourage research partnerships with industry and support innovation.
 - 2.6 Encourage broadly disseminated communication of research findings.

Athabasca University acknowledges that it needs to continue to strategically support and accelerate its research capacity. Attaining these outcomes will help the university to establish a sustainable, yet ever-increasing research capacity, link research and learning goals more directly and enhance the university's ability to engage in research and innovation. Included is a clear emphasis on the expansion of research activities; however, these outcomes also build on the



achievements of Athabasca University’s researchers, including its UNESCO/Commonwealth of Learning Chair in Open Educational Resources (OER), NSERC/iCORE/Xerox/Markin Industrial Research Chair in Adaptivity and Personalization in Informatics, Campus Alberta Innovation Program (CAIP) Chair in Computational Sustainability and Environmental Analytics, and its four Canada Research Chairs.

Distribution of Canada Research Chairs

The delineation of research priorities has given the University the opportunity to strategically attract and retain leading-edge researchers who are internationally recognized in their field and whose interests complement those of other researchers within the institution. Following is a breakdown of the University’s allocation of Canada Research Chairs.

| Areas of Research Focus | Tier | Granting Pool |
|---|-------------|----------------------------------|
| Indigenous Traditional Knowledge, Legal Orders and Laws | 2 | SSHRC – Appointed July 2010 |
| Health Promotion and Chronic Disease Management | 2 | SSHRC-CIHR – Appointed June 2013 |
| Semantic Technologies | 2 | NSERC – Renewed April 2014 |
| Community, Identity and Digital Media (Proposed) | 2 | SSHRC - Recruitment in progress |

Recruitment is currently in progress for a Canada Research Chair in Community, Identity and Digital Media to fill the position that became vacant in February 2013. This Chair will explore the interconnections between individual and collective identities in cultural, political, and/or social spheres and may engage with questions of communication, cooperation, collaboration, being, subjectivity, and/or the performance of gender, race and ethnicity. Applications are being actively sought from individuals who are recognized internationally as leaders in their field and are expected to include both internal and external candidates.

Following their appointment as a Canada Research Chair, nominees have established a leading-edge research program. Included in this are the substantive achievements of the former Canada Research Chairs in Open, Distance and E-Learning and in Space Science, Instrumentation and Networking, whose respective terms ended in 2012 and 2013. Without exception, Athabasca University’s Canada Research Chairs have served as mentors for other researchers who share similar interests and have provided outstanding training opportunities for students and postdoctoral fellows who have been engaged in their research programs as co-investigators, co-authors and co-presenters of the findings of their research.

Gender Representation

Athabasca University is committed to the principle of gender equity and ensures that gender considerations are an integral part of Chair and faculty recruitment. One of the three current Athabasca University Canada Research Chairs is female. While it can be difficult to attain gender



equity among a small number of Chairs, Athabasca University will endeavor to attain this goal over time.

Other Chair Recruitments

Athabasca University is committed to continuing to extend the number of research chairs across the academy and is in the process of recruiting a Campus Alberta Innovation Program (CAIP) Chairs in Hydroecology and Environmental Health and an Alberta Innovates – Health Solutions (AIHS) Chair in eHealth Literacy. It is also seeking to establish one or more endowed research chairs in the near future. In doing so, the university will engage with government, research sponsors, philanthropists and the private sector on research agendas and partnership opportunities. Research chairs play a vital role in enhancing research and research training and in attracting and retaining other exceptional researchers, which in turn leads to the development of new areas of research excellence and enhances students' learning experiences. These chairs, together with the existing chairs, will provide intentional leadership in advancing Athabasca University's priority research areas, spearheading interdisciplinary initiatives, and generating partnerships between the academy and industry in keeping with emerging provincial and national research priorities.

In addition to its focus on research chairs, Athabasca University is also committed to supporting the work of its other researchers as part of ongoing effort to further embed research in the culture of the institution. Through its grantsmanship and career mentoring program, the University will continue to encourage and assist faculty to formulate ongoing research and funding plans that will in turn help identify the supports needed by individual researchers in their research careers. The continuing integration of research into the culture of the institution is a critical and ongoing process that reflects the university's evolution over the past four decades. It also provides a number of other important benefits: teaching is informed; faculty, staff and students develop professionally by contributing to the discovery and dissemination of new knowledge; a formal and dynamic research enterprise is evident to external stakeholders; the reputation of the University is enhanced; and the University establishes new relationships in the wider research community.

Strategic Research Directions

Over the past five years, the University has advanced significantly towards the achievement of its research goals through setting up three centres of excellence in the form of research institutes, including the Technology Enhanced Knowledge Research Institute (TEKRI), Athabasca River Basin Research Institute (ARBRI) and Project Management Research Institute (PMRI). The establishment of a Health Research Institute (HRI) is envisioned in the near future. Together, these institutes comprise a network of research clusters, with strong external links to provincial, national and international researchers who are investigating similar topics. The intent is that synergies can be obtained from collaborations between and among the clusters as well as through partnerships with external research teams. These clusters will also assist in addressing the increasingly interdisciplinary emphasis of provincial and national research agendas.



The *Technology Enhanced Knowledge Research Institute (TEKRI)* hosts a network of clusters that focus either on knowledge systems architecture or digital technology innovation. The primary emphasis of the former is on the development of knowledge architecture, such as taxonomies, open architecture/cloud computing, and the use of data analytics and data visualization in providing real-time data, data schema and visualization essential to the improvement of soft digital technology decision-making cycles. The latter focuses on mobile computing, localization and geomatics, personalization and adaptivity, adaptive/responsive designs, and soft techniques such as interactive collaborative tools for knowledge building and teamwork. Other related research endeavors center on information systems, applications design and use, analysis and display.

Other TEKRI researchers are working on 3D SPACE and Second Life applications, virtual media labs, and the creation of virtual architecture studios. Some are also examining the possibilities provided by mobile applications in the workplace, such as their utility in smoking cessation programs and in gathering patient data at the bedside.

Linked also to TEKRI also is the work of a research cluster on health promotion that focuses on areas such as nutrition, physical activity, and living with chronic illness (e.g., diabetes; cancer) and the use of mobile technology in disseminating health information to the public. This is a growth area for Athabasca University and is closely related to the planned development of a Health Research Institute (HRI).

These initiatives provide fertile ground for research training of graduate students and help sustain and enhance Athabasca University's reputation as one of the foremost research centres in the broad areas of knowledge systems and digital technologies innovation. Its NSERC/iCORE/Xerox/Markin Industrial Research Chair in Adaptivity and Personalization in Informatics and Canada Research Chair in Semantic Technologies are expected to continue to make substantive contributions in this regard. Such initiatives also have direct benefits for other post-secondary institutions, by providing platforms for quality virtual learning environments for students in Alberta and beyond, and have the potential to generate partnership opportunities between the university and e-Industry to commercialize the products of such endeavors.

The *Athabasca River Basin Research Institute (ARBRI)* has adopted a whole systems approach to the river basin, with an emphasis on interdisciplinarity and intersectoral collaboration. Working with local communities, stakeholder post-secondary institutions and regional organizations, the Institute is a repository of information from the natural sciences, social sciences and humanities that provides a richer understanding of life in the basin for community members and researchers. Both internal and external researchers and community stakeholders have access to the extensive bibliographic databases that have been developed under the auspices of the Athabasca River Basin Research Institute (ARBRI). Other projects include those with the Aboriginal learning communities, funded by the Rural Alberta Development Fund and involving a Canada Research Chair in Indigenous Traditional Knowledge, Legal Orders and Laws; research on the aurora borealis, led by the former Canada Research Chair in Space Science, Instrumentation and Networking; and work on community capacity building, involving resource based communities and funded by the Alberta Rural Development Network. These endeavors, developed in



partnership with post-secondary institutions in the region and with our partners in northern Alberta, are helping to build research capacity and increase knowledge dissemination throughout the region and beyond. The previously mentioned Campus Alberta Innovation Program (CAIP) Chairs in Hydroecology and Environmental Health and in Computational Sustainability and Environmental Analytics will be integrated into the Athabasca River Basin Research Institute (ARBRI) and will add yet another dimension to this research.

Athabasca River Basin Research Institute (ARBRI) researchers come from across the academy and possess a broad range of expertise related to, for example, sociology (sustainable rural communities) and philosophy (ethical decision-making on environmental issues), workplace and community studies, business (leadership and entrepreneurship), science (aurora studies, remote data gathering, glaciation and water levels, and mathematical modeling) and Indigenous Studies (legal and traditional knowledge). The involvement of Indigenous researchers is particularly important since over 50% of Alberta's Aboriginal population lives in the northern half of the province. The Athabasca River Basin Research Institute (ARBRI) will support, and be supported by both existing and proposed graduate programs in Science, Applied Mathematics and Environmental Sciences, and Environmental Studies.

The *Project Management Research Institute (PMRI)* brings together local, national and international organizations, practitioners and researchers interested in project management research. Using the benefits of collaborative research to inform its purpose, it seeks to advance knowledge and promote knowledge sharing and community building across the sector, particularly as it relates to change management in projects. Its research is focused on generating and testing new project management concepts to examine the challenges in managing organization/project boundaries, infrastructure and mega projects, information and high intensity technology projects, and social system reform (e.g., health systems). The dissemination and application of knowledge of project management research to projects in other areas is a major contribution to the University's research priorities. Graduate students in business can, for example, take courses from PMRI researchers as part of their program and work on project management topics as their capstone research.

Proposed is the establishment of a *Health Research Institute (HRI)* at Athabasca University in the near future. Researchers from across the academy who share an interest in health, and the previously mentioned Alberta Innovates – Health Solutions Chair in eHealth Literacy and the recently appointed Canada Research Chair in Health Promotion and Chronic Disease Management, will together chart the future for this crucial addition to the university's network of research institutes.

The University provided initial seed funding to support the creation of the aforementioned Institutes and researchers affiliated with the institutes have been successful in obtaining additional internal and external funding to support their research endeavors. Proposals for the establishment of additional institutes are anticipated in the upcoming years.

Athabasca University has developed a clustered and networked research institute approach to delineating, at least in part, its research capacity and priorities. Not all researchers within the



university are formally affiliated with one of more of the Research Institutes however most share related areas of interest. In many cases, these researchers have chosen to pursue a disciplinary focus that extends beyond that of the existing institutes (e.g., business, education, health, language and literature, nursing) and thus contribute to the Athabasca University research agenda in a somewhat different, but nonetheless valued manner. Similarly, students' research endeavors may be more consistent with the latter. Thus, while the Research Institute framework provides for an emphasis on certain areas, it does not reflect the entirety of the research capacity of Athabasca University.

Strategic Research Supports

Success rates of Athabasca University researchers in securing competitive, external research grants and awards have increased steadily in the past five years. In addition to external sources of funding, internal research grants are also available to support, for example, pilot projects and/or the involvement of student research assistants in faculty research projects. Additional funds are available to support the dissemination of research at national and international conferences and to defray the costs of publication in open access journals. Seed funding is also available to assist researchers to take advantage of opportunities to engage in research partnerships and collaborations that arise outside normal grant application cycles. The university is mindful of the need to continue to assess the resource requirements of researchers and to systematically build a sustainable research enterprise that incorporates both internal and external funding sources.

The Athabasca University Research Centre provides assistance to researchers to facilitate the submission of grant applications and the financial management of awards acquired. Included among these services is financial monitoring and accounting, assistance with recruitment, hiring and remuneration of research-related personnel and the submission of required reports to research sponsors. The Research Centre also oversees the internal research ethics approval process for faculty and students and provides advice and assistance to researchers seeking ethical approval elsewhere.

The Athabasca University Capital Plan likewise supports institutional research activities through ongoing and planned expansion of the university's physical and information communication technology (ICT) infrastructure. The research impact of recent capital projects is evident in the creation of a new virtual media laboratory, supporting a variety of communications, social software, and media initiatives; the Science Lab expansion, which is of particular relevance to Athabasca River Basin Research Institute (ARBRI); and the Open Knowledge Environment project, a large ICT infrastructure project. These capital projects have advanced research effectiveness across all disciplines and have been essential in furthering the university's research agenda. The latter two projects received both federal and provincial funding. Fundamental to the ongoing development of digitally based research endeavors is sustaining funding of the university's IT infrastructure.

Research training opportunities exist for both undergraduate and graduate students and for postdoctoral fellows in the aforementioned areas of disciplinary and mission-critical research. The number of master's and doctoral programs that include a research requirement has increased over time and still others are proposed (e.g., PhDs in Information Systems and in Health



Disciplines; master's programs in Environmental Science, Environmental Studies, and Applied Mathematics). The research training opportunities embedded in these programs foster the development of highly qualified personnel, many of whom also have substantial professional experience and will contribute to increasing Canada's talent pool and research infrastructure, thereby enhancing Canada's productivity and global competitiveness.

Strategic Alignment with Provincial and National Priorities

Athabasca University's research foci and expertise are closely aligned with the target areas for the provincial Information and Communication Technology (ICT) Strategy, including analytics and visualisation, geomatics, wireless, informatics, collaboration tools, imaging, digital media, and process optimization. Discussions are underway with government and industry to explore growth in these and related sectors and thus address the need to further the knowledge-based economy. If Alberta is to lead the knowledge economy, it needs a research framework that promotes not only the creation of new technologies and applications across all sectors of the economy, but also fosters understanding, knowledge transfer, and implementation of such innovations across all sectors of society.

Economic diversification through research and innovation can best be realized if it includes investigations into the broad spectrum of knowledge creation, adaptation, dissemination, and acquisition, including, for example, the potential of analytics and visualisation for extracting and displaying information and the use of mobile devices for disseminating knowledge. As noted previously, Athabasca University currently has a Canada Research Chair in Semantic Technologies and an NSERC/iCORE/Xerox/Markin Industrial Research Chair in Adaptivity and Personalization in Informatics, both conducting leading internationally recognized research in these areas. The addition of the Alberta Innovates – Health Solutions Chair in eHealth Literacy and the recently appointed Canada Research Chair in Health Promotion and Chronic Disease Management will add yet further to the understanding of how health-related information can be generated, translated and transferred to end users using electronic means, including mobile devices.

The emergent knowledge-based economy is strongly interdisciplinary, involving not only economists, computer scientists, health professionals, and hard scientists, but also social scientists, arts professionals, and sociologists. As such, it is not only congruent with, but also has the potential to capitalize on the existing strengths of Athabasca University. As a world leader in technology enhanced knowledge research, Athabasca University is committed to working with government and industry to support this transformation.

Strategic Research Outcomes

The Athabasca University Strategic Research Plan 2012-2016 draws on earlier iterations of the Plan and on other planning documents, including the Strategic University Plan 2011-2016 and the Comprehensive University Plan 2014-2017.



Demonstrable outcomes of the Athabasca University Strategic Research Plan (2012-2016) will include increases in the number of

- research chairs, including endowed research chairs, and centres of excellence;
- collaborative research and knowledge transfer endeavors involving provincial, national and international partnerships;
- research grants and awards, including national grant awards;
- sponsored research, as a percentage of provincial grants;
- students involved in research as part of their academic development; and,
- refereed publications and presentations by faculty and students.

Attainment of these outcomes will serve to validate Athabasca University's progress in establishing a robust research culture that supports excellence in both disciplinary and mission-critical research and promotes the translation of research for the benefit of others.