



## **STRATEGIC RESEARCH PLAN**

### **Institutional Context**

Nipissing University is primarily an undergraduate university where research, scholarship, and creative pursuits are core activities. Since achieving independent degree-granting status in 1992 and AUCC accreditation in 1993, Nipissing has experienced remarkable growth. New programs continue to be added, and student numbers are increasing exponentially, as is the number of faculty. The addition of professional programs in criminal justice and nursing to those in education and business is an indication of our commitment to education that is responsive to societal needs. The extension of Nipissing's Charter in 2001 to include any and all degrees, and Nipissing University Strategic Plans (NUSP) 2005-2010 and 2010-2015, reflect a steadfast determination to enhance both our research capacity and our program offerings, with particular emphasis on achieving modest growth in the area of post-graduate studies. In short, Nipissing aspires to become a more comprehensive and widely-recognized university, which can better serve its students and its region.

A basic assumption is that the individual faculty members have the freedom to pursue their own research interests. Each institution must however establish a balance between diversity and focus. Small universities such as Nipissing do not have the physical and operating capacity or the human resources to support all forms of research. We must balance our aspirations for developing research excellence by differentially allocating resources to those areas where we can achieve excellence.

### **Objectives of the Strategic Research Plan**

The primary objectives of Nipissing University's SRP are:

- to provide the strategic directive to strengthen and support existing and emerging research, guiding Nipissing University into the future as a regional, national and international centre of research excellence in selected areas;
- to encourage and facilitate intra-, inter- and multidisciplinary research initiatives among the faculty and develop research clusters, centres based on strength;
- to further enhance the research training of all students, and, in particular, to continue our commitment to undergraduate research;
- to pursue collaboration and partnership with other regional, national or international communities, industries, institutions, and government agencies to develop research activities which are of relevance and value to our local communities and our region; and
- to attract and provide increased financial resources and infrastructure to foster research excellence and innovation in designated areas.

All of these research objectives are consistent with the main goals of the Nipissing University Strategic Plan (NUSP) 2010-2015: (i) to enhance our academic programs and research capacity; (ii) to enhance our student experience; (iii) to improve our learning resources and facilities; (iv)

to develop our people and structures; (v) to enhance our profile; and (vi) to build growth and viability.

## **Current Strengths and the Development of Research Capacity**

As a primarily undergraduate university, with strong roots in Education and in Liberal Arts and Sciences, Nipissing University is dedicated to supporting individual and collaborative research in all fields of faculty endeavor. That said, specific areas of research strength have emerged, with the development of collaborative research groups in areas such as: aging; mathematics; computer science; neuroscience; Aboriginal education; environmental science; and health. Multidisciplinary research interests include: gender and sexuality studies; postcolonial studies; criminal and social justice; international relations; cultural history; oral/community/public history; environmental studies; pedagogy and practice; and ethics and religion. As well, there is significant research activity at Nipissing which focuses on environmental, cultural, societal and educational issues specific to the Northeastern Ontario region.

Nipissing is committed to the proposition that undergraduate students can, and should, be involved in research. This is reflected in the fact that many of our programs include elective or required, individually-supervised research project or thesis courses. One outcome of this undergraduate research culture is that it is not unusual for honours students to have refereed publications and/or conference presentations by the time they graduate. Moreover, our top students often work with faculty as research assistants on externally- or internally-funded projects. Offering undergraduates these kinds of opportunities has meant that Nipissing's honours graduates enjoy an unusually high success rate, both in gaining acceptance into graduate programs elsewhere and in winning prestigious graduate scholarships and awards.

Likewise, Nipissing's graduate programs continues to grow and produce graduates who garner positions in industry, education sector, finance sector as well as pursuing Ph.D. degree. Currently, Nipissing has masters level programs in History, Mathematics and Education. New masters program in Environmental Studies and Environmental Science, and a Ph.D. program in Educational Sustainability will start in the Fall of 2012.

Nipissing University has made significant strides toward developing research capacity and training during the past decade. The expansion of our honours program offerings has led to the hiring of a significant number of new, young scholars with strong research programs. Through its annual Internal Research Grant (IRG) competition, the University endeavours to assist faculty and to seed projects which show promise for Tri-Council funding. In recent years, we have seen exponential growth in research grants from SSHRC, NSERC, CIHR, and other sources (see graph, page 3). In addition, \$1,407,659. in CFI and ORF funding has been received since 2005. Lab facilities for teaching and research have also been dramatically expanded and improved, as has access to online research materials. Since 2006, two Tier II CRC's, one in Environmental History and one in Environmental Science, have joined Nipissing University, which resulted in strengthening of our research capacity, and the development of masters program in Environmental Studies and Sciences.

Recognizing that time to successfully complete research projects is a critical factor, Nipissing has been providing a full-course release each year to all faculty members who hold NSERC

discovery and SSHRC standard research grants. Experience has shown that this practice pays great dividends, and we are committed to making it a formal University policy as part of faculty workload allocation and, where possible, to expanding it to recognize significant external grants from other sources.

Nipissing's research support infrastructure has also been strengthened considerably. Our research office has now a full-time director (2005) and expanded services in the areas of grants, scholarships, technology transfer activities and business partnerships (2006) and full time administrative support (2007). This enables us to provide full-service support, including grant application preparation, research accounts management, grant reporting, research dissemination and commercialization opportunities. In addition, Nipissing is a full participant in the Canadian Research Knowledge Network (CRKN) and Ontario's Scholars Portal, which give the university's researchers online access to the widest range of scholarly publishing.

With support from the University and external partners, a number of focused research institutes and centres have also been established, including: the Institute for Applied Social Research (IASR); the Northern Centre for Research on Aging and Communication (NCRAC); the Northern Canadian Centre for Research in Education and the Arts (NORCCREA) and the Nipissing University – Alcan Environmental Research Preserve (NUAERP). In addition, researchers in various departments set up labs, including Nipissing University Environmental History Lab (NUEHL) and Nipissing Watershed Analysis Centre, which are run by our CRCs. Recently, Nipissing invested in the expansion of our athletics facility. The expansion will include research facilities for Integrated Health Education Research. The building of these facilities are currently underway.

## **Research Themes**

As at any other primarily undergraduate institution, the scholarly interests and research activities at Nipissing University are rich and diverse. While all individual and collaborative research is encouraged and valued here, a number of particular themes have naturally emerged as strategic research directions. These are not intended to be mutually exclusive, and may already intersect to some degree. Furthermore, as trends in, and opportunities for, individual and collaborative research inevitably change, we expect that they will continue to evolve. The current themes are outlined briefly below.

### **Theme 1: “Near North” and Regional Studies**

In both its mission statement and strategic plan, Nipissing University recognizes its commitment and responsibility to conduct research in and of its region. Our teaching and research programs in both NSERC and SSHRC disciplines, including our professional programs in business and nursing, seek to contribute to the intellectual, cultural, and social history, the socio-economic development and well-being, the health and wellness, and the economic and environmental sustainability of Ontario's Near North. Nipissing University's researchers study the social, geographic, climatic, economic, entrepreneurial and imaginative particularities of the region as well as the features of provincial, national and international significance and correspondence.

Nipissing Researchers in disciplines as various as sociology, criminal justice, social welfare, Native studies, nursing, biology, psychology, education, geography, and history are addressing

the difficulties and challenges encountered by being located in a northern, rural society and economy. For instance, research on the social aspects of aging includes studies of family support systems among the elderly, transition to retirement, addiction and aging, impaired driving, care and management of older offenders, and fear and risk behaviours among older Canadians, paying particular attention to the role of locality and relying on regional institutions in their studies.

The Criminal Justice program's Institute for Applied Social Research (IASR) engages in applied research projects for government agencies, non-governmental social organizations and private business, often in association with criminal justice agencies such as the police, corrections and the courts. Some projects have a local focus. Others extend more broadly to the Ontario Region, and include a longitudinal study of neighbourhood policing in Hamilton, Ontario (with McMaster and York), a province-wide study of mental illness among provincial inmates (with the Ministry of Health and Long-Term Care and the Ministry of Community Safety and Correctional Services), and evaluation studies for the Intergovernmental Committee on Aboriginal Youth Suicide, the Ministry of the Attorney General, the Ontario Provincial Police and the Ministry of Training, Colleges and Universities (MTCU).

As well, with new research capacity achieved as a result of NSERC and CFI grants, Nipissing University researchers in health-related disciplines are actively pursuing opportunities to establish partnerships with regional health agencies, including the Northern Ontario School of Medicine.

In the SSHRC disciplines, the research theme of the Near North also finds expression. For example, SSHRC grant holders in the History Department have promote research and writing on the history of the communities in the Near North and have acknowledged expertise in community studies and oral history. Forward-looking objectives are to increase exchanges between university researchers and those in the community who work in museums, libraries, or as individual researchers; collecting documents, oral histories, and research tools for the study of this area and making them available to researchers. In 2008 the University has been awarded a CRC Tiers 2 in Environmental History of Canadian communities and regions, which builds on existing strengths and provides a bridge between ongoing research in the departments of Geography and History. Environmental history is a relatively new field of study which goes beyond traditional examinations of land and resources use, settlement and the transformation of the landscape, to ask questions about the changing way in which humans perceive nature in relation to environmental change. Nipissing University is well poised to assume a leadership role in this field of study with research in Aboriginal, environmental, oral, community, and public history, as well as regional land use and resource planning, local and community historical geography, biogeography, and environmental quality.

In English Studies, research is being conducted on the representation of the North, as well as on regionalism and identity not only in Northern Ontario literatures, but also in Canadian, Western Canadian and Caribbean/postcolonial literatures, and Scottish and African diasporic traditions. Another interdisciplinary area which has emerged recently, is Digital Humanities. English and Computer Science Disciplines are collaborating in developing courses and research programs in Digital Humanities.

## **Theme 2: Natural Sciences and the Environment**

Nipissing University's research capacity in the area of natural sciences and the environment has recently undergone extensive growth both in terms of operation and infrastructure. A major increase in funding from the Natural Sciences and Engineering Research Council and the Canada Foundation for Innovation have allowed scientists from the departments of Biology, Geography and Geology, and Psychology to form a consolidated, multidisciplinary research cluster that has shown considerable potential for growth and graduate program development. This cluster capitalizes on Nipissing's geographic location amid vast tracts of pristine natural environments and on expertise in areas that range from molecular genetics to large-scale spatial analysis.

New state-of-the-art research infrastructure, including the Central Analytical Facility, geomatics laboratory, satellite imaging laboratory, auditory processing laboratory, animal and plant housing facilities, advanced microscopy and imaging facilities, and a remote field station, supports research comprising two complementary conceptualizations of environment: studies of the environment *per se*, and studies of environmental effects on organisms.

Studies of the environment involve two unique approaches. The first, driven by research in psychology, includes research on auditory perception by aging humans in noisy environments, effects of social environment on neurological processes, and environmental effects on neurological determinants of learning. The second approach is based in environmental earth science, and includes research dealing with spatial studies of the geomorphic, hydrologic and biotic environment. Studies of environmental effects on organisms, with an emphasis on environmental stresses, focus on neurobiological and behavioural consequences in animals, physiological consequences in plants, and the implications for large-scale ecological processes.

In 2008 an NOHFC-FedNor Forest Bioproducts Research Chair was awarded to Nipissing University. An expert in the response of trees to environmental stresses is working to develop an ecologically-based inventory of the Boreal forest of northeastern Ontario and to supply management tools for the bioresources sector of trees and understory plants.

Our second Tier II CRC, awarded in 2010 is in Environmental Science, specifically in the area of Watershed Analysis. The addition of the CRC to our research in Environment related disciplines has strengthen and increased our research capacity. Hence the development of a graduate program in Environmental Studies and Environmental Science and Watershed Analysis Centre, and Geomatics Lab provide the foundation on which to build focused graduate programming and research programs around environmental themes relevant to regional, national, and international interests, and research training opportunities for students interested in communication science, from intracellular signal transduction to spoken language in humans, and spatial analysis of the natural environment. For instance some of our researchers obtained funding through NOHFC to improve agricultural productivity in Northern Ontario using earth observing satellites and remote sensing.

## **Theme 3: Culture, Gender, and Subjectivity**

Nipissing University is committed to building on its research and teaching strength in foundational disciplines of cultural studies, social history and literary criticism. Cutting across departments and programs, Nipissing University scholars have had remarkable success at

securing SSHRC funding, by way of example, for research projects and in developing undergraduate programs in the broadly defined area of culture, gender, and subjectivity, a thematic focus which recognizes the centrality of interdisciplinarity to innovative research in the humanities and social sciences. Culture, gender, and subjectivity focuses on culture as an object of historical, critical and theoretical study, as well as a dynamic context for understanding how identities, beliefs, and lives are shaped. Researchers in this cluster generally work independently rather than in teams, but their research benefits from a critical mass of scholars, cross- and interdisciplinary discussion and consultation, and the close relationships among faculty research, undergraduate course development and prospective graduate programming.

Research areas include North American studies, Aboriginal studies, collaborative studies, gender theory/history, pedagogical theory, critical cultural theory, and studies in visual culture. More specifically, our scholars are pursuing research projects on the intersections of ethics and politics; queer theory and theatre history; science, literature and gender; class and genre; religion and sexuality; and oral, community and public history. Other research interests involve intercultural relations, inter-arts collaboration, international relations, and the motive forces in social change. Several of the disciplines under this theme have taken steps to plan colloquia and visiting scholar series as a way of fostering research on campus.

Recognizing the considerable recent investment in the NSERC disciplines, in the form of lab facilities and equipment, Nipissing University is now in the process of developing the infrastructure necessary for the support of SSHRC-based research. In particular, those in the humanities and social sciences await the anticipated strategic investment in a stand-alone library facility and archive.

#### **Theme 4: Education Research and Innovation**

Nipissing's Faculty of Education has a long and proud tradition dating back to the North Bay Normal School, founded in 1909. Offering both consecutive and concurrent B.Ed. programs, a Bachelor of Physical and Health Education degree, a broad range of additional qualification courses, and a full-time and part-time M.Ed. program, the Faculty of Education is presently the second largest in Ontario. Not surprisingly, the Faculty has become a regional centre for education research.

A continued focus of research across the Faculty is learning and teaching technology in the information society, as it relates to both the potential and challenges of information and other digital technologies. Specifically, the innovative use of notebook computers and educational software in our BEd programs provides a unique opportunity to conduct research on computer-mediated programs. Research areas include: distributed learning; adaptive technologies; technological and pedagogical issues; design and mediation; and the impact of technologies on marginalized communities.

A new research emphasis deals with at-risk students, including a focus on students identified as at-risk within the school system, but also incorporating the entire educational mosaic within the region. To this end, in 2005 Nipissing University launched *Biidaaban* (the Ojibwe for "dawn"), a major 5-year project which will see community service learning become a cornerstone of the Nipissing University experience. In recognition of our efforts to link with the community, the J. W. McConnell Family Foundation is providing most of the funding for this 1.3 million dollar

project. Commencing with a pilot project involving students in the Faculty of Education's Special Education/Education Psychology course, *Biidaaban* will expand to include all BED students as well as students across many Arts & Science disciplines, who will work with numerous community and Aboriginal groups to define and complete a wide range of service learning experiences, many of which will concentrate on improving the literacy and numeracy skills of students of all ages. In addition, the Ministry of Education has identified the at-risk student as a priority, and announced substantial research funding for which a number of Education researchers are submitting proposals.

Finally, the Faculty of Education has received in 2002 an endowed Chair from Dr. Elizabeth Thorne. The mandate of this Chair is the enhancement of literacy, which will further support the research thrust. In 2008 the Chair has been awarded to an internationally renowned educator and author. His world expertise on childhood literacy will help create a center of excellence connecting the language arts faculty professors with school districts throughout Ontario.

A third sub-theme on First Nations education will involve the development of a research centre offering First Nations a voice for their educational aspirations and providing the infrastructure to identify and conduct research related to culture. These research activities will provide a forum for collaborative studies involving both the First Nations and the research community at Nipissing University. Specifically, the Faculty of Education is partnering with the First Nations Statistical Institute (created by an Act of Parliament in March 2005), the Union of Ontario Indians, the North Bay Indian Friendship Centre and the Nipissing First Nation.

### **Theme 5: Mathematical Sciences and Information Technology**

Nipissing University is already internationally recognized for its topology research cluster. Members of the cluster, all of whom hold NSERC awards, are studying general and geometric topology, functional analysis, dimension theory, continuum theory and dynamical systems. Currently, the group's collaborators include mathematicians from the Czech Republic, Japan, Mexico, Poland, Russia, South Africa, the Ukraine and USA, many of whom visit Nipissing annually to attend our spring workshops. During each of the past six years, the department has also hosted a visiting topology scholar, to further stimulate research activity. Future aspirations include adding computational topology capability and developing a second research cluster area.

On a related note, there are presently two primary international topology conferences held annually: the Spring Topology and Dynamics Conference and the Summer Conference on General Topology and Its Applications. In 1997, Nipissing became the first university in Canada to host the (12<sup>th</sup>) Summer Conference, with more than 150 participants from around the world. Since then, Nipissing University and Auburn University have collaborated to publish *Topology Proceedings*, a refereed journal dedicated to the proceedings of these two important conferences.

Other Nipissing faculty members are conducting wide-ranging research across a broad spectrum of IT-related and quantitative fields of inquiry. Research areas in computer science and computational disciplines include computational geometry, graph theory, optimization, image recognition, neural networks, robotics and role-based collaborative systems. In our School of Business and Economics, there is research on the use and impact of IT in buyer-supplier relationships, as well as quantitative research on applied multivariate modeling. As well, Nipissing's geographers focus on spatial data acquisition, analysis, and database management for urban and rural environments, using GIS, remote sensing, and spatial modeling, areas which also overlap with the second theme, above. Many of these

researchers are also involved in international collaborations, and most hold SSHRC, NSERC or other external grants and awards. Together with our topologists, this group puts Nipissing in a strong position to develop research excellence in spatial analysis and the study of large data sets.

## **Theme 6: Health and Wellness Studies**

During the last decade, Nipissing University introduced programs in Nursing and Physical and Health Education. This resulted in the hiring of new faculty, which in turn enhanced Nipissing University's research capacity in Health. In particular, the Physical and Health Education program, housed in the Schulich School of Education, has grown fast. One of the consequences of this growth is the investment in the expansion of our athletic facility and in research space for integrated health education. Phase I of this expansion is about to be completed, and Phase II, which is the building of the research facility, is expected to be completed in fall 2012. The facility will provide a central place for researchers who can be clustered under the areas of Exercise Physiology, Biomechanics, Modeling, Neurocognitive Function, Sport-Related Concussion, Youth Development and Physical Activity, Physical Activity and Health Promotion, Learning and Psychology of Physical Activity, Physical Activity and Cancer. This list shows part of the spectrum of research on health-related topics. In addition, the departments of Sociology and Psychology house researchers working on aging and health-related problems. The Behavioral Health Sciences Lab, the Northern Centre for Research on Aging and Communication, and Health Informatics for Palliative Care support researchers working in different areas related to the quality of life and well-being. Our faculty are engaged in research on topics such as: child development and family; the Canadian health care system; social gerontology; the sociology of health, illness & mental disorder; and social determinants of health. Faculty in our school of nursing are working in areas such as: qualitative expertise (grounded theory and ethnography, photography); quantitative methodologies including epidemiology, environment and women's health and subjective well-being; breast cancer screening and re-screening; pandemic flu preparedness; nursing history; and palliative care/nursing issues. In addition, some researchers in the School of Business recently started working on issues related to health. Because the topic of health is inter- and multi-disciplinary, it needs to be mentioned that medical imaging, and applications of service systems technology in health care, are also areas in which some of our computer scientists are engaged in solving problems.

## **CRC Selection, Recruitment, Support and Retention**

Nipissing has established the following procedure for selecting the Canada Research Chairs. In the first phase of the process, a CRC Definition Committee is created to review proposals and identify CRC allocated to the University. Evaluation guidelines and criteria are set and announced, and proposals from departments are assessed on their individual merit, regardless of the Tri-Council category. The Definition Committee then recommended the CRC proposals to the President for nomination. In the second phase of the process, the University Research Council (a standing Senate committee) establishes a sub-committee to review and update the SRP. The new plan is subsequently circulated to all faculty members for comment before being presented to Senate for approval. During the third phase of the process, the President's Review Committee (PRC) reviews and approves the CRC nominations prior to their submission.



Nipissing has been successful in nominating two Tier 2 CRC, each directly supporting one of our aforementioned themes. One CRC has brought to Nipissing a leading scholar in Environmental History, while the second CRC went to an outstanding external candidate in the field of Watershed Analysis and Modeling. Either of these areas supports existing clusters of research, both related to Environmental Studies. Nipissing's research group in watershed spans two departments, and already has strong research credentials and some impressive facilities, so this CRC have much to attract Postdoctoral Fellows, graduate students and collaborators.

Due to the increase in external research funding over recent years, Nipissing has been allocated in 2009 one more Tier 2 CRC. We will seek to allocate that Chair to support areas of research identified within the new SRP.

Following the completion of 2005 Nipissing University Strategic Plan, the creation of an academic master plan for the University took place, and one major thrust of which was the identification and implementation of full-time graduate programs. Consequently, a new M.A. in History with four research fields started in September 2008, a M.Sc. in Mathematics started in September 2009, and the full-time Masters in Education is now offered at the Brantford campus. In addition, the University is waiting for the approval of three graduate programs, MA in Environmental Studies and MSc in Environmental Studies, and Ph.D. in Educational Sustainability by the Ministry of Training, Colleges and Universities of Ontario. Development of a new graduate program in the School of Physical Health and Education is currently underway. Introducing graduate programs at Nipissing not only did much to assist in recruiting and retaining CRC and other research Chairs, but has also ensure that any future faculty searches attract promising research-oriented candidates. Certainly, we do everything we could to support our research Chairs, including appropriate teaching release, research infrastructure support, partnership development, and support for dissemination and, where possible, commercialization of their research. Since 2007, we have allocated to each new Research Chair a Post-doctoral Fellowship to ensure that the Chairs are provided with a quick and strong support at the start of their research activities.

Finally, as an equal opportunity employer, Nipissing encourages applicants for any position from all recognized minority groups. In particular, the University is committed to gender equality in faculty hiring practices and will continue that commitment when pursuing and filling its CRC and other research Chair opportunities.

## **Review and Evaluation of the SRP and Chairs**

The President's Review Committee (PRC) will assess Nipissing's progress in meeting the objectives of the Strategic Research Plan, including the impact of our CRC appointments on research. This will be achieved through an annual review of research reports from the departments and CRC-holders or other Chairs.

Measures considered when evaluating our success in meeting the objectives of the SRP will include:

- Rates of publications and other scholarly contributions by faculty and students
- Success with research funding programs

- Development of graduate programs
- Evidence of success in training HQP
- Recruitment and retention of researchers
- Improvements in research infrastructure
- Research collaborations
- Partnerships with the private sector
- Research contracts, transfer of technology and commercialization

## **Looking Ahead**

Nipissing University is a determined and committed institution, with a history of setting ambitious goals and persisting until these are achieved. Noteworthy examples to date are:

- Nipissing's Charter itself, granted in 1992 after a 10-year campaign against considerable odds
- Our impressive growth in enrolment and program offerings in the years since the Charter, despite the significant challenges posed by geographical isolation and our high proportion of unfunded students
- The exponential growth in scholarly productivity and research funding since 2000, in spite of the University's limited ability to provide research infrastructure and support.

Nipissing has now set its sights for the next 5-10 years by taking its past research successes to the next level, a strategy which entails: (i) the establishment of more Research Chairs; (ii) the continued enhancement of research space, equipment and infrastructure (including support for dissemination, partnership development, technology transfer and commercialization); (iii) the development and introduction of more full-time graduate programs in targeted areas that will be defined by the next Strategic Research Plan; and (iv) the annual evaluation of the progress achieved against the objectives of the SRP. Certainly, our CRC positions and any future CRC will be maintained by the University as their terms expire.