Research and creation are the heart and soul of a university. They inform who we are and why we do what we do as teachers, scholars, students, support staff, and administrators.

Continuing to build TRU’s research profile is seen as crucial not only to student recruitment and engagement, faculty progression and renewal, and the development of new graduate programs, but also to our university’s local, regional, national and international reputation.
Strategic Research Plan 2014-2019

Thompson Rivers University Research Makes a Difference

To our local community: A partnership with the Kamloops Innovation Centre fosters opportunities for TRU faculty and students to engage in applied research. Partnerships with New Gold Mine, Kinder Morgan, Interior Health, Highland Valley Copper Mine, and other industrial groups reflect heightened connections with industry in our region, while TRU’s strength in community-engaged research is seen in partnerships with the City of Kamloops, the Kamloops Art Gallery, the United Way and other non-profit organizations.

To our regional community: Research at TRU has an impact on the BC interior and across the province through projects that look at optimization and decision science; ranching sustainability practices; grassland environments; reclamation, remediation, and ecosystem restoration; community and cultural development; Indigenous health and education; mountain tourism and experience creation; internationalization, research on skills and workforce training, the scholarship of teaching, and many other areas.

To our national and international communities: TRU’s national and international research impact can be seen in projects that range from the study of HIV/AIDS in rural Canada to the study of access to justice in international dispute settlement. In addition, TRU hosts multiple conferences each year, welcoming researchers from across Canada and, in many cases, from around the world.

Institutional Context

Thompson Rivers University (TRU) was established March 31st, 2005 by legislation of the Thompson Rivers University Act, recognizing its achievements since its founding in 1970 as Cariboo College, and throughout its history as University College of the Cariboo beginning in 1989. Because of the size, structure and evolution of TRU, the institution is able to approach research in ways that are unique and distinct from the larger and older universities of British Columbia and Canada. TRU—a comprehensive university including trades and technology programs, an Open Learning division, along with more traditional academic and professional programs—takes a broad view of research to include scholarly activity, the production of creative works, and other endeavours that result in knowledge creation and mobilization, that improve pedagogical activity, the production of creative works, and other endeavours that

While research excellence is found across disciplines and departments, TRU has developed particularly strong traditions in several areas:

- Undergraduate research and inquiry-based learning, supported through programs such as the Undergraduate Student Research Experience Award program (UREAP) and demonstrated by events such as the Undergraduate Research and Undergraduate Philosophy, History and Politics conferences
- A tradition of community-engaged scholarship
- Research leadership exemplified by TRU’s Canada Research Chairs, endowed research chairs, and British Columbia Innovation Chairs
- The integration of research and scholarship with teaching and learning
- Research centres that act as hubs for research activity
TRU Strategic Research Plan

**Major Objectives**

- Be inclusive of individual research programs, recognizing the importance of intellectual freedom for researchers to pursue their interests and passions without undue constraints and interference, and valuing the research results from individual endeavours, while providing an instrument for encouraging collaboration institutionally and externally.
- Support and build upon existing and emerging research strengths where TRU is well-positioned to develop national and international leadership, and make a real difference to the world, both in terms of providing excellent opportunities for attracting and training the best students, and through the application of research in ways that improve quality of life for all.
- Reinforce and facilitate TRU’s role and leadership in the linking of research to community social, cultural, scientific, educational, technological and economic development.
- Facilitate the development of partnerships with communities, scholars, non-profits, cultural organizations, industries, institutions, government ministries and agencies for pursuing mutual objectives.
- Provide a map for establishing and supporting research centres, research leadership chairs, collaborative research facilities, and graduate programs of the highest caliber.
- Ensure effective knowledge mobilization, including support for faculty and student publication, dissemination, knowledge translation, technology transfer, commercialization, and application of research results.

Our process includes a commitment to understand and explain our research to community social, cultural, scientific, educational, and technological development and to contribute and apply new knowledge. Toward this end, TRU is committed to increasing research capacity, to promoting research and the dissemination of research, to providing access to research resources, to enhancing start up funds for new faculty, to increasing graduate student research scholarships and assistantships; providing support for conferences and conference travel, for research workshops, for grant facilitation, and for current and emerging research centres; and investing in the university’s research infrastructure.

Excelling as a university requires that faculty and their students participate in the excitement of research, and are encouraged and given the environment to explore, contribute and apply new knowledge. Toward this end, TRU is committed to increasing research capacity, to promoting research and the dissemination of research, to providing access to research resources, to enhancing start up funds for new faculty, to increasing undergraduate research scholarships, to establishing integrated interdisciplinary graduate programs, and to developing national and international collaborations for research and graduate studies.

### Planning and approval process

The Strategic Research Plan is the result of a two-year consultation process — which included faculty and student surveys, departmental consultations, faculty and community meetings, a series of focus group meetings with research stakeholder groups, three town halls, and a review of the research themes by the Academic Planning and Priorities Committee of Senate and Provost’s Council — is the second to be approved by Senate as a recommendation to the Board. The Senate Research Committee and the Associate Vice-President, Research and Graduate Students oversee the implementation of the plan.

### Institutional Support

TRU has identified research as one of five strategic priorities and undertakes a strong commitment to research, providing faculty and students with the infrastructure and administrative systems to undertake competitive research programs. Institutional support includes facilitating funding for major equipment purchases and infrastructure, institutional research grants, endowment funds and internal funds for research leadership chairs; securing matching funds for major infrastructure projects and grants; increasing allocation of new research space and graduate student meeting space; providing professional development funds, internal seed funds and faculty release time for research and enhanced student research training; providing undergraduate research scholarships and assistantships; providing support for conferences and conference travel, for research workshops, for grant facilitation, and for current and emerging research centres; and investing in the university’s research infrastructure.

A clear path to success

Some of the steps we will take to build the research culture and achieve these major objectives include:

- Increasing the profile of faculty and student research success
- Consulting regularly with the university research community
- Supporting the closer integration of research with teaching
- Increasing faculty and student research space
- Increasing the number of research leadership chairs
- Increasing support for research conferences, workshops, and outreach events
- Developing capacity for knowledge transfer, consultation and commercialization
- Developing partnerships with communities, scholars, non-profits, cultural organizations, industries, institutions, government ministries and agencies for pursuing mutual objectives
- Fostering a research culture through the establishment of indicators of a successful research culture
- Building research capacity through the allocation of new research space and graduate student meeting space
- Promoting research and the dissemination of research through the provision of research resources
- Supporting the enhancement of research infrastructure through the provision of funding for major equipment purchases and infrastructure
- Enhancing the profile of research leadership chairs through the establishment of research leadership chairs and collaborative research facilities
- Investing in the university’s research infrastructure through the allocation of funds for major infrastructure projects and grants
- Providing support for conferences and conference travel, for research workshops, for grant facilitation, and for current and emerging research centres
- Developing national and international collaborations for research and graduate studies

TRU Strategic Research Plan 2014-2019

Strategic Research Plan 2014-2019

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### Assessment of Outcomes

Key measures of success include increases or expansion of activities in the following areas:

- Number and percentage of active tri-partite faculty holding external funding (contract and grant)
- Total dollar amount of Tri-Agency grants and external contracts
- Total dollar amount of external grants and contracts supporting student research training
- Number of students involved in supervised research projects
- Number of students enrolled in research-based graduate programs
- Research space as a percentage of total available university academic space
- Number of internal research workshops, presentations and dialogues designed to support the development of research capacity annually
- Dollars committed to internal grant awards to support faculty
- Number of peer-reviewed publications, scholarly works and exhibitions as a percentage of total tri-partite faculty
- Number of TRU-hosted, peer-reviewed journals
- Number of papers presented at regional, national and international conferences by research faculty and students
- Number of completed student undergraduate research experience projects
- Dollars leveraged from collaborative partnerships with industry, business and community groups

### Strategic Research Areas

While TRU encourages research in all disciplines, the university has identified one overarching theme that encompasses all areas and reflects the overall research strengths of TRU, and five key areas of collaborative excellence or emerging strength.

Sustainable development, taken in its broadest sense to include social, cultural, economic and environmental sustainability, emerges as the overarching research theme that encompasses all of the research themes identified in TRU’s original Strategic Research Plan of 2005, and those that have emerged since as described in this current plan.

The mission statement of the TRU Strategic Priorities (2014-2019) describes TRU as a, “comprehensive, learner-centred, environmentally responsible institution that serves its regional, national, and international learners and their communities through high quality and flexible education, training, research and scholarship.”

The Plan rehearses the University’s research mandate and a commitment to open access to knowledge creation, including providing our communities access to a research informed education and providing our communities access to the benefits of scholarly research and creative activities to solve community problems and enrich community life.” Five specific priorities are identified: increasing student success; increasing intercultural understanding, prioritizing diversity, inclusion and intercultural understanding between our Aboriginal, local, regional and global communities; increasing research capacity, prioritizing “the development and mobilization of scholarship”; increasing entrepreneurial capacity, prioritizing “collaboration and social enterprise”; and increasing economic, cultural, social, creative, and environmental sustainability.


In accord with both the University’s Strategic Priorities and the Academic Plan, the Strategic Research Plan’s research themes support (1) disciplinary based and curiosity driven research; (2) the application of particular interdisciplinary and multidisciplinary investigations that foster new knowledge and socially responsible development; (3) the integration of research and scholarship with teaching and learning; (4) an embracing of intercultural and indigenous perspectives and experiences; (5) a spirit of scholarly and entrepreneurial inquiry leading to new discoveries, products, policies, solutions and practices that are sustainable over the long term; (6) a commitment to collaboration and community participation in innovation, invention and commercialization; (7) an openness to community-based and community-driven research agendas; and (8) the scholarly pursuit of ideas, interpretations, inventions, creative works, processes, and solutions that improve the quality of life for all. Research developments in the humanities and social sciences, in science and technology, in education and the health sciences, and in trades and open learning are pointing to sustainable environments, cultures, and economies that require the kind of cross-cultural communication, critical problem solving, and healthy communities informing all of the following five research themes.
Strategic Research Plan 2014-2019

Education, Health and Diversity

Areas of Research Activity Include:
- Biomedical informatics
- Connections between immigrants and health
- Cross-border pedagogy
- Educational leadership
- Early childhood education
- Early language and literacy enrichment
- Education economics
- English as a second language
- Health economics
- Inclusive educational practices
- Innovative and experiential learning
- Intercultural and global learning
- Nursing education
- Perception, cognition and emotion regulation
- Prior learning assessment and recognition (PLAR)
- Public and economic policy
- Respiratory health
- STEM education
- Sleep science
- Spirituality and healing in health care
- Telehealth
- Traditional language preservation
- Wellness
- Workforce development

Themes in Context
Challenges relating to health and wellness of communities are being addressed by researchers from the Schools of Nursing, Social Work and Human Service, Education, Tourism, and the Faculties of Science and Arts. Expertise includes the socio-economic factors as determinants of health, bioinformatics and fuzzy logic for prediction of health, respiratory therapy and sleep disorders and associated medical technologies, community hospice, community-based addictions research, international social work, maternal and child health and related social and economic factors, aging research, recreational safety, community facilities that support health and wellness, improvements to outcomes of workforce training, correctional facilities, community mapping and access to social services, food safety and security, and optimization related to community services, early intervention studies, health policy and management, and best practices leading to the recruitment and retention of health practitioners. TRU researchers routinely engage in collaborative efforts outside the university, including strong collaborations with Aboriginal Communities, health agencies and other community partners, government ministries, school districts and private industry. TRU has an established clinic in sleep disorder, breathing, and respiratory therapy involving TRU faculty and students, a sleep specialist doctor, and private industry support. Other significant research facilities include IT facilities for health optimization and informatics, geospatial modeling, and collaborative facilities with hospitals, private clinics and community organizations. In support of this effort, and sensitive to questions of diversity and inclusion, TRU has (1) created an endowed BC Regional Innovation Chair in Aboriginal Maternal and Child Health; and (2) allocated a Tier II Canada Research Chair in Education.

Institutional Resources Include:
- BC Innovation Chair in Aboriginal Maternal and Child Health
- Canada Research Chair in Education
- Centre for Respiratory Health and Sleep Science
- Prior Learning International Research Centre
- Centre for Student Engagement and Learning Innovation
- Master of Education program
- Under development: Master of Science in Nursing
- Intercultural Development Inventory
- International Journal of Leadership in Learning
- Annual Language, Culture and Community Conference
- Annual Sleep Science Conference
- Prior Learning International Research Centre

Community and Cultural Engagement

Areas of Research Activity
- Creative inquiry
- Culture in small cities
- Economic development
- Entrepreneurship, business and finance
- Experience Creation
- Experience studies
- Human rights and justice on local and international levels
- Immigrant experience
- Immigration to small cities
- Knowledge and Ethics
- Mountain environments
- Organizational culture
- Small city and rural development
- Sense of place
- Social change
- Tourism and adventure
- Understanding charitable giving
- Wilderness and northern experience

Themes in Context
The small cities and the surrounding complexes of land, resources and decision-making bodies, comprising much of Canada’s diverse landscape, have an urgent requirement to develop sustainable solutions to a number of economic, social, cultural, and environmental drivers. Small cities in the BC Interior region, and similar regions throughout Canada, are in transition, facing numerous challenges including stagnant or declining economies and population bases. While some communities are experiencing growth fuelled by out-migration from larger centres and development of particular sectors such as tourism and recreation, the sustainability of the drivers remains in question. In either case, communities are challenged to minimize environmental impact while improving quality of life. To address these issues, TRU has developed strong collaborative interdisciplinary and multidisciplinary research focusing on sustainable community and cultural engagement.

The theme of sustainable small cities overlaps, influences, and intersects with much of the research and creative production of faculty members in many of the Arts disciplines where there is a focus on cultural interpretation and creative practice. Studies in culture and creative arts are especially important when scholars are increasingly challenged to test and refine disciplinary boundaries by exploring non-traditional subjects and critical approaches. This line of inquiry questions the meaning and location of text, authorship, audience engagement, and authority; examines issues of identity formation and performativity; and pushes research to become more creative and collaborative in describing, interpreting, and transforming society. TRU’s research strength involves ongoing work in the areas of Anthropology, Economics, Education, English, Geography, History, Journalism, Law, Media Studies, Philosophy, Psychology, Political Science, Social Work, Sociology, Tourism, and the Visual and Performing Arts, resulting in a number of major publications, numerous articles and papers, as well as exhibitions and performances, many with national and international exposure.

This area of inquiry is supported by two previous Community-University Research Alliance grants on small cities studies, by a SSHRC-funded Centre for Community and Cultural Engagement, by a Masters of Tourism in Experience Studies, and by a proposed Masters in Small Cities Community and Culture. Together these initiatives facilitate investigations into public understanding and public policy around issues of community, culture, tourism, place promotion, experience studies, cultural planning, cultural mapping, power, politics, social justice and advocacy, quality of life, and cultural diversity. In support of this research, TRU has dedicated two Tier II Canada Research Chairs, one in Tourism in Experience Studies, and one in Community and Cultural Engagement.

Institutional Resources Include:
- Alliance for Mountain Environments
- Canada Research Chair in Arts (currently vacant)
- Canada Research Chair in Tourism Experience Studies (coming 2015)
- Master of Tourism in Experience Studies program (coming 2015)
- Under development: Master of Arts in Small Cities Community and Culture
- Small Cities Imprint
- Small Cities Community-University Research Alliance
- Textual Studies in Canada
- Walking Lab: A Centre for the Examination of Walking, Health and the Civic Landscape
- Pedagogy of Place Research Group
- Centre for Community and Cultural Engagement
Sustainability, Environment and the Physical World

Areas of Research Activity Include:
- Aboriginal knowledge and the environment
- Agriculture
- Bioactive substances
- Biodiversity
- Botany and plant ecology
- Cattle industry sustainability
- Climate change impacts
- Climate change policy
- Cost benefit analysis and project valuation
- Ecosystem restoration
- Economic sustainability
- Environmental economics
- Environmental sustainability
- Food systems
- Grassland conservation
- Hydrology and water management
- Land reclamation and restoration
- Organic and environmental chemistry
- Remote sensing of environmental systems
- Sustainable communities
- Urban agriculture
- Vertebrate ecology and evolution

Institutional Resources Include:
- Analytical Research Lab
- Centre for Community and Ecosystem Ecology
- BC Regional Innovation Chair in Cattle Industry Sustainability
- Master of Science in Environmental Science program
- Master of Science in Economic Sustainable Management (MScESM) (proposed)
- Northcote and Brinks Professorship
- Kamloops Water Treatment Centre
- Community and Ecosystem Ecology Centre
- Wells Gray Education and Research Centre
- Bioproducts Research Centre

Themes in Context

TRU is located in the semi-arid BC Interior in a region dominated by montane forest and grassland ecosystems that are important reservoirs of biodiversity. These ecosystems are under considerable pressure to be developed for resource extraction, agriculture and recreational use. In the BC Interior these communities are further challenged by global climate change, the pine beetle epidemic, volatility of resource-based industries, urban encroachment, and changing economic drivers. Because these complex issues tend to elude traditional, discipline-based structures, TRU has developed strong collaborative trans-disciplinary research focusing on biodiversity, conservation ecology, grassland ecosystems, watersheds and fresh and saline water systems, and environmental monitoring. Collaborators are from the disciplines of Natural Resource Sciences, Biological Sciences, Chemistry, Geography, English, Fine Arts, Economics, Sociology, History, and Mathematics and Statistics, along with contributors from private, community, and government organizations.

TRU researchers in biology, chemistry, geography and physics have considerable expertise and analytical facilities for the development of bio-products, pharmaceuticals and nutraceuticals, addressing issues relating to water quality and management, and expertise with applications to bioproducts, bioremediation, and food and beverage products.

In support of this research, TRU, and for a 10-year period (2004–2014), dedicated a Tier II Canada Research Chair to community and ecosystem ecology. The legacy of this work includes new research initiatives in genomics, ecosystem restoration, and precision ranching. TRU supported facilities include a 2,000 ft² greenhouse ecosystem simulation and laboratory, and extensive field research with community partners on questions of environmental sustainability, land reclamation and restoration, biodiversity, hydrology, and other areas focusing on the environment and the physical world. An endowed chair, the Northcote and Brinks Professorship, continues to support research excellence in the area of Grassland Ecology, Freshwater Ecology and Conservation in British Columbia.

Technology and Optimization

Areas of Research Activity Include:
- Biomedical informatics
- Data mining
- Data visualization
- Decisions under uncertainty
- Discrete mathematics
- Fuzzy logic
- Networks
- Nonlinear optimization
- Optimization
- Remote sensing
- Virtual environments
- Wireless sensor networks

Institutional Resources Include:
- 3D printing capability
- BCNet and CANARIE network memberships
- Canada Research Chair in Optimization and Applied Mathematics (coming 2015)
- Centre for Optimization and Decision Science

Themes in Context

Applications of advanced technologies profoundly influence the way people work, live, communicate, and access information. TRU has developed expertise in soft computing, discrete mathematics and statistics, optimization and industrial automation. Active research involves faculty from Computing Science, Mathematics and Statistics, and Trades and Technology, and collaborations with other disciplines at TRU as well as public and private sector organizations. In the area of computing, a research group in evolutionary computing is investigating the design of evolutionary, self-organizing, real-time systems in robotics with a focus on nanosystems. Other areas include: discovering algorithms for machine learning or training on neural networks and fuzzy neural networks; digital speech processing and numerical computation; handoff mechanisms to support multimedia services in wireless communications; ethernet passive optical networks (EPON); and internet multicast algorithms, and directional routing algorithms over virtual networks.

TRU research strengths also lie in the areas of Discrete Mathematics and Statistics, especially in Combinatorics and Optimization. This research—which has wide applications in network liability, communication efficiency, quality control, enterprise scheduling and software design—including developing mathematical programming models of natural systems and human impacts on natural systems, and bioinformatics.

In support of this research area, TRU has dedicated a Tier II Canada Research Chair to Applied Mathematics and Optimization.
Aboriginal Understanding

Areas of Research Activity Include:

- Aboriginal cultural identity
- Aboriginal education
- Aboriginal health
- Aboriginal law
- Aboriginal maternal and child health
- Aboriginal nursing education
- Aboriginal storytelling, literature and theatre
- Aboriginal tourism
- Aboriginal workforce mentoring
- Culturally safe health care
- Early childhood development in Aboriginal communities
- Indigenous dementia care
- Indigenous–settler relations
- Intellectual property and indigenous knowledge
- Mental health in Aboriginal communities
- Traditional knowledge and ways of knowing

Institutional Resources Include:

- BC Regional Innovation Chair in Maternal and Child Health
- Aboriginal Services team
- Annual Interior Forum on Aboriginal Research
- Proposed: Centre for Aboriginal Research

Themes in Context

Woven throughout TRU’s strategic themes is an awareness of the importance of place, relationships with community and, in particular, a mandate for awareness, appreciation, and cooperation with Aboriginal communities. TRU maintains strong links to these communities, with its main campus in Kamloops, a secondary campus at Williams Lake, and a number of satellite campuses located in communities throughout the BC Interior: the Kamloops campus is situated in Tk’emlúps territory; the Williams Lake campus is situated in the Tsewecemc; the 100 Mile House regional centre is situated in Tsq’escenemic; the Ashcroft regional centre is situated in the Ashcroft First Nation, belonging to the Nlaka’pamux Nation; the Barriere and Clearwater regional centres are situated in Simpcw territory; and the Lillooet regional centre is situated in the St’át’imc Nation, which includes Bridge River (Nkwet’en), Pavilion (Ts’kw’aylacw), Cayoose Creek (Sekw’el’was), Mt. Currie (Li’lwat), Seaton Lake (Chalath), Lillooet (T’it’q’et), Fountain (Xáiš)ip, Anderson Lake (N’quatqua), Douglas (Xʔa’xtsa), Skatin and Samahquam.

Because of its size, structure, and evolution, TRU is uniquely situated to cultivate relationships that encourage community involvement and facilitate community-based and community-driven research. These strengths are already realized through strong reciprocal relationships that have been established between the institution and a preponderance of Aboriginal groups and bands, including the Shuswap Nation Tribal Council, the Secwepemc Cultural and Education Society, the Secwepemc Health Caucus, the Northern Shuswap Tribal Council, Q’wemtsín Health Society, and the Aboriginal Friendship Society.

While recognizing that research on and employing Aboriginal Understanding has implications for all areas of scholarship, TRU has made the strategic decision to identify it as a priority area for capacity building and knowledge mobilization. The University has received national and provincial recognition and funding for its work on the preservation and promotion of Aboriginal language, culture, and history; on establishing protocols for the ownership of cultural knowledge; and on how traditional knowledge and practice have been found to enhance biodiversity and ensure environmentally, socially, culturally, and economically sustainable development. TRU’s researchers are exploring questions of territorial authority, Aboriginal tourism, workforce mentoring, Aboriginal languages and literature, dementia care, and culturally safe health. In support of this area, TRU has created an endowed BC Innovation Chair, has committed to an annual Interior Research Forum on Aboriginal issues, and is working toward the establishment of a Centre for Aboriginal Research. In addition, the University recognizes the importance of increasing its complement of Indigenous scholars—to strengthen the credibility and capacity of this research theme.