



# Summary of Research Excellence Strategies

(January 2021)

The University of British Columbia (UBC) is one of the world's top 40 research universities, recognized for its research excellence, and for the impact of this research on local, national and global communities. Our research has a profound impact on several areas of society. Continued success requires both disciplinary depth and collaboration within and across disciplines and communities. It demands the creation of new knowledge and its accelerated translation into action. Continued success also necessitates resources for research services that enable researchers to achieve excellence in a highly competitive landscape. Research might lead to spinoffs that take advantage of technological developments, but impact is also to be found in projects that lead to social innovations, that inform our understanding of history, or that enrich our world through creative works.

## UBC's Strategic Plans

We acknowledge that UBC's two main campuses are located on the traditional, ancestral and unceded territories of the  $x^w m \text{ə} \theta k^w \text{ə} y' \text{ə} m$  (Musqueam) and Syilx (Okanagan) peoples. UBC's activities take place on Indigenous lands throughout British Columbia and beyond.

UBC's strategic plan for 2018-2028, [Shaping UBC's Next Century](#), renews its commitments to addressing the history of how Canadian institutions have failed and oppressed Indigenous people, and charting a path to productive co-existence and a more equitable future. Working in tandem with the University's strategic plan, UBC's [Indigenous Strategic Plan](#) commits to implementing the United Nations Declaration on the Rights of Indigenous Peoples and sets ambitious goals and actions to advance the vision of becoming a leading university globally in the implementation of Indigenous peoples' human rights. UBC is committed, as part of this plan, to support research initiatives that are reciprocal, community-led, legitimize Indigenous ways of knowing and promote Indigenous peoples' self-determination. UBC's core commitments to Indigenous Peoples, as stated in both strategic plans, are being pursued across multiple areas of research and scholarship.

UBC's disciplinary strengths span the physical sciences, engineering, health, life sciences, arts, humanities and social sciences. UBC recognizes that meeting the ambitious vision of the strategic plan, to inspire people, ideas and actions for a better world, requires investments in these disciplines while enabling interdisciplinary research that focuses on problems of societal importance. Taking this bold step forward requires building a diverse culture that integrate themes of collaboration, inclusion and innovation, infusing these themes through all activities. To enable research excellence, the plan focuses on five distinct strategies:

1. Collaborative clusters: Enable interdisciplinary clusters of research excellence in pursuit of societal impact
2. Research support: Strengthen shared infrastructure and resources to support research excellence
3. Student research: Broaden access to, and enhance, student research experiences
4. Knowledge exchange: Improve the ecosystem that supports the translation of research into action
5. Research culture: Foster a strong and diverse research culture that embraces the highest standards of integrity, collegiality and service



## Strategies for Research Excellence

UBC is amongst the world's leading universities for disciplinary research across many fields. Our research has had a profound impact on several areas of society, from groundbreaking work on how infants acquire language to enabling personalized oncogenomics. Addressing local and global challenges—such as climate change; the largest human migrations of the last half century; and the societal shifts associated with increased automation—requires both disciplinary depth and collaboration within and across disciplines and communities. It demands the creation of new knowledge and its accelerated translation into action through interactions with external partners. It also necessitates resources for research services that enable investigators to achieve excellence in a highly competitive landscape.

UBC researchers are willing and able to address these challenges, having already demonstrated their capacity for impact in many domains—such as the influential work of the BC Centre for Excellence in HIV/AIDS in establishing the global standard of care that helped curb the intensification of the HIV/AIDS pandemic. Through our strategic research plan, UBC is creating environments that enable our researchers to optimize their contributions, harnessing disciplinary excellence and multidisciplinary collaborations to address problems of significance to British Columbia and the world. UBC also supports knowledge exchange beyond the academy; we are establishing new public scholarship and innovation pathways, ranging from changes in practice and policy to entrepreneurship and commercialization.

### Collaborative Clusters

UBC is investing in and supporting emerging and established research clusters – interdisciplinary networks of researchers with a common focus on solving key challenges facing society that transcend the traditional boundaries associated with departments, institutions, and funding agencies. We are supporting clusters on both the Vancouver and Okanagan campuses, with the topic areas of these clusters spanning health, environmental science, physical science, social sciences, humanities and the creative and performing arts ([see online](#)). These clusters enable researchers to have more significant impact than would otherwise be possible by individual researchers. UBC's research clusters have already enhanced collaborations in areas such as green infrastructure, quantum computing, and global challenges to democracy. UBC Health is facilitating collaboration in cross-cutting health research, including Indigenous health, mental health and diabetes. Public Humanities Hubs are exploring new ways for humanities scholars to collaborate and to develop and highlight public-facing research in the Humanities on both campuses. Interdisciplinary clusters and hubs provide researchers with the support needed to collaborate internally across UBC and externally with local and global partners. A key component of this strategy is enhanced research funding to attract postdoctoral fellows and faculty in order to strengthen our impact through these clusters.

Excellent interdisciplinary research requires outstanding disciplinary strength. UBC's current allocation of 205 Canada Research Chairs (CRC's) enables the attraction and retention of world-class researchers and scholars into areas aligned with the strategic plans of 18 UBC Faculties. These strategic plans describe areas of growth defined by the Faculties, often articulating with collaborative clusters investigating interdisciplinary problems. To support these researchers and scholars in making major discoveries and generating major new insights, UBC is committed to providing a climate of effective collaboration, administrative and technical support, and access to world class infrastructure.



UBC recognizes its most established, world-leading clusters as Global Research Excellence (GREx) institutes. The university has recognized two such institutes, the Stewart Blusson Quantum Matter Institute and the BioProducts Institute. Additional information on existing GREx institutes can be found [online](#).

## Research Support

UBC supports researchers across the university through enhanced core facilities, spaces and services. These are imperative if researchers are to work effectively and productively. Global-leading research in many disciplines requires sophisticated equipment that depends on significant technical expertise to build and run. By creating state-of-the-art capabilities, such as the Sequencing + Bioinformatics Consortium for gene sequencing, we provide facilities, training and advice for both UBC and external partners. We are also increasing support to help researchers engage with communities and access scholarly resources. For example, the pilot Indigenous Research Support Initiative offers support and services for Indigenous communities and researchers engaging in collaborative research. Digital technologies are transforming work across the academy, evident in the creation and evolution of an online database of religious history that is changing how historical traditions are studied. UBC is enhancing access to digital research infrastructure in many areas of scholarship through advanced computing resources, such as the Advanced Research Computing (ARC) platform, technical and scientific support for research data management, data science, and local capacity for researchers to address data access challenges. Plant Care Services provides an essential shared platform for greenhouse and scientific field experiments, offering expert advice for experimental design and plant cultivation, a facility for joint academic and industry projects, and an opportunity for training and guidance that is impacting research in areas ranging from food security to botanical pharmacology. Infectious disease and epidemiological work at UBC benefits from the Facility for Infectious Disease and Epidemic Research (FINDER), a level-three containment facility that provides health researchers with access to custom-designed self-contained microbiology suites, expert advice on safety and research planning, and training opportunities for biosafety work.

## Student Research

Fundamental to infusing new ideas into research, and increasing the diversity of voices involved in research, is the engagement of students. UBC is expanding opportunities for undergraduates to gain first-hand experience in research, and is strengthening research experiences for graduate students and postdoctoral fellows. Engagement in research builds in students the ability to apply their learning, create new knowledge and utilize research skills. UBC is developing mechanisms to improve matches of undergraduate students to relevant research projects across the university, and to provide them with the appropriate support, building on the success of such initiatives as the student-run Undergraduate Research Opportunities and Undergraduate Research Awards programs at UBC Vancouver and UBC Okanagan, respectively. We are facilitating broadened research pathways for graduate students and postdoctoral fellows, improving their mentorship and supervision, and creating opportunities for them to provide mentorship to others. These experiences provide a firm foundation in skills and expertise for future careers, whether in academia or beyond. Success in this strategy demands an institutional culture that promotes collaboration, inclusion and innovation. We are creating an environment that enables such interactions across the university.

## Knowledge Exchange

We champion innovation, and research plays a starring role. From influential publications that push the boundaries of knowledge to new inventions with commercial applications, and from discoveries that influence public policy to new developments in medical practice—UBC is a catalyst for positive social and economic



change. Many researchers are keen to find pathways for innovation. They want to engage with users of research and wider communities to exchange ideas, knowledge and evidence for societal impact. UBC is enhancing existing pathways, including those that facilitate entrepreneurship and commercialization. To our current innovation ecosystem, we are adding sector specialists in disciplines such as life sciences to help form collaborations with organizations and individuals beyond the academy that enable the translation of knowledge into policies and practice. UBC boasts 1,300+ industry research collaborations annually, and UBC spin-off companies and licensed technologies have played a key role in advancing BC's technology, natural resources, and life sciences sectors. UBC is committed to generating knowledge that creates a lasting impact on society. These impacts may be in the form of new products, services and companies; improved health outcomes; or contributions to public debate, culture and policy.

Bold thinking and innovative ideas don't happen in isolation. UBC recognizes its responsibility to make academic knowledge more accessible, understandable and actionable. The university strives to be a unique, engaged partner in collaborative research programs and in the sharing of research outputs that enrich the lives of local and global communities. Creation of the UBC Knowledge Exchange Unit is helping to build capacity among researchers, students and staff across disciplines to develop and share impactful knowledge through connections and exchange with communities, government, not-for-profit organizations and the general public.

Collaboration with organizations that help play a translational role, such as adMare BioInnovations (formerly, the Centre for Drug Research & Development), co-located in Vancouver within the Faculty of Pharmaceutical Sciences, are integral to our efforts. As we develop better support functions and connections across these multiple pathways, we continue to experiment with ways of communicating knowledge so that it is more accessible to a range of communities, from citizens to decision-makers.

## Research Culture

Research culture comprises the beliefs, expectations and actions of our researchers, including how they select and carry out research projects; review the efforts of peer researchers; mentor and assist colleagues near and far; engage with external research partners; and influentially disseminate discoveries. UBC is further developing the principles and practices that define a collaborative and inclusive research culture and that support mentorship, scholarship, discovery and creativity. Addressing the problems facing society requires the contributions of all, and we are encouraging diversity in perspective and approach. UBC is enabling a research culture that interacts in positive and respectful ways with Indigenous people and Indigenous knowledge, and that welcomes the participation of members of other historically excluded groups. Their integrity and vibrancy are integral to UBC's future success.

A key component to building a more inclusive and equitable research culture is UBC's involvement in the Dimensions: equity, diversity and inclusion Canada pilot program. As one of 17 post-secondary institutions participating in the Dimensions pilot, UBC is committed to adopting sound equity, diversity and inclusion (EDI)-informed analyses, policies and practices that improve the attraction and retention of qualified researchers and other staff and students, strengthen research outputs, and increase the overall excellence of research. In addition, UBC has been recognized twice by the Tri-agency Institutional Programs Secretariat for exemplary equity and diversity practices in recruiting Canada Research Chairs (CRCs). UBC's Commitment to Equity, Diversity and Inclusion within the CRC Program is reflected in its [CRC Equity, Diversity and Inclusion Action Plan](#).



## Canada Research Chairs

### Canada Research Chair Deployment

UBC's Canada Research Chair program is essential to its strength as a top research university. Chairholders improve our depth of knowledge and quality of life, strengthen Canada's international competitiveness, and help train the next generation of highly skilled people through student supervision, teaching and the coordination of other researchers' work. UBC's current utilization is 199 chairs (see Table 1). The university's chairs currently span 11 Faculties and Schools at UBC Vancouver and 7 at UBC Okanagan (see Table 2).

Table 1. Chair Allocation by Tri-Agency Pool\*

Area of Research	Tier 1	Tier 2	Total
CIHR	36	49	85
NSERC	29	44	73
SSHRC	14	27	40
<b>Total</b>	<b>79</b>	<b>120</b>	<b>199</b>

\*As of March 2021

Table 2. Chair Allocation by Faculty\*

Faculty	Tier 1	Tier 2	Total
Applied Science	6	14	20
Arts	9	20	29
Dentistry	2	1	3
Education	3	4	7
Forestry	1	5	6
Land & Food Systems	1	4	5
Peter A. Allard School of Law	1	3	4
Medicine	29	25	54
Pharmaceutical Sciences	1	4	5
Sauder School of Business	2	1	3
Science	23	28	51
Joint Chairs <sup>1</sup>	1	2	3
UBC Okanagan	0	9	9
Unassigned <sup>2</sup>	0	0	0
<b>Total</b>	<b>79</b>	<b>120</b>	<b>199</b>

\*As of March 2021

### Commitment to Equity, Diversity & Inclusion in the CRC Program

UBC has a robust strategy for raising awareness of our commitment to and the benefits of equity, diversity and inclusion within the Canada Research Chair Program and our broader research enterprise. With an allocation of over 200 Canada Research Chairs, UBC has developed an Equity, Diversity and Inclusion Action Plan (EDIAP) to ensure greater transparency in the allocation, selection, and renewal processes for chairholders from members of the four designed equity groups – women, Indigenous Peoples, persons with disabilities, and visible minorities/members of groups that are racially categorized. The EDIAP includes impactful equity, diversity, and

<sup>1</sup> Chair allocation shared by two or more Faculties: 1 Science-Medicine (Tier 1); 2 Arts/Science (Tier 2); 1 Arts/Applied Science/Land & Food Systems (Tier 2).

<sup>2</sup> Chairs included in the UBC allocation, but have not yet been assigned to a Faculty, and currently held by the Office of the Provost & Vice-President Academic.



inclusion objectives to address any inequalities that are currently experienced by individuals. These objectives include the following:

1. **Recruitment:** UBC's Canada Research Chairs are recruited through an open and transparent process, making use of evidence-based strategies to ensure applicants are representative of the diversity of researchers available within and outside of UBC. UBC utilizes a special program from the Human Rights Commission of BC to help target individuals from the four federally designated groups.
2. **Representation:** UBC's Canada Research Chairs are representative of the diversity of talented researchers available within and outside of UBC at both Tier 1 and Tier 2, with CRCs awarded to excellent researchers among designated equity groups at rates equal to or above the available workforce. As an institution committed to exceeding the requirements of employment equity, where possible, we include individuals who have been traditionally under-represented within higher education, particularly those at the intersections of different designated equity-deserving groups.
3. **Success:** In alignment with [UBC's Strategic Plan 2018-2028: Shaping UBC's Next Century](#), UBC's Canada Research Chairs are able to collaborate and innovate with their peers while feeling supported and included in a diverse culture of research excellence.

## Inter-institutional and Inter-sectoral Collaborations

UBC prioritizes and supports collaborations that benefit the world and our partners—as well as create value at UBC—and foster new alliances in areas of shared, strategic importance.

UBC has partnership agreements with more than 300 universities, institutions and organizations in more than 50 countries that contribute to beneficial research, learning, and engagement in a myriad of fields. We are leveraging UBC's location and diversity to further strengthen our Pacific Rim engagement, enhancing our capacity for regional and international influence and contributing to social cohesion more broadly.

With UBC's two campuses and many learning and research sites—and through the strength of our connections across the province and beyond—UBC is well positioned to cultivate collaborative efforts. Examples include the Language Sciences Initiative (which considers the uniquely human phenomenon of language across multiple disciplines); the Okanagan Institute for Biodiversity, Resilience and Ecosystem Services (BRAES) (which brings together faculty members and students across departments working in ecology, biodiversity, conservation and environmental sustainability); the Stewart Blusson Quantum Matter Institute (which seeks to understand and develop new quantum materials through international collaborations with such partners as the University of Tokyo and the Max Planck Society); and the Pacific Institute for the Mathematical Sciences (PIMS) (which promotes research and education in the mathematical sciences across ten universities).

These efforts demonstrate the extraordinary value of collaboration in our academic endeavours. Each has succeeded in creating the conditions required to coalesce people, ideas and actions, even where these have challenged institutional and personal norms. We work hard to remove barriers and, where appropriate, establish mechanisms to encourage further and sustained collaboration—internally and with off-campus partners such as Indigenous communities. The role of 'catalysts' or champions in helping establish these new practices continue to be important.



## Measures of Success

While most within the academy have some understanding of what excellence means, it is a great challenge to define excellence in a manner that is applicable across all domains, and to create unbiased ways of measuring it.

It is broadly accepted that one of the most important measures of excellence is peer review, or the opinion of other researchers about a given body of work. This is the basis for most academic publishing, for the awarding of most research funding, and for assessments such as the Research Assessment Exercise (RAE) that is conducted in the UK every seven years. Because peer review is complex, surrogate measures are often used, such as: funding levels, bibliometric analysis (citations, etc.), external awards and prizes to researchers, invitations to present at prestigious conferences, fellowship in prestigious societies, international collaborations, and service on important committees and boards.

Rankings of universities often use a mixture of peer review and these other measures in combination; the *Times Higher Education* rankings is an example. UBC tracks its progress in these aggregate measures. While such metrics are valid for much of the research effort, they neglect to measure possible research *impacts*, such as informing public policy decisions, improving health care, or developing new areas of economic activity. These impacts should also be considered when defining what makes excellent research as there are many areas of research where the impact is more important than scholarly publications. UBC is also tracking its success in research areas by considering impacts that mobilize knowledge into action and by considering the education of students in multiple degree programs. By excelling at research, UBC ensures that it provides our students with the most relevant and cutting-edge knowledge and training.

## Planning and Approval Process

The process to develop *Shaping UBC's Next Century* aligned with [UBC's engagement principles](#), which ensure clarity and transparency in how we define, design, implement and conclude public engagement in our planning processes. The principles were created through consultation with a wide range of partners including campus stakeholders, student government and Indigenous community partners.

Deans, the Executive and other university leaders further explored the draft priorities, and articulated them within an overarching framework, reflecting UBC's core mandate of excellence in learning and research. They then developed a draft vision statement that sought to capture the aspiration, intent and pride woven into the responses received through consultation.

Representative working groups were established to provide recommendations to the steering committee, deans and the Executive to form the basis of the draft strategic plan. Faculty, staff, students and alumni were invited to join in a further dialogue around the emerging plan via open houses and an online survey.

The Provost and Vice-President, Academic, UBC Vancouver and Vice-President, Research and Innovation, together with Okanagan senior leadership, worked closely with the President in the final stages. Along with the support of the steering committee and the university community, they worked to keep strategies achievable and relevant for UBC now and into the future.