FACULTY RESEARCH

UBC plays a leadership role among global post-secondary institutions that focus on researching, developing, and demonstrating sustainable practices. With over 500 faculty across two main campuses investigating sustainability, our goal is to excel across the spectrum of fundamental and applied research. The following examples of groups and projects are just a small selection from an incredible breadth of work across the university.

Campus as a Living Lab Expands at Both Campuses

A collaborative framework for researchers, students, staff, community and external partners to use UBC campuses to explore, develop and test new ideas that address urgent global sustainability challenges.

This year a Grand Challenge competition across both campuses provided $600k—more funding than ever before—to support UBC's Climate Emergency Response.

The successful projects were:

- Bioenergy from Commercial-Municipal Organic Waste: $250K
- Resilience Hubs for UBC Campus Communities: $250K
- Smart Fire Detection Systems to Improve Wildfire Resilience of UBC Okanagan Campus: $100K

In addition, at UBC Okanagan, the following projects received a total of $100k in seed funding through an annual competition:

- Clean UBC Okanagan's Air through Wall-mount Air Filtering Devices
- Improve the Efficiency of the Energy System for the Campus's Legacy Academic Buildings

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$700K

in Campus as a Living Lab funding distributed to new projects

VANCOUVER
OKANAGAN

10

Research Excellence Clusters addressing sustainability and climate action

OKANAGAN

506

faculty researching sustainability

VANCOUVER

164

faculty researching sustainability

OKANAGAN

Centre for Sustainable Food Systems Launches New Strategic Plan

Uniquely positioned to connect the resources and expertise at UBC with networks of farmers, policymakers, and local and Indigenous communities.

The Centre for Sustainable Food Systems' new strategic plan focuses on achieving a vision of resilient, thriving, and socially just food systems for all through four impact goals.

- Improve Regional Food Security
- Adapt to and mitigate climate change
- Enhance biodiversity
- Decolonize our approach

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Roots Are Taking Shape for UBC Okanagan's Indigenous Micro-Forest

New space will serve as a focal point for learning about Indigenous culture and language. UBC OKANAGAN

FACULTY RESEARCH: FEATURED GROUPS

Living with Wildfire in the BC Southern Interior Research Cluster

Team members with expertise in visual art history, wildfire imagery, spatial ecology and mapping, sustainability, cultural and philosophical analysis and biodiversity are collaborating with Indigenous partners to address the wildfire challenge in the BC Interior. UBC OKANAGAN

Advanced Wildfire Research Could Save Billions, Protect Vital Power Supply

Improved wildfire prediction models and better data access needed to mitigate or prevent future wildfire. UBC OKANAGAN

Solar Energy for Net Zero Research Excellence Cluster

A team of interdisciplinary researchers collaborating to develop solutions to harness, convert and store the sun's abundant energy. UBC OKANAGAN

Okanagan Institute for Biodiversity, Resilience & Ecosystem Services (BRAES)

Over 30 researchers working in ecology, biodiversity, conservation and environmental sustainability. UBC OKANAGAN

West Campus Lands

Land-based research and conservation initiatives grounded in sustainable practices and Syilx Okanagan knowledge to protect agricultural values and the unique saline ecosystem around Robert Lake. UBC OKANAGAN

New Smart Infrastructure and Construction Research Cluster

A diverse team of experts from material and structural engineering, robotics, computer science, construction management, and infrastructure. UBC VANCOUVER

Canadian Foundation for Innovation Supports New 'Materials for Net-Zero' Research Group

Advancing the hydrogen economy, reducing and converting carbon dioxide into useful products, and efficient batteries and materials for electrification. UBC VANCOUVER

"Food insecurity, can affect all levels of society. In undeveloped regions, war or political instability might disrupt agricultural operations or supply systems. While in richer nations, rising grocery prices or local crop failures due to climate change can compromise general access and availability."

— Dr. Pratap-Singh, Director of the Food and Beverage Innovation Centre

Food and Beverage Innovation Centre

Collaboration between Faculty of Land and Food Systems, industry, and government to tackle complex food security challenges; features collaboration with Musqueam on the sustainability of traditional foods and medicines. UBC VANCOUVER

Merida Labs Launches Hydrogen Spin-off Venture VulcanX

Breakthrough pilot to produce hydrogen from natural gas with no CO_2 emissions now being scaled up through a start-up overseen by the lab. UBC VANCOUVER

New Centre for Climate and Business Solutions at Sauder School of Business

Hub for climate-focused business education and research, featuring small-medium enterprize climate clinics and industry partnerships. UBC VANCOUVER

FACULTY RESEARCH: FEATURED PROJECTS

How Can We Co-construct a Mutualistic City, a Future Vancouver That Supports People and Nature?

Cities are at the frontlines of the ecological crisis: urban and surrounding green spaces are shrinking, which comes at a cost for non-human nature and for more than half of the world's people, who rely on such spaces for emotional, spiritual, and physical benefits. To address this, a trio of graduate students supervised by Dr. Kai Chan at UBC's Institute for Resources, Environment and Sustainability are working with the City of Vancouver, via support from a first-of-its-kind collaborative fellowship with the UBC Public Scholars Initiative. UBC VANCOUVER

"We designed and piloted a workshop aimed to include multiple ways of knowing and types of expertise into urban biodiversity planning for the City of Vancouver."

— Jo Fitzgibbons (PhD), supervised by Dr. Kai Chan, professor in the Institute for Resources, Environment and Sustainability

UBC Sauder's SME Climate Clinic Supports Businesses to Achieve Climate Goals

Exemplifies the school's commitment to bridging academic research with practical business applications. The Clinic partners students with SMEs, providing tools for identifying and reducing their carbon emissions. This initiative not only translates academic expertise into actionable environmental solutions, but also offers tangible support to SMEs that lack the necessary resources. At the same time, students gain practical, hands-on skills in carbon accounting and sustainability metrics, preparing them to champion climate action and lead change. UBC VANCOUVER

Sowing the Seeds for Resilient Production Systems

Dr. Riseman's latest research aims to redesign intensive multi-trophic production systems—envisaging a system that reunites plant and animal production. UBC VANCOUVER

Studying Pollinators on the Frontline of Resiliency

Many of the world's smallest and most vulnerable critters are on the frontlines of some of our biggest and most pressing resiliency challenges. UBC VANCOUVER

Drought Solutions for Producers Start Small

Understanding and addressing agriculture's biggest climate change challenges starts at the microscopic level for Dr. Thorsten Knipfer. UBC VANCOUVER

Battery Innovation Research Excellence Cluster

New funding will empower UBC researchers to advance battery innovation in the province. UBC OKANAGAN

Climate Change Engineers Harness the Power of Green Infrastructure to Manage Stormwater

Climate change and varying rainfall patterns require more resilient ways to retain and use stormwater. UBC OKANAGAN

FACULTY RESEARCH: FEATURED PROJECTS

New UBC Research Facility Accelerates Innovation in BC's Hydrogen Energy Sector

B.C.'s hydrogen infrastructure entered a new era with the launch of the $23-million Smart Hydrogen Energy District (SHED) at UBC. Equipped with a hydrogen fueling station, this facility is expected to pave the way for breakthroughs in critical energy research. SHED will produce hydrogen using solar and hydro power to operate a water electrolyser, making the process completely green and renewable. It is one of the first initiatives in Canada to combine hydro, solar and hydrogen energy at a single site, connecting these renewable energy sources to a unified micro-grid. UBC VANCOUVER

"Using macroalgae percent cover as an indicator of local human disturbance may lead scientists to misidentify the reefs most in need of interventions."

— Dr. Sara Cannon, postdoctoral research fellow, Centre for Indigenous Fisheries.

Macroalgae Tell Complex Tale About Coral Reef Health

For decades, scientists have used macroalgae cover as a proxy for the health of underlying coral reefs; it is quicker and easier to measure. The assumption since the 1970s has been that local human impacts lead to increased growth of macroalgae, and—simultaneously—more reef damage. However, this approach has been misleading and may even have hidden signs of reef stress, according to lead author Dr. Sara Cannon, postdoctoral research fellow at the Centre for Indigenous Fisheries, who recently completed her PhD in the Department of Geography. A new large-scale study is one of the first to evaluate the impact of human activity on a wide range of macroalgae, and provides compelling evidence that scientists need to move towards a more localized understanding of coral reef health. UBC VANCOUVER

Research Shows How Healthy Plants Help Rivers Meander UBC OKANAGAN

Preserving and Restoring Okanagan Syilx Plants and Endangered Regional Seeds UBC OKANAGAN

The Carbon Flux of Life

Professors Cindy Prescott and Sue Grayston in the Faculty of Forestry have identified a previously underestimated carbon flux between trees and soils that has implications for forest operations and long-term ecosystem health. UBC VANCOUVER

An Equitable World Can Have Sustainable Fashion, Art and Wine

In the vibrant worlds of art, fashion and wine, sustainability is no longer a mere trend but a fundamental necessity for cultivating a globally conscious and responsible marketplace. UBC OKANAGAN

Climate, Housing, and Compounding Health Vulnerabilities for Senior Tenants

Dr. Liv Yoon and her team in the Faculty of Education have been awarded new funding for research in climate change adaptation and mitigation. UBC VANCOUVER

Grasslands Key to Burrowing Owl Expansion Amid Climate Change

New research underlines the urgent need to prioritize the conservation of grasslands across western North America. UBC OKANAGAN

With the Planet Facing a 'Polycrisis', Biodiversity Researchers Uncover Major Knowledge Gaps

Dr. Jonathan Davies, Faculty of Science, highlights need for studies investigating the mechanisms linking infectious disease spread, biodiversity loss and climate change. UBC VANCOUVER