



Cultivating **Place**

An Academic Plan for
Applied Sustainability on
South Campus and Beyond

Prepared by the
South Campus
Academic Planning Committee

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Introduction

In a world straining under the weight of human development, UBC has a unique opportunity and a responsibility to model the kind of sustainable communities that we all must urgently adopt. UBC has the resources, both physical and intellectual, to find ways for people and nature to thrive together – indefinitely. If humans on the global scale are to reduce our footprint, support the ecosystems that nourish us, and make room for that which is wild, good and sustaining in the natural world, we first have to learn how to do so in microcosm. That microcosm is rooted in the UBC Farm¹.

An Academic Plan

This Academic Plan is a visionary document. It is not simply a word map to enhance a particular patch of land, but rather, an ambitious plan to weave a culture of sustainability, rooted in stewardship of place, into the intellectual and physical fabric of the University. The idea is not merely to bring more of UBC’s intellectual resources to the productive fields and forests of South Campus. It is to cultivate a *Place of Mind*: to plant, nurture and harvest the elements of integrated social, economic and ecological sustainability in every aspect of what we do, in our fields, our labs, our classrooms, and our extended communities².

The plan rises naturally from the year 2000 initiative to reinvent the UBC Farm, a living laboratory that we are fortunate to have retained from the days when agriculture, one of UBC’s first faculties, was also one of its principal pursuits. This document, from the South Campus Academic Planning Committee, updates and expands that vision. It also integrates with UBC’s Sustainability Academic Strategy and, honouring our place on traditional Musqueam territory, UBC’s Aboriginal Strategic Plan. Finally, *Cultivating Place* arises from the UBC Board of Governors’ December 2008 directive to develop an “academically rigorous and globally significant” plan for the 24-ha area on South Campus addressing issues of sustainability. This document aims to provide a vision for academic programming that uses this 24-ha site to its fullest. There is no better time to be shaping the future of this unique asset. The UBC Farm and its surrounding areas on South Campus provide UBC with both a head start and a distinct advantage in meeting its commitments and aspirations to be a world leader in sustainability.

In the short term, this is a five-year work plan that will ensure that our land-based assets have the academic, social, and cultural integration – and the high-level support – necessary to reach their full potential. In the longer term, this plan will serve as a sustainability guarantee embedded in the integration of land, laboratories, and life at UBC. As academic and social needs continue to drive development in and around the physical Farm, this document will serve as a touchstone that ensures development always occurs in a way that preserves and improves the quality and capacity

¹ “UBC Farm” and the “Farm” (uppercase) are used throughout this plan to refer both to (i) a place, bounded by the 24-ha designated academic reserve land on South Campus and (ii) the Centre for Sustainable Food Systems, an academic centre within the Faculty of Land and Food Systems that has been primarily responsible for the delivery of academic programming that is directly linked to activities at the physical UBC Farm. The “Centre for Sustainable Food Systems” name has not been used extensively in this document, as there is recognition from the committee that the Centre’s name could be expanded to encompass the breadth of activity associated with the Farm.

² This explicit aim to expand the scope of South Campus’ academic programs is captured in the term “Cultivating Place.” This plan, its call to action, and the initiatives that stem from its recommendations will be referred to throughout this document as *Cultivating Place* (italics).

of the land, and the integrity and viability of the ecological systems and social networks embedded within and around it. This will provide ongoing and far-reaching opportunities for cutting-edge sustainability learning, research, and innovation.

Committee, Consultation, and Process

Cultivating Place was prepared by a 12-member south campus academic planning (SCAP) committee, established at the direction of UBC Provost David Farrar in April 2009. Representing eight UBC Faculties, the committee met every 2 weeks through the summer of 2009 to develop this plan. In a parallel process, a committee co-chair sat as a member of the sustainability academic strategy working group (SAS-WG) to maintain strong links between the two planning processes. The SCAP co-chairs collected and reviewed nearly a decade of formal and informal planning and consultation work focused on the UBC Farm, including student theses, internal vision documents and program strategic plans, external academic reviews, public feedback from consultation during the various campus planning processes, technical studies, and the substantial body of work created as part of a large public design and visioning workshop held in November 2008. Once the committee began meeting in April, further feedback was collected and reflected through the SAS community consultations, comment boards at public and student events, and through online comments on specific sections of the draft plan. During the month of August 2009, a draft version of the plan was shared with selected stakeholders for further comment. The committee aimed to ensure that the plan reflected the academic goals of their particular Faculties as well as the university as a whole.

The Terms of Reference and membership for the south campus academic planning committee is included in the appendix of this document.

Next Steps

Cultivating Place was developed by the south campus academic planning committee as a visionary document that portrays, in broad strokes, future academic activity centered on south campus. As described in the their terms of reference, the committee will continue to function to develop specific implementation strategies for this over-arching plan.

Vision

The UBC Farm and surrounding areas on South Campus will be a world-class academic resource and a central part of UBC's sustainability aspirations, enabling UBC to explore and exemplify new globally significant paradigms for the design and function of sustainable communities and their ecological support systems.

Mission

To enable UBC to be a global leader in the creation of new patterns for sustainable and healthy communities integrated with their surrounding ecology, through exemplary, academically rigorous research, through transformative learning, through innovative cross-faculty and interdisciplinary collaboration, through socially responsible community engagement, and through international dialogue and knowledge-dissemination.

Guiding Principles

To implement this vision and mission, *Cultivating Place* is committed to creating an innovative living laboratory and a crucible for social change on South Campus. Within these cross-cutting themes, this initiative will:

A Living Laboratory

- Strive to demonstrate ways of understanding society's reliance on ecological systems as well as ways of enhancing this relationship while promoting cultural and biological diversity, regeneration and resilience, and improving land productivity and stewardship practices;
- Develop global best practices in the full range of ecosystem services, from provision (food, fibre, fuel, habitat, etc.) through end-product (waste, greenhouse gas) transformation and storage;

An Agent of Social Change

- Cultivate knowledge in every aspect of sustainable practice and use that knowledge to enrich the UBC academic experience and to build sustainability literacy, locally, regionally and globally;
- Provide an academically rigorous and environmentally healthy venue for inquiry and the intellectual space to share different ways of knowing, and, through activities physically rooted on South Campus, create and disseminate models for social engagement that generate innovation and that build bridges across perspectives, generations, and cultures;
- Collaborate with community partners, governments, and other institutions in exploring and defining global best practices to support healthy and sustainable living.

Goal Area 1: Integration

Holding to the motto, “no one thing does just one thing,” *Cultivating Place* aims to model system integration across all South Campus’ components and functions. In the course of discovering new or different forms of knowledge or technology, and communicating their relevance, *Cultivating Place* will:

- Promote interdisciplinary and trans-academic activities that create and disseminate new knowledge and understanding of the connections between ecosystems and human health;
- Engage and integrate multiple disciplines (basic, applied, and social sciences, arts and humanities, etc.), domains of knowledge (Indigenous, Western, etc.), and community experiences (faculty, student, staff, residents, etc.);
- Bring together diverse perspectives, histories and interests in a safe, respectful, and empowering environment, serving as a centre for sustainability dialogue.

As a cross-cutting theme which is fundamental to this plan, this over-arching goal of **integration** is supported by the specific recommendations associated with the three academic goal areas that follow.

No One Thing Does Just One Thing

The hum of a honeybee connects the molecule to the ecosystem through cutting-edge research. Honeybees pollinate approximately one third of the food crops that we eat, so their health is inextricably linked to ours. Researchers from UBC’s Centre for High-Throughput Biology study the immune systems of the UBC Farm’s honeybee colonies and work to breed resistance to pathogens that are implicated in devastating losses of honeybee colonies in North America. In addition to their research function, the honeybees provide a critical ecosystem service on the Farm, pollinating hundreds of cultivars in the fields and in orchards, the produce from which supports dozens of other research projects. These include trials on innovative biofertilizers developed through the Faculty of Applied Science, and sunflower landraces grown for evolutionary biology study and next-generation biofuel research in the Faculty of Science. Farm-based research projects are typically prolific producers of fresh food, which enters the campus food system and becomes the subject of study in the areas of food, nutrition, health, and economics. A bite of butternut squash pizza in the Student Union Building can be connected back to the Farm’s honeybees on a multi-disciplinary path that engaged business students in a marketing plan, food science students in a nutritional analysis, food and environment students in a cultivation plan, Applied Science faculty researchers in a field trial, and Faculty of Medicine researchers studying the bees themselves. This inter-connection of different components at the UBC Farm provides a level of multi-functionality that bridges disciplines and scales.



Goal Area 2: Teaching and Learning

Cultivating Place will promote an academically rigorous approach that will develop and communicate new understandings and insights on issues of global significance, develop and refine innovative teaching content and methods, and foster lifelong learning and teaching among generations. To that end, *Cultivating Place* will:

- Be responsive to the needs of learners, emphasize integrative, interactive, and experiential learning, and build on UBC's best disciplinary, interdisciplinary, and trans-disciplinary programs;
- Integrate multiple forms of knowing, learning, teaching and understanding into the student experience, preparing global citizens with a broad knowledge base, a sense of responsibility for a sustainable future, and strong leadership skills;
- Facilitate 'complete projects' in which students have stewardship responsibility for the entire life-cycle of an activity including conception, design, implementation, analysis, and evaluation;
- Highlight, vivify, and exemplify the relationship between theory and practice;
- Manage dynamic physical landscapes as living outdoor classrooms, offering innovative learning experiences that explore the connections between cultivated, forested, and urban areas, reveal the ecosystem services these landscapes provide, and explore techniques and technologies for sustainable management of these systems;
- Facilitate and advance the scholarship of teaching sustainability and the transmission of knowledge, encouraging new pedagogies in this area and research into those pedagogies.

Teaching and Learning: Current Successes

Innovative sustainability learning is currently at the heart of the UBC Farm's academic programming. The Farm provides a unique "outdoor classroom," where learners of all ages can immerse themselves in the stewardship of a working, productive landscape, linking society's most pressing global challenges to relevant, practical solutions that are achievable through a better understanding of the role that managed ecosystems play in supporting societies. This programming keeps a highly student-centred approach, and students take a leading role in their learning, and in the ongoing operations and strategic direction for the farm. Through curricular and co-curricular teaching and learning, more than 2,500 students currently participate in on-farm activities annually. Students in 50 courses representing eight faculties as well as four UBC schools and both colleges actively used the Farm in 2008. On-farm learning is integrative – bridging multiple disciplines and traditions – and inherently applied, providing community service, participation in research projects, and active stewardship of the landscape. Students have the opportunity to actively change the landscape of the farm, in turn, are changing the landscape of applied sustainability learning at UBC and beyond.

A Garden for Teaching and Learning

A cascade of learning across generations begins with the planting of a single seed. UBC's Faculty of Education brings children to the UBC Farm for immersive and transformative learning experiences in the Children's Learning Garden. Under direct mentorship from faculty, seniors and UBC students, the children learn the practices of ecosystem stewardship, agriculture, health and nutrition, and gain fundamental math and science skills. Research elements of the project push the boundaries of pedagogical knowledge and have been widely disseminated in academic literature. The project has sprouted a suite of on-farm children's programs, some working with aboriginal students and elders, others running through the summer for seamless continuity through the seasons. This model is being spread through the province in work with regional school districts, providing UBC students and faculty the opportunity to use innovative pedagogy to build environmental literacy in the next generation.

Teaching and Learning: A Future Direction

Immersive Sustainability in a Farm-integrated Residential College: One component of the *Cultivating Place* vision is to develop a world-class facility that will bring students, faculty, staff, and visiting “sustainability laureates” together in a residential college that is built to physically integrate with, and mimic the flows and cycles of, its surrounding ecosystem. Providing multi-functional services, the college will model a system that is net zero waste, net positive clean water, and net carbon negative. South Campus would sustain college residents, literally and academically, through a fully immersive set of programs that would make the residence a hub and a conduit for innovative, globally significant applied research on key sustainability issues.



Teaching and Learning: Recommendations

- **TL1 Expanded Student Opportunities and Curricular Development:** Work with the proposed University Sustainability Initiative (USI) to connect to existing curricular and co-curricular learning opportunities on South Campus and to develop new opportunities.

The proximity of the farm system to the main campus offers accessible experiential and transformational learning for students who are able to directly link sustainability theory with practical applications through field studies on site. The curricular and co-curricular learning on South Campus will be expanded to provide students in the natural and physical sciences as well as the arts, social sciences, and humanities the opportunity to immerse themselves in the processes and practices of sustainability that come into focus at the intersection of land, food, and community. Student opportunities range from general exploration and analysis of the farm-forest-community system to specific active research projects on site. Student-directed projects at both the undergraduate and graduate level will actively contribute to the evolution of South Campus. Working with the proposed University Sustainability Initiative (USI), opportunities for expanded sustainability-related courses will be identified and connections formalized with existing UBC Farm-related courses. Farm staff and USI staff will work collaboratively with Faculty to develop new courses and modules that incorporate experiential learning, and diversify and develop curricular requirements to offer flexible and integrated learning experiences.

- **TL2 Associate memberships for Faculty:** Formalize a process for existing UBC Faculty members and adjuncts to become Associates of the UBC Farm.

Associate membership will have clearly defined benefits, including facility use, the potential for collaborative opportunities with fellow associates through symposia and dialogue sessions, and connections to a diverse community of outstanding students, sustainability-oriented faculty members, and community leaders. Responsibilities of associate membership will include contributions to UBC Farm governance, facilitating on-site learning at the undergraduate and graduate level, disseminating research, and acting as ‘ambassadors’ for the Centre in home faculties. Opportunities to link new research chairs and post-doctoral fellowships specifically to landbase will be explored. Faculty members who become Associates of the South Campus centre will work in partnership with the “Sustainability Teaching Fellows” proposed in the Sustainability Academic Strategy (SAS) to ensure that South Campus opportunities are clearly embedded in appropriate curricula.

- **TL3 Farm-Integrated Residential College:** Develop a vision for residential undergraduate and graduate colleges offering immersive experiential learning.

Situated in close proximity to the Farm, residents would be selected for their commitment to sustainability and their likely contributions to the college community. Scholarship opportunities would bring learners of all backgrounds to contribute.

- **TL4 Innovation Grants and International Sustainability Laureates:** Offer grants to assist new projects that exemplify priority goals of this plan and create opportunities for international “sustainability laureates” to visit and enhance on-site learning and research.

- **TL5 Practicum Courses:** Develop the UBC Farm’s existing practicum program to offer certification for non-degree program students, and offer modular integration for students registered in degree programs. Link co-op opportunities to existing support network of professionals.



Goal Area 3: Research, Discovery and Partnerships

In an effort to generate and communicate innovative, globally significant knowledge and understanding, while also developing and refining new methods of research and practice, *Cultivating Place* will:

- Enable and strengthen UBC’s commitment to research excellence by providing infrastructure, space, expertise, supportive land management policies, and direct research project assistance;
- Link on-site research to contribute to issues of pressing regional and global significance, including in the areas of climate change, energy use, food security, preservation and enhancement of ecosystem services, green technology development, nutrition and health, aboriginal health, and fundamental sustainability literacy;
- Manage the 24-ha site to maximize opportunities for research with both regional and global relevance, particularly in the fields of sustainable land use and community design, individual and community health, ecosystem services and biodiversity, material cycling, carbon management including capture and sequestration, clean energy research, and energy flows in managed landscapes, and pedagogy and community-based action research;
- Partner with academic, professional, private-sector, civil society, cultural, and government organizations in shared exploration and delivery of sustainability applications;
- Engage the wider community in shared interests with mutual respect through Community Service Learning and Community-Based Action Research activities.

Research, Discovery, and Partnerships: Current Successes

UBC Farm activities encompassed more than 100 academic initiatives in 2009, including research projects in six UBC faculties. These initiatives represent research on globally critical topics including climate change, community health, and preservation of biodiversity worldwide. Some of the initiatives on-site included next-generation biofuel development and basic research in evolutionary biology (Science), behavioural neuroscience (Arts), mass spectrometry-based proteomics (Medicine), bio-fertilizer development (Applied Science), animal welfare, avian genetics, and soil conservation (Land and Food Systems).

Unique among on-campus facilities, the UBC Farm and its surrounding areas allow for field-scale production of food, fibre, and fuel, and provide a range of ecosystem services to the campus. In close proximity and fully integrated with a world-class community of researchers, South Campus affords an opportunity to better understand and manage the characteristics of the ecosystems that support urbanizing societies. The interface with the city enhances research opportunities that also address community, ecosystem, and global health.

In its interface and partnership with local and global communities, the Farm serves as an important point of

The Respiration of a City

Micrometeorology researchers in the UBC’s Department of Geography are developing an understanding of how urban vegetation affects a city’s overall carbon cycle, and how it can be managed to promote urban carbon sequestration. The UBC farm provides an on-campus control site to compare with a network of managed urban sites in Vancouver. The farm’s diverse landscape serves as a site for numerous projects aiming to better understand the dynamic carbon cycle that underpins global climate change.

A Food-Based Approach to Aboriginal Health

Graduate student researchers worked with over 700 visitors from Vancouver’s Downtown Eastside and from coastal Aboriginal communities at the UBC Farm in 2009. Through the *Urban Aboriginal Community Kitchen Garden Project*, participants cultivated and gathered foods in the fields and the forest and prepared feasts linked with cultural traditions as a strategy to address a number of health challenges, including diabetes and addictions. This program is now being explored and replicated in other coastal BC Aboriginal communities.

connection and engagement for UBC. With farm visits reaching 40,000 in 2009, faculty and students joined international visitors and the wider community to participate in courses and workshops, contribute to public events and festivals, support student-led enterprises, and build important partnerships with non-profit, private-sector, and government organizations.

Research, Discovery, and Partnerships: A Future Direction

The Living Laboratory, Quantified: The confluence of the academy, a dense urban residential community, and a managed rural landscape provides the opportunity for a globally distinctive and ground-breaking experiment: to detail and measure the network of interconnecting systems that underpin sustainable communities. Our understanding of what makes a sustainable ecosystem, community, or economy is only as good as the underlying data that describes how the different components and functions of these systems are related. Advances in wireless and non-invasive instrumentation provide an opportunity for a mesh of data collection points through the fields, forests, and human habitats across South Campus. These instruments could capture a stream of information from the soil, air, water, plants, animals, and people, recording fluxes in real-time. Linking these data to key indicators of ecosystem, human, and community health will realize the Farm's role as a living laboratory, continuously deepening our understanding of both the microcosm and, more importantly, the world it represents. This project links to the building-scale study proposed for CIRS, offering a complementary and expanded community-scale study.

Research, Discovery, and Partnerships: Recommendations

- **RP1 Enhanced on-campus land-based research:** Work with the proposed University Sustainability Initiative (USI) to build upon the UBC Farm's extensive field research programming to a broadened network of interest and expertise.

The UBC Farm site will continue to enhance UBC's laboratory-based and theoretical research by offering complementary field research opportunities. The site will maintain a wide range of land-use types, ranging from intensive crop cultivation to natural forest, to respond to increasing demand from a range of disciplines to maximize opportunities for relevant field study. The farm site will continue to provide space for traditional controlled plot-based field study, and opportunities for landscape-scale and community-scale research.
- **RP2 Associate memberships for faculty:** Using the multi-disciplinary expertise brought by faculty Associates, create new research opportunities for students at both the undergraduate and graduate levels, and develop collaborative projects and research funding applications. Collaborate with proposed Sustainability Research Fellows at the USI to add relevant field study components into new sustainability research initiatives.
- **RP3 World-class Sustainability Dialogues:** Host field lectures, public seminars, symposia, discussions, debates, and performances by invited scholars, policy-makers and practitioners. Whenever possible, facilitate these events in an outdoor setting to provide a contextual focus for interdisciplinary dialogue. Utilize cutting-edge communications technology, including wireless high-definition videoconferencing, podcast delivery and real-time media broadcasts to facilitate global participation and dissemination.

- **RP4 Green Technology Innovation:** Leverage the farm’s unique status as an accessible urban field research site to partner with academic, professional, private-sector, civil society, and government organizations. Pursue the responsible application and shared dissemination of innovative green technologies as components of larger strategies to reduce our individual and collective ecological footprints. Focus on knowledge-intensive land, clean energy, and material management strategies that can be disseminated to a wide range of biophysical and socioeconomic contexts, generating economic spin-off opportunities.
- **RP5 A Land-Based Aboriginal Engagement Strategy:** Expand and enhance the on-site programming for aboriginal participants, supporting specific research objectives of the Institute for Aboriginal Health and the recommendations contained in UBC’s Aboriginal Strategic Plan. International indigenous links will include engagement with the existing Mayan garden project, with the goal of providing a suite of land-based Aboriginal community health programs.

Academic links to on-site aboriginal initiatives, including research projects and community service learning participation, can be expanded beyond the Faculty of Land and Food Systems to meet university-wide strategic goals for aboriginal engagement.

- **RP6 Engage Learners of All Ages:** Expand scope and support for K-12 and intergenerational educational programs as well as broad-based community engagement, with specific programs involving aboriginal communities, university residents including seniors, and international visitors. Activities will support the Department of Curriculum and Pedagogy’s research objectives and enable other faculties expanded community service learning and community-based action research opportunities.
- **RP7 Leverage the UBC Farm’s position as a point of community engagement to develop new Community-Based Research:** Focus on expanded opportunities for community-based action research (CBAR), community service learning (CSL), and research into the university’s role as an agent of change at the intersection of land, food, and community.

Working with the proposed University Sustainability Initiative (USI), the farm will expand the scope and impact of its existing International, Aboriginal, and Community-Based Action Research (CBAR) programs and new community-based research initiatives. This expansion will be achieved by linking these programs with other UBC initiatives, faculty, and students seeking opportunities for community service and collaborative research. The strength of community connections at the Farm provide opportunities to attract funding for collaborative grants such as through the Community-University Research Alliance (CURA) program.

A range of public engagement and education initiatives, ranging from hosting public events, workshops, lectures, field dinners, concerts, celebrations, farmers’ markets, and festivals will be pursued to maintain and enhance the farm’s role in the wider community. Specific programs for Aboriginal groups, International visitors, UBC Alumni, and University residents aim to build a strong connection between the University and these groups, leveraging the intersection of food, health, and global sustainability. All strategies will be linked to academic programming to create innovative models of community-university partnerships and global citizenship.



Goal Area 4: Application

In translating new knowledge into action, in developing and communicating about new technologies, materials or uses, in fostering inquiry and invention, and in developing and refining new methods, *Cultivating Place* aims to:

- Steward the existing 24-hectare site as an integrated, productive, land-based unit, using sound regenerative land management practices that promote globally significant models of environmental, social, and economic sustainability;
- Provide the tools and practices necessary to define what sustainability has meant, means today, and may mean in the future, facing the global challenges and opportunities sustainability offers, and being conversant about our interdependence with nature;
- Link academic goals to biophysical, social, and economic sustainability by exploring, developing, maintaining and enhancing on-site energy flows, material cycles and feedback loops relevant to climate change, long-term energy use and clean energy development, nutrient management, and building sustainable communities;
- Utilize architecture, landscape architecture, and urban and agro-ecological system design as pedagogical tools, with operations relying on sustainable energy flows throughout the built and natural environments.

Application: A Future Direction

A Living Design Laboratory and Test Site for Integrative Design:

As a test bed for new ideas, South Campus is an ideal site for rapid prototype development due to its proximity to primary production of food, fibre, and fuel, a growing dense residential community, and a heterogenous natural landscape. On-site facilities can develop new ways for transforming organic waste and water (composting, waste-to-energy, biofuel applications, carbon capture and sequestration, biofiltration, etc.) that can be used as models that address some of the key sustainability issues facing global communities. As a community design lab and site for applied sciences design-build projects, the UBC Farm is an ideal location to develop low-footprint habitat, structures, and green technology apparatus for a range of operational and experimental uses. The Farm can help to close the loop on many linear systems currently operating on UBC Campus, and in doing so provide unique academic opportunities for grounded sustainability scholarship, research and learning.

“Leave the land in better condition than you found it”

In practice, this adage is a complex and multi-generational goal necessitating continuous discovery, communication, and integration of knowledge from the past and present for a sustainable future. For eight years, students, staff, and faculty have worked to develop a land management strategy at the UBC Farm geared towards providing perpetual academic opportunity, allowing the continued cultivation of every major crop family without depleting soil fertility, escalating pest pressures, undermining on-site biodiversity, or creating negative off-site impacts. Even with the continuous growth in research activity, increasing use by a variety of courses, and the addition of over 200 crops and 40 cultivated field areas on site, the Farm’s integrated land management strategies have continually improved soil quality and added new habitat and biological diversity. The addition of hedgerow, forest, water, nutrient, and carbon management strategies make the Farm a model of land-improving stewardship that can be used to educate about and foster sustainability innovation.

Application: Recommendations

- **APP1 Living Laboratory Showcasing Sustainable Land Use Management:** Adopt site management principles that complement this plan, and link to academic opportunities. Principles will include metrics that can be quantitatively evaluated and include mandates to:
 - Maintain and increase both natural richness and diversity at the genetic, species, community, and structural levels;
 - Ensure that the Farm system is net energy positive/net carbon negative, contributing to a reduction in UBC's GHG emissions, and a net contributor of clean water to the campus;
 - Improve the quality and availability of soil suitable for crop cultivation, and strive to minimize reliance upon non-renewable energy and materials for operations;
 - Ensure that built development or infrastructure adheres to and positively impacts these site-wide management principles, and meets or exceeds standards such as those in the LEED Platinum framework;
 - Through active stewardship of the fields and forests, create opportunities for research and education on globally significant sustainability issues (i.e., carbon sequestration in soils, clean energy development using renewable biological feedstocks, environmental remediation through establishing plant communities, urban water and nutrient cycling.);
 - Use the design and implementation of activities at the Farm to provide 'complete' learning problems for students, building the skills and understanding to solve complex sustainability issues;
 - Ensure that the natural, cultivated and built environment inspires wellbeing, creativity and reflection within the University and broader community.

- **APP2 Community Sustainability Demonstration:** Link with adjacent and on-campus uses to create innovative models and research opportunities for sustainable community development. Identify opportunities where the provision, storage, and transfer of energy, water, carbon, nutrients, food, and amenities between different components of adjacent areas can contribute towards UBC's sustainability goals. Use the physical provision of food, fibre, or fuel (i.e., to CIRS cafeteria or UBC Food Services) as a conduit for learning and discovery.

Integrate plans for development of adjacent residential and academic facilities to ensure that these opportunities are realized whenever possible. This may include utilizing on-site community amenities that are compatible with the academic programming, revising the South Campus stormwater management plan to take advantage of water re-cycling for agricultural uses, identifying sources of waste heat and organic material from nearby residential and academic development, and updating area-wide plans for circulation and infrastructure to anticipate increases in academic activity on the Farm. In all cases, these activities should be reviewed for scholarly potential in their design, development, building and assessment.

- **APP3 Explore Opportunities to Assist in Meeting UBC's Operational Sustainability Commitments:** Assess and integrate the potential for on-site carbon sequestration and green infrastructure development that contribute towards UBC's carbon neutral mandates and other commitments. Through the study of effective processes for sequestering carbon in managed landscapes at the farm scale, UBC has the opportunity to apply these techniques at larger scales for significant offset potential.

- **APP4 Academic Facilities and Infrastructure:** Secure external capital investment to develop facilities and infrastructure that enable and enhance growing innovative academic programming on site.

In the long-term, new facilities will support of the 24-ha core area and adjacent uses as a modern, interactive outdoor learning space. Built facilities may include dry and wet-labs, classroom, meeting, and office spaces, flexible learning spaces, and residential suites linked with a new college. Infrastructure may include a comprehensive access, circulation, wayfinding, and signage plan that will support multiple modes of transportation with a preference for energy-efficient options. New pathways, road connections, parking, and transit access points need to be considered. All built development will conform to site management principles, particularly in improving the quality and availability of arable soil.

- **APP5 Farm-Branded Innovative Revenue Generation:** Develop and diversify a range of academically-linked, on-site enterprises to help finance site programming. Recognize the value of a “UBC Farm” brand and enhance its capacity to increase the value of goods and services derived from the Farm.

Appropriate enterprises can help provide an academically useful microcosm, integrating economic dimensions of the system into learning objectives and research opportunities, while retaining a student-centred approach. The foundational and financially self-sustaining “working farm” will support overarching UBC Farm academic goals. Revenues from sales of goods and services assist in securing financing for the most promising ventures, particularly those with potential for spin-off development. The UBC Farm “brand” will also assist in student, alumni, and community engagement.

- **APP6 Development Support:** Use the opportunity granted by the official launch of this plan to launch specific, targeted fundraising campaigns.
- **APP7 Formalize Land Designation:** Formalize the current designation of the 24-ha contiguous area on South Campus as an integrated academic use area, named “UBC Farm.”
- **APP8 University-Wide Multi-Stakeholder Academic Governance:** Establish a dynamic governance system, housed in part within the proposed University Sustainability Initiative (USI) and led by faculty Associates, which will facilitate and maximize academic integration with UBC Farm.

The farm will be guided by an academic director and an advisory board with multi-faculty representation and expertise in academic programming, business development, stakeholder relations, and land management. Ongoing representation from proposed Faculty Associates and Sustainability Fellows would provide strong connections to larger sustainability strategies. An advisory board or boards would integrate broader knowledge and expertise, especially in the realm of sustainable land and building management, business development and fundraising, and multi-stakeholder relationship management.



Conclusion

UBC is committed and positioned to be a leader in creating exceptional learning environments that foster global citizenship, advance sustainable societies, and support outstanding research. This academic plan is a critical component to realizing this vision. Its time is now. With UBC's far-reaching commitment to sustainability, the ground is fertile to allow this bold idea to grow and flourish into a truly unique and globally relevant resource.

As many respected universities scramble to find suitable land to address fundamental connections among land, community, and health, UBC is fortunate to already have this critical piece of the infrastructure puzzle in place. Through the enhancement of this true living laboratory, UBC will be able to create, test, and promote new paradigms of how we view and live within the ecosystems that support us. South Campus will serve as an effective agent of change to both local and distant communities through advancing sustainability agendas, increasing public literacy, and reconnecting people with place.

Within economic constraints, bold ideas are often lost due to the preconceived notion that bold equals expensive, however, this is not the case for this plan. This fiscally responsible plan builds on the many successful self-funded initiatives already established at the UBC Farm. In the longer term, targeted development campaigns will help to provide the resources for an economically sustainable future.

Integrating into themes articulated in the Sustainability Academic Strategy and the Aboriginal Strategic Plan, the recommendations of this plan encapsulate a unique and broad-reaching way for the university to showcase its innovation in sustainability research and learning and its commitment to community service. Creating opportunities for all disciplines to engage in hands-on, place-based learning on key sustainability issues, *Cultivating Place* will help to truly cultivate UBC as a *Place of Mind*.