

## Summer 2022 Sustainability Scholars Program Internship Opportunity

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region.

- Visit the [Sustainability Scholars Program website](#) to learn [how the program works](#) and to [apply](#).
- Be sure to review the [application guide](#) to confirm your eligibility before applying.

**Applications close at midnight on Sunday January 30, 2022.**

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### Research project title: Supporting the development of a Green and Blue-Green Roof Information Portal

#### Project Background & Overview:

The City of Vancouver is facing a number of challenges with respect to rainwater management. Population growth and climate change are straining the city's aging sewer system, leading to chronic water quality impacts on receiving waters such as False Creek and the Fraser River. Urban rainwater runoff discharges directly to our sewer and drainage system and contributes pollutants that are known to be highly toxic to fish and other aquatic species. Vancouver's prevalence of combined sewers and associated combined sewer overflows only exacerbate this issue, as does climate change which is causing more frequent, intense rain storms.

The Citywide Integrated Rainwater Management Plan (IRMP, 2016) and the City of Vancouver's recently adopted Rain City Strategy (RCS, Nov 2019) call for a shift in our urban water management strategies to include a more holistic and integrated approach to achieving the goals of improved water quality, increased resilience, and enhanced livability. This ambitious approach treats rainwater as a valuable resource and mimics the natural hydrologic cycle by capturing and treating rainwater where it lands using green rainwater infrastructure (GRI).

The RCS has been influenced by a multitude of other City and Parks Board Strategies and is currently being implemented in three 'realms' within the City: Parks; Streets and Public Spaces; and Private Property. Within the latter realm, GRI includes green and blue/green roof systems, rainwater reuse systems, and ground infiltration systems. The Citywide IRMP and the RCS also introduced specific rainwater management performance targets, and it is anticipated that green and blue-green roofs will play an important role on some private sites in achieving these targets.

Facilitating greater uptake of green and blue-green roofs is complicated by various implementation barriers/ requirements, including: i) minimizing the chance of failure (leaks/flooding), ii) ensuring minimum design performance, iii) reconciling competition for rooftop space by other programs or objectives (such as daycare or strata amenity space), and iv) supporting other City strategies (Climate Adaptation, Urban Forest, Biodiversity) by optimizing green and blue-green roof co-benefits, such as: enhancing biodiversity and habitat, sequestering carbon, reducing urban heat island effect, improving air quality, improving health benefits, providing access to nature, providing savings from reduced building heating/cooling loads, providing uplift in property value, and supporting urban agriculture, where feasible.

## Project description

The City intends to develop, at a future date, a Green/Blue-Green Roof Information Portal to help promote green roof utilization, address common implementation barriers/requirements, minimize roof failures, and enhance co-benefits, thereby resulting in the construction and ongoing maintenance of higher quality green and blue-green roofs in the City. In turn, this Portal will better support successful implementation of the Rain City Strategy, and optimize its associated environmental, social, and economic benefits.

The Green/Blue-Green Roof Information Portal is envisioned to include a dedicated website, a guidelines document (that addresses design, installation, and maintenance issues), and associated design standards (engineering drawings) that can act as off-the-shelf solutions for applicants. The City is also wanting this supporting material to address *four types of green/blue-green roofs based on roof functionality/programming*. All four roof types will have a rainwater management function (water quantity, quality). Roof types may also emphasize a particular co-benefit, such as (Type 2) enhancing biodiversity, (Type 3) being suitable to accommodate active daycare/'amenity space' programming, or (Type 4) enhancing rooftop agriculture.

The purpose of this Project is to undertake best practices jurisdictional research and provide 'topic' and 'content source' recommendations to support development of a green and blue-green roof Information Portal comprised of a i) Website, ii) Guidelines Document (4 roof types), and iii) associated minimum Design Standards (drawings).

## Project scope

- Brief review of green and blue-green roof systems with reference to:
  - Roof Categories (extensive, semi-intensive, intensive, other),
  - Roof System components and functions (e.g. roof deck, insulation, moisture barrier, root barrier, moisture barrier, growing medium/soil type and depth, plants, other) that contribute to performance,
  - Roof Ecosystem services/co-benefits (rainwater management, biodiversity enhancement, carbon sequestration, provision of amenity space, property value uplift, etc.),
  - Indicators used to measure and assess green and blue-green roof performance,
  - Common implementation barriers/challenges (i.e. issues to consider when wanting to avoid installation and maintenance failures);
- Review of current green roof-related COV Bylaws, Policies, Bulletins, Guidelines, and Standards to identify gaps and opportunities for a potential future COV resource Portal;
- Best practices jurisdictional review of approximately four to six jurisdictions with applicable information sources on green and/or blue-green roof website content, guidelines (design, installation, maintenance), and standards.
  - Time permitting, this review may include interviews with knowledge holders;
- Based on a review of particular websites (exact ones to be determined) make recommendations on content and structure of an online resource portal suitable for the City to consider
- Provide any recommendations for further studies (research, best practices, or in situ) to support development of a COV Portal (Website, Guidelines (design, installation, maintenance) and Standards).

# SUSTAINABILITY SCHOLARS PROGRAM

## Deliverables

- Interim draft reports for each major section of the final report
  - Introduction/purpose/methodology,
  - Roof System Description and [Time Permitting] Performance Overview Summary,
  - Best Practices Review – Web page, Design Guidelines, and Design Standards (drawings),
  - Summary/discussion/recommendations for COV Portal components,
  - [Time permitting] Conceptual layout and write-up of proposed Website topics and content;
- A draft final report containing an executive summary of the work completed;
- A final report containing an executive summary of the work completed; and,
- A final report (or executive summary) for the online public-facing [Scholars Project Library](#).

## Time Commitment

- This project will take 250 hours to complete.
- This project must be completed between May 2, 2022 and August 12, 2022
- The scholar is to complete hours between 9 am and 5 pm, Monday to Friday, approximately 17 to 20 hours per week.

## Required/preferred Skills and Background

- Excellent research and writing skills
- Strong analytical skills
- Demonstrated interest in sustainability
- Project management and organizational skills
- Familiarity with research methodologies, survey, and case study techniques
- Demonstrated experience in scope and methodology development
- Demonstrated experience in research
- Demonstrated experience in planning/undertaking interviews and case studies
- Comfortable interacting with strangers to conduct public/in person interviews/surveys
- Excellent public speaking and presentation skills
- Ability to work independently
- Deadline oriented

Applications close **midnight Sunday January 30, 2022**

Apply here: [Click here to apply](#)

Contact Karen Taylor at [sustainability.scholars@ubc.ca](mailto:sustainability.scholars@ubc.ca) if you have questions

## Useful Resources

We are holding a special **resume preparation workshop for prospective Scholars** on January 19. [Click here for details and to register.](#)

Below are some links to useful resources to help you with your resume and cover letter (there are many more online). Some of these resources also provide information on preparing for your interview.

<https://students.ubc.ca/career/career-resources/resumes-cover-letters-curricula-vitae>

<https://www.grad.ubc.ca/current-students/graduate-pathways-success>

<https://www.grad.ubc.ca/cover-letter-cv-resume-templates-ubc-career-services>