Summer 2025 Sustainability Scholars Program Internship Opportunity

The UBC Sustainability Hub is pleased to offer current UBC graduate students the opportunity to work on sustainability internship projects. Successful candidates work under the guidance of a mentor from the partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region. The pay rate for the summer 2025 program is $31.25/hour or $7,812.50 for a 250-hour project.

- Visit the Sustainability Scholars Program website to learn how the program works and to apply.
- Be sure to review the application guide on the Apply page to confirm your eligibility before applying.

Applications close at 11:59 pm on Sunday January 26, 2025.

Project title: Best practices research to inform the replacement and design of integrated rooftop systems

Project Background & Overview:
In 2019, The City of New Westminster Council declared a climate emergency and committed to taking bold action to achieve the greenhouse gas reductions to keep global temperature increases below 1.5°C. Council went further through the development of the Seven Bold Steps for Climate Action with the goal of moving New Westminster towards a zero carbon future by 2050. The City's commitment to taking bold action is supported by its climate plans, including the Corporate Energy and Emissions Reduction Strategy (CEERS), Community Energy and Emission Plan (CEEP), and the eMobility Strategy.

One of the actions identified in the CEEP is to explore opportunities to expand urban solar gardens, enabling community members to invest in renewable energy projects. Currently, there are two urban solar gardens in New Westminster, which, as of the end of 2021, had generated over 325 MWh of renewable energy. These solar gardens are located on the rooftops of civic facilities, and offer an opportunity for the City-owned Electrical Utility to diversify its services to the community by supplementing its primary source of energy from BC Hydro's electricity generation with locally generated electricity.

The solar gardens provide interested local residents, businesses and non-profit organizations easier access to solar photovoltaic power and the opportunity to lower their monthly/ bi-monthly bills over the long term. Although the City has a net metering program that allows customers to offset their electricity use through renewable sources such as solar photovoltaic (PV) panels, this program allows access to members of our community to contribute to the proliferation of renewable energy generation, who may otherwise be unable to participate due to their housing type (i.e., rental, condo, etc.). There is currently a waitlist of community members who are interested in the urban solar gardens if an opportunity arose.

Additionally, the City has two rooftop solar systems serving civic facilities, driven by its commitment to build net-zero or net-positive buildings with respect to energy and emissions, as outlined in the CEERS. The rooftops of civic facilities have primarily served as the main location for solar PV systems, with no serious consideration given to alternative locations such as a ground-mounted or a wall-mounted systems.

The CEEP also identifies other related actions, including:

1. Exploring opportunities to partner on a pilot of a solar-battery demonstration project on a building.
2. Exploring how to encourage cost effective, on-site renewable energy generation in new and existing buildings.
3. Conducting feasibility studies to test low-carbon backup power systems, such as batteries, to reduce reliance on fossil fuel-powered backup power generators.
4. Supporting the Urban Forest Management Strategy and Integrated Stormwater Management Plan which identify the need for green infrastructure such as green roofs.

A key focus of the City's 2023 – 2026 Strategic Priorities Plan is to deliver resilient infrastructure and sustainable service today and into the future. Integrating a climate lens and incorporating the City's Diversity, Equity, Inclusion, & Anti-Racism (DEIAR) Framework have been identified as crucial in achieving this goal. In consideration of this, the City's Facility Asset Management Plan (FAMP) identifies the need to improve resiliency (adaptation measure) to extreme weather events when planning upgrades to civic facilities, ensuring that these upgrades maintain or increase the levels of service provided by these facilities. The CEEP also identifies the need to increase community resilience. This may include measures such as the installation of green infrastructure and back up power systems.

To support these goals, and recognizing that not all buildings are suitable for the actions outlined above, the City acknowledges the need for guidance to help assess opportunities for incorporating adaptation and mitigation measures based on each building's unique characteristics, particularly when planning the replacement of rooftop systems on existing buildings or designing new ones.

Project description

The purpose of this project is explore how mitigation and adaptation measures can be incorporated into rooftops and to develop a checklist to help guide decision-making when a rooftop is being designed or being replaced. This project will build off the work completed by a previous UBC scholar who explored the potential for community solar gardens in the City, which translated into successful solar garden projects. Some research questions to be addressed include, but are not limited to:

1. What key factors should be considered when evaluating the potential of rooftop spaces for installing solar panels, green roofs, cool roofs, and energy storage systems in multi-unit residential and commercial buildings?
2. To what extent do the available options compete with each other in roof systems?
3. To what extent can the available options be combined?

4. What are the best practices for monitoring and maintaining these systems?
5. What data/information is needed in the early stages of planning during the retrofit or design of buildings to help determine the feasibility of these options?

Project scope

1. Background research.
    a. Review relevant City documents and interview key staff to gain an understanding of actions and internal City processes that will inform the development of the report.
        i. Review City documents including but not limited to:
            1. Community Energy and Emissions Plan (CEEP)
            2. Corporate Energy and Emissions Reduction Strategy (CEERS)
            3. Facilities Asset Management Plan (FAMP)
            4. Urban Forest Management Strategy
            5. Integrated Stormwater Management Plan
        ii. Review program materials related to the Energy Save New West Urban Solar Garden Program and interview Energy Save New West team to gain an understanding of how the Urban Solar Garden Program was developed and how it operates.
        iii. Interview 1-3 City staff to gain an understanding of the planning process for roof replacement projects.
    b. Literature review to identify mitigation and adaptation measures that can be applied to multi-unit residential and commercial buildings. Identify the key benefits and risks associated with each rooftop mitigation and adaption measure, including but not limited to solar panels, cool roofs, green roofs, and energy storage.
    c. Jurisdictional scan of other municipalities and regions that have implemented mitigation and adaptation measures for roof systems to identify best practices, existing standards and example projects.
2. Based on the background research, draft a checklist that can be applied at the beginning of the planning process for replacing or designing a rooftop to help determine the feasibility of incorporating mitigation and adaptation measures in rooftop spaces, including the most relevant parameters for further analysis. Include considerations for assessing how mitigation and adaptation measures compete or complement each other.
3. Host a workshop with a mix of city staff and external subject matter experts that have experience in replacing roof systems and considering both mitigation and adaptation measures to review the checklist and validate its practical application. The workshop may include a high-level case study where the checklist is applied to a sample civic building.
4. Report Preparation.
    a. Prepare a report that synthesizes the information gathered.
    b. Based on this information, propose a checklist for incorporating mitigation and adaptation measures on rooftops.

Deliverables
- A draft preliminary report summarizing the findings from the background research
- A draft report containing the following:
    - An overview of mitigation and adaptation measures on roof tops that are available to the City of New Westminster and align with the City's climate goals.
    - A jurisdictional scan of other municipalities.
    - Draft checklist for replacing or designing a rooftop to help determine the feasibility of incorporating mitigation and adaptation measures in rooftop spaces, including the most relevant parameters for further analysis.
- A final report
- A summary report 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 1 to August 15.
- The Scholars is to complete their 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
☒ Demonstrated interest in sustainability
☒ Familiarity with research methodologies and survey techniques
☒ Strong analytical skills
☒ Ability to work independently
☒ Deadline oriented
☒ Project management and organizational skills
☒ Engineering/Urban Planning background
☒ Comfortable interacting with strangers to conduct interviews or focus groups
☒ Familiarity preparing feasibility studies
☒ Experience with financial modelling and analysis
☒ Interest or familiarity with mitigation and adaption as it pertains to buildings or rooftops, an asset

Applications close **at 11:59 pm Sunday January 26, 2025**
Apply here: Click here to apply
Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions

Useful Resources

We are holding a special **resume preparation workshop for prospective Scholars** on January 21, 2025. 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