

## 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.**

---

### **Project Title: Understanding the carbon sequestration value of the City of Victoria's urban forest**

#### **Project Background & Overview:**

There are approximately 150,000 trees in the City of Victoria's parks, natural areas, boulevards, residential gardens and backyards. Roughly one quarter of the urban forest inventory is managed by the City, while the remaining 75 per cent consists of trees on private and other public land. Long-term viability of the urban forest requires consistent attention and management that focuses on the full life cycle of each tree, and efforts to maximize species and age diversity, adapt to our changing climate, and to take advantage of the benefits of green infrastructure. The urban forest plays an important role in mitigating and adapting to climate change and extreme weather by providing shade and cooling, a buffer for high winds, and helping to manage erosion.

The City of Victoria has detailed data on every tree on public land documented, as well as tree canopy cover maps available through the City's interactive mapping system. This data can be built upon to quantify the benefits of the urban forest in order to better understand the value it provides to the community, both in terms of carbon sequestration and improving resiliency to climate impacts. Understanding how much carbon each tree is sequestering would enable the City to better understand the role of the urban forest and how it impacts our overall greenhouse gas inventory.

This project will support decision-making by providing a holistic understanding of the multiple benefits and concrete values of the urban forest, enabling the City to make better-informed decisions to balance the growing pressures of development, densification, and preserving the urban forest. Producing a clearer picture of how the urban forest reduces the City's carbon footprint and increases the City's resiliency to a changing climate is essential as the City moves towards embedding climate considerations into all decision-making processes.

#### **Project description**

The purpose of this project is to expand on the City's existing urban forest data and quantify the amount of carbon that is sequestered by trees in the city. This will give the City a more fulsome picture of its greenhouse gas inventory and a deeper understanding of the value of the urban forest. Once the scholar has identified the best software to quantify the carbon sequestration benefits provided by the City's urban forest, we will assess whether capturing additional resiliency benefits such as shading and stormwater management are within scope. Insight into the additional ecosystem services and benefits trees provide would directly aid the City in future management of the urban forest and climate adaptation measures.

# SUSTAINABILITY SCHOLARS PROGRAM

This project is research-focused and would result in a report that summarizes the findings from the carbon sequestration analysis, ecosystem service benefits if applicable, recommendations for additional data that would be valuable, and suggested modifications to methodology if repeated.

The data gained from this project will support a variety of City initiatives and departments and will be used in decision-making processes, as well as plans such as the City's Replanting Strategy, Climate Adaptation Plan, and potentially informing future carbon sequestration targets.

## **Project scope**

The scholar will build on existing baseline data from the City's urban forest inventory to quantify the carbon sequestration benefits of the existing urban forest.

Phase 1 – The City currently uses inventory management software called TreeKeeper to house data about the City's urban forest on public land. The scholar would be responsible for scoping out which software is best suited to carry out the carbon sequestration analysis, and whether it's possible to include additional resiliency benefits such as water retention or shading in the evaluation. This would include a comparison and review of software such as iTree, which can estimate the additional ecosystem services the urban forest provides.

Phase 2 – Working with the preferred software selected, and with additional support and data provided by the City's GIS, Parks and Climate Action Departments, the scholar will estimate the carbon sequestration value for each tree on public land, and where possible, additional ecosystem services to inform resiliency benefits.

Phase 3 – Develop and apply a methodology to estimate the carbon sequestration value of trees in the City of Victoria on private lands.

Phase 4 – Produce a report to assess the success of this process and what the results demonstrate about the urban forest's capacity to sequester carbon and mitigate climate change impacts. Evaluate the potential to replicate this process in other municipalities.

Key questions the scholar will be researching:

- What is the best software to carry out this work?
- How much carbon does each tree sequester in the City's existing urban forest inventory on public and private land?
- Did this process produce a valuable outcome for the City?
- Are there any lessons learned that can be shared with other municipalities seeking to duplicate this work?

## **Deliverables**

- A final report containing a summary of the work completed & research findings
- This same report can be used 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 and August 12**.
- The scholar is to complete hours between **8am-4pm, Monday to Friday**, approximately **15** hours per week.
- The scholar will be invited to attend the occasional online Climate Action Staff meeting which is held on Wednesdays from 3 to 4pm

# SUSTAINABILITY SCHOLARS PROGRAM

## Required/preferred Skills and Background

- Excellent research and writing skills
- Demonstrated interest in sustainability
- Familiarity with research methodologies and survey techniques
- Statistical analysis
- Strong analytical skills
- Ability to work independently
- Deadline oriented
- Project management and organizational skills
- GIS training or experience.
- Comfortable interacting with strangers to conduct public/in person surveys
- Background in urban forestry, biodiversity, or carbon sequestration an asset

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>