UBC Sustainability Scholars Program 2019

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 organizational sustainability goals.

For more information about the Sustainability Scholars Program and to apply to work on this project, please visit the Student Opportunities page.

Please review the application guide (PDF) before applying.

Applications close **midnight Monday February 25, 2019**.

Research project title
Review and analysis of UBC's Bioenergy Research and Demonstration Facility (BRDF) research program

Sustainability Goal or Operations Plan objective
This study is meant to analyze and provide insight on the application of the Campus as a Living Lab (CLL) model at UBC's Bioenergy Research and Demonstration Facility (BRDF). Through the CLL approach, UBC provides unique opportunities for academic engagement with buildings and facilities on campus. As a CLL project, the BRDF supports research programs and initiatives that aspire to advance biomass and bioenergy technologies and applications. The results of this study will be used to inform potential research opportunities for BRDF's expansion project, which will be completed in 2020, as well as other CLL projects on campus.

Outline scope of project and why it is of value to your organization. Describe how and when the Scholar's work will be actionable.
Located at the UBC Vancouver campus, the BRDF is an energy generation facility that processes renewable biomass sourced from urban wood waste to generate thermal energy for heating campus buildings. In addition to the thermal system, the facility houses a biomass combined heat and power demonstration system that originally employed biomass to fuel a cogeneration engine and produce electrical energy. The facility's capacity is being expanded this year to achieve UBC's Climate Action Plan 2020 target of 67% GHG emission reduction over 2007 levels.

The facility has an on-site laboratory which allows UBC researchers to test and conduct research on the systems and their products and by-products. BRDF has also been used to study topics such as the sourcing and processing of wood waste, air quality and health impacts of biomass processing, and the mass timber building that houses the facility. This study is meant to categorize, analyze and provide a summary of the research that has been conducted up to this date with the objective of understanding what has been learned about biomass and bioenergy technologies at this facility.

The scholar will collect and categorize all research studies that have been conducted in the context of the BRDF, both within and outside of the on-site laboratory. The scholar will then analyze the research studies and findings to identify key research results that can inform the future development of biomass and bioenergy technologies, identify enablers and barriers to undertake this type of applied research in an operational facility, and summarize

relevant information that should inform the expansion of BRDF specifically. The scholar may interview UBC researchers to understand their work and the role of BRDF within their research studies.

UBC decision makers will review the results of this study to identify future research collaboration opportunities as well as incorporate the elements that will enable these opportunities into the expansion plan. This study will help strengthen the connection of academic research and operations/infrastructure within the campus by allowing a wider understanding of the value of the research the facility is supporting and the role it plays in enabling these research studies. The results will also support the continuation of a research program at the BRDF focused on advancing biomass and bioenergy technologies and help build the case for more research collaborations across other campus facilities and infrastructure.

Deliverables

- A final research report, containing a summary of completed work with a listing of research reports and findings, and a description of the analysis/categorization process (for internal use only).
- A final presentation to key UBC stakeholders.
- An Executive Summary to be made public in the online Scholars Project Library.
- The scholar is encouraged to use a mix of text and visual graphics to communicate ideas throughout the deliverables.

Time Commitment

We would like for the scholar to complete the 250 hours between April 29 and August 12, 2019. The expectation is that the scholar will work on average 20 hours per week, and that part of the time will be spent on campus in the USI offices during regular business hours (9:00 – 5:00 pm, Monday to Friday), and some time spent working remotely. The specific schedule will be coordinated in consultation with the scholar at the start of the project.

Required/preferred Skills and Background

☒ Excellent research and technical writing skills
☒ Ability to understand technical reports
☒ Ability to communicate complex topics using non-technical language
☒ Demonstrated interest in sustainability
☒ Familiarity with research methodologies and survey techniques
☒ Strong analytical skills
☒ Ability to work independently
☒ Project management and organizational skills
☒ Demonstrated time management skills
☒ Chemical engineering background, or similar
☒ Intermediate knowledge of bioenergy and biomass technologies
☒ Familiarity with UBC's Bioenergy Research and Demonstration Facility is desirable but not required
☒ Involvement with the Biomass and Bioenergy Research Group at UBC is desirable but not required
☒ Interest in biomass research and clean energy production

Applications close **midnight Monday February 25**.
Apply here:
https://sustain.ubc.ca/student-opportunities

To learn more about the program here:
https://sustain.ubc.ca/ubc-sustainability-scholars-program

Read the application guidelines to confirm your eligibility to participate in the program here: https://sustain.ubc.ca/student-opportunities

Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions.