Summer 2021 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 31, 2021.

Project Title
Investigate process & technology options for local biofuel generation from key municipal waste streams to identify optimal solutions
Project description

A. **Overview:** Central Saanich is a small, rural municipality on the Saanich peninsula with significant agricultural lands and numerous municipal parks. The District has committed to two ambitious 2050 targets: 100% GHG reductions relative to 2007 and 100% renewable energy use community wide. Waste currently accounts for 12% of emissions in Central Saanich, while transportation accounts for around 66%. The District also has a long-standing tradition of open burning on residential and agricultural properties. Our Climate Leadership Plan has identified biofuels as a key strategy to reduce emissions. We are interested in investigating potential options for generating biofuel locally using existing secondary organic waste streams including waste from parks maintenance, the District-owned Newman Farm, and public waste bins.

B. **Purpose of project:** The purpose of this project is to help the District understand the options for local biofuel generation that are suitable to our context, taking into account the available waste streams, collection processes, and cost-benefit analyses. Using research from this project, Central Saanich will be able to compare potential options for the conversion of waste into sustainable biofuel production, a process that would introduce numerous environmental and economic benefits to the region. Diverting waste and replacing carbon-intensive fuels with biofuels in municipal vehicles and operations would decrease GHG emissions from landfill and transportation and slow the rate of landfill usage. This project would also increase climate resilience and improve the local economy by creating a local, circular waste-to-fuel model. Lastly, the project would allow the District to act as a demonstration project for small-scale bioenergy production, and could potentially be scaled-up over time to include residential organic waste and/or waste that is typically burned openly.

The project deliverables are as follows
The Scholar will deliver a final report containing a summary of their completed work complemented by a final presentation to key stakeholders.
1. The report should include

- Municipal context, such as existing climate commitments, GHG inventory, waste collection services and processes, and fit within regional initiatives including the Hartland landfill and CRD waste initiatives
- Analysis of current waste streams/feedstocks, including volumes, seasonality, types/composition of waste, waste sources, current emissions from disposal
- Overview of options available for local biofuel production, considering annual volume, waste composition, and seasonality
- Cost-benefit analysis of options, including cost of technology, cost of inputs, fuel costs, waste volume diverted, GHG reductions, biofuel volume produced, and appropriate uses for end biofuel output
- Summary and analysis of results, including recommended approach and reasoning
- Key challenges and opportunities associated with biofuel production in general, and specific to each generation option
- Potential to scale-up program to include additional sources for each waste stream (e.g. local farms, residential organic waste collection)

2. Excel spreadsheet containing all data collected including key assumptions & calculation factors (e.g. emission factors, GWPs), comparison of possible options, (e.g. annual waste volume, waste type/composition)
    - Time Permitting: Interactive tool displaying comparison of options in a concise, well-organized and interactive way
3. Supporting data
    - Conversation/call logs, and calculations supporting the report and spreadsheet tool
    - Contact information for any external individuals relevant to the project
4. Final report [or executive summary] for the online Scholars Project Library

Time commitment:

- The project will take 250 hours to complete
- The project must be completed between May 3 and August 13
- The scholar is to complete hours between 8:30am – 4:30pm Monday – Thursday, approximately 16 hours per week

Required/preferred Skills and Background

☒ Excellent research and writing skills
☒ Demonstrated interest in sustainability and climate action
☒ Strong analytical skills
☒ Ability to work independently
☒ Deadline oriented
☒ Project management and organizational skills
☒ Mechanical or industrial engineering, or natural resources sciences, background – including familiarity with biofuel generation
☒ Strong Excel skills, including comfort with formulas
☒ Comfortable interacting with strangers to conduct stakeholder surveys and discussions
☒ Familiarity preparing feasibility studies
☒ Experience with financial modelling and analysis
☒ Experience in GHG emissions analysis

Applications close **midnight Sunday January 31, 2021**
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 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