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.

Research Project Title:
Develop a model to quantify the impact of mode choice and mode displacement on Greenhouse Gas (GHG) emissions in the current and emerging shared mobility landscape in Metro Vancouver.

Project Description:
Over the past decade, emerging technologies have facilitated the adoption of various shared mobility options and have made trip planning, booking and payment easier and more accessible. In Metro Vancouver, carsharing (e.g. Evo, Modo) shared micromobility (e.g. Mobi, HOPR), Ridehailing (e.g. Uber, Lyft) and carpooling (e.g. Poparide, Liftango) are part of the growing list of shared modes in transportation.

The adoption of these shared services in the region is growing. TransLink is actively exploring new programs and partnerships with new shared mobility providers including TransLink's Vanpool program in partnership with Modo, and the Shared Mobility Pilot launched in collaboration with Modo, Evo, and Mobi. TransLink is also testing new ways of getting-around with our first on-demand micro-transit pilot in B.C. on Bowen Island in 2019. Ridehailing started operations in early 2020 and has expanded their service areas ever since.

The way we move around and the options available has an impact on the livelihood, accessibility and the environment. TransLink and municipalities are actively working toward regional transportation goals and how shared mobility services can influence mode choice and displacement. Moreover, quantifying greenhouse gas emissions of shared mobility options are essential to developing programs, policies and partnerships between mobility providers and the public sector.

Sustainability Research Topics:

(1) The 2021 research proposal encompasses two related topics on shared mobility. The following topics to be completed by August 13:
   a. Develop a model to quantify the impact on GHG emissions of current and emerging shared travel modes across Metro Vancouver.
   b. Time permitting, determine the impact of shared mobility on mode choice and mode displacement through exploratory research (literature review) across multiple input factors (e.g. cost, travel duration, convenience, sustainability etc.)

Scope of Work:

1. Conduct a review of best practices for estimating GHG emissions based on current and future shared transportation modes and how the availability of these travel options impact mode choice and mode displacement.
    - The purpose of this exercise is to gather information on different approaches and best practices to answer the research questions and develop a methodology specific to Metro Vancouver.
2. Review of research and practices in estimating GHG emissions reductions associated with shared modes in North America. Research should reflect but not be limited to the following transportation modes:
    - A baseline mode or a single-occupant personal vehicle (representative of regional vehicle ownership) for
        - Internal combustion engine (ICE)
        - Electric vehicle (EVs)
    - Conventional transit;
        - Bus
        - Skytrain
        - SeaBus
    - Carshare;
        - One-way carsharing (e.g. Evo)
        - Two-way carsharing (e.g. Modo)
        - Conventional vehicle rentals (e.g. Enterprise)
    - Ridehailing (e.g. Uber, Lyft and Taxi etc.);

    Time permitting:
    - Carpooling and other shared occupant services/vehicles (e.g. Liftango, Poparide, RideShark and Uber Pool etc.);
    - Vanpool (e.g. Modo program offered through TransLink);
    - Shared micro-mobility (Mobi and emerging dockless modes, such as dockless bicycles and scooters); and
    - Shared electric micro-mobility (shared e-bicycles and e-scooters).
3. Based on the literature review, develop a region-specific methodology to quantify GHG emissions by mode and the emission reductions resulting from shifting some trips to transit and other shared modes listed above.
4. Examples of key performance indicators (KPIs) / metrics should include (but not be limited to): average CO_2-eq emissions per kilometre, CO_2-eq emissions per passenger kilometre, kWh per passenger kilometre etc.
5. Emissions should be scalable to an array of units such as service (one new vehicle or service), time (per minute, hour, annual etc.), distance (kilometres), cost and trips
6. Demand for these modes has several factors as well, including (but not limited to): awareness, availability of service, convenience, enjoyment, safety, cost, and time. Time permitting, please report qualitative and empirical evidence from the literature.
7. Based on the literature review provide a summary of how geographic, socio-economic and transportation systems differ in comparison to Metro Vancouver.

Deliverables

- An initial report, containing a peer review / best practices section and a detailed methodology for calculating GHG emissions impact by transportation mode
- Model for calculating GHG emissions impact by transportation mode in tabular form. Specifics will be determined in the initial phase.
- Time permitting, follow up report on shared mobility impacts to mode choice and displacement
- Executive summary for the UBC Sustainability Scholars online project library.

Time Commitment

- This project will take **250** hours to complete.
- This project must be conducted between May 3, 2021 and August 13, 2021.
- The scholar is to complete approximately 12 hours per week.

Required/preferred Skills and Background

☒ Strong analytical skills
☒ Novice understanding of greenhouse gas emissions
☒ Knowledge of shared-use transportation modes (e.g., bike share, car share, etc)
☒ Excellent research and writing skills
☒ Demonstrated interest in sustainability
☒ Excellent public speaking and presentation skills
☒ Strong technical writing skills
☒ Ability to work independently
☒ Demonstrated time management skills
☒ Deadline oriented
☒ Project management and organizational skills
☒ Familiarity with qualitative research methodologies and implementation
☒ Familiarity with economic analysis an asset
☒ Experience or familiarity with an of the following an asset: sustainable transport, transportation engineering or planning, sustainable energy, economics, econometrics, transportation forecasting, mathematics, statistics or data science

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