# GENERAL INFORMATION

**Program sponsor:** Princeton Environmental Institute  
**Position number:** U1SUS  
**Project title:** Princeton Community GHG Emission Reduction Analysis  
**Organization/research group:** Sustainable Princeton  
**Primary location(s) of internship:** Sustainable Princeton, Princeton, NJ  
**Additional cities and/or countries to be visited (if applicable):** n/a

*Note:* If this internship is located in a country with an [International SOS](https://www.internationalsos.com/) risk rating of High or Extreme, final candidates must participate in a travel review process overseen by the Travel Oversight Group (TOG), and obtain safety guidance prior to departure. The University reserves the right to revoke support and funding for travel at any time there has been a significant deterioration in the safety and security conditions surrounding travel arrangements, or in the sector of the country, or countries, where travel is to occur.

# FACULTY SPONSOR(s)/HOST INFORMATION

**Name(s):** Eric Larson  
**University Department(s):** Andlinger Center for Energy and the Environment  
**E-mail:** elarson@princeton.edu  
**Phone:** 609-258-4966  
**Website:** [https://acee.princeton.edu/research/energy-systems-analysis-group/](https://acee.princeton.edu/research/energy-systems-analysis-group/)

# INTERNSHIP/RESEARCH PROJECT INFORMATION

**Internship/project description:**
Greenhouse gas emissions from human activity are causing the planet to warm at an unprecedented rate in the Earth’s history. The Intergovernmental Panel on Climate Change (IPCC) states that “the range of published evidence indicates that the net damage costs of climate change are likely to be significant and to increase over time.” Municipalities across the country are starting to feel impacts of climate change.

Princeton, like many other towns, has taken the important step to address them by initiating the development of a Climate Action Plan (CAP). The CAP will serve as a guiding document for the Princeton community (once completed and adopted by Mayor and City Council) to set Princeton on a path towards making significant reductions in its contribution to climate change and towards preparing the community to deal with negative effects of climate change that will not be able to be avoided. This internship will provide an opportunity for an interested student to make a tangible difference in the development of the Plan.

Sustainable Princeton (SP), an independent non-profit, is working with the Municipality of Princeton and a network of local subject-matter experts, community members and other stakeholders to develop the CAP. The goal of the CAP is to identify implementable strategies and actions to 1) reduce greenhouse gas (GHG) emissions from Princeton (mitigation) and 2) better prepare the Princeton community for the projected impacts of climate change (resiliency).

A widely-used production-based greenhouse gas inventory methodology developed by ICLEI has been used by SP to estimate annual town-wide emissions starting from 2010. The inventory measures the emissions produced within the jurisdictional boundaries of the Municipality of Princeton and provides a baseline (year 2010 emissions) against which to compare emission reduction targets, e.g., 80% reduction by 2050.

The intern will work with SP staff and others to develop analytical estimates of the GHG emission reduction potential of different mitigation actions that are being considered for inclusion in the CAP, as well as the economic costs and benefits of such actions. Alternative scenarios for the evolution of Princeton’s emissions will be developed considering different mixes of mitigation options, as well as forecasts of population growth, federal and state mitigation policies, changes to the fuel mix for grid electricity, and other factors. SP will support the effort by helping to identify key data sources, providing access to the GHG inventories and to specialized software platform for emissions planning, forecasting and monitoring. SP will also share its knowledge of best practices used by other US cities that have set GHG reduction goals.
### Student's role and responsibilities:

The student will lead the development of estimates of GHG emission reductions and estimated dollar costs and other co-benefits for a number of emissions reduction strategies. Examples of strategies could include but are not limited to: increasing adoption on zero-emission vehicles, reducing vehicle-miles traveled by mode switching from gas powered vehicles to walking, biking or taking public transit, increasing implementation of energy efficiency projects, and increasing renewable energy adoption.

The student will also participate in simulations of future emissions, considering projections of population growth, federal and state policies, changing grid electricity mix, and other factors to quantify different mitigation pathways and determine the extent to which they might achieve emission reductions and thereby help set emission reduction goals to be included in the Princeton community CAP.

### Internship/project learning objectives:

The student will learn how to quantitatively evaluate carbon emissions savings of different mitigation measures, how to assess the relative cost-effectiveness of such measures, and how to prioritize the measures within a climate action plan. They will also develop facility with ICLEI software (for GHG emissions inventory and projections), including experience using it to analyze alternative emissions pathways for the Princeton community.

### PROGRAM REQUIREMENTS

#### Academic background and any course pre-requisites:

Engineering, Science, or math major with keen interests in energy and environment issues. Ideally the student will have had coursework in thermodynamics and taken one or more courses involving quantitative analysis of energy and/or environmental topics.

#### Technical skills:

Microsoft Office suite (especially Excel), Google Sheets.

#### Additional training(s):

n/a

#### Equipment:

The intern should have their own laptop available for use.

#### Physical demands:

n/a

#### Language abilities/competencies (if applicable): n/a

### Additional information about the internship/project:

The Princeton Community Climate Action Plan is a high-profile endeavor in Princeton with support from Mayor and Council. The intern will have the opportunity to make a tangible difference in the development of the Plan.

### INTERNSHIP/PROJECT SUPERVISOR(S)

#### Name and title of primary supervisor: Christine Symington, Program Dir. Sustainable Princeton

Email: christine@sustainableprinceton.org  
Phone: 609-454-4757

#### Name and title of additional supervisor, if applicable: Molly Jones, Executive Dir. Sustainable Princeton

E-mail: molly@sustainableprinceton.org  
Phone: 609-454-4757

### PROGRAM DATES AND FUNDING INFORMATION

<table>
<thead>
<tr>
<th>Weekly Stipend:</th>
<th>$500</th>
<th>Number of Positions Available: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tentative Start Date (mm/dd/yyyy):</td>
<td>06/10/2019</td>
<td>Number of Weeks: 8</td>
</tr>
<tr>
<td>Tentative End Date (mm/dd/yyyy):</td>
<td>08/02/2019</td>
<td>Note: PEI funding is for full-time work, 35 hours per week minimum, and for a period of at least 8 continuous weeks.</td>
</tr>
</tbody>
</table>

Application deadline: January 11, 2019