

# Clean Energy Bridge to Research Summer Program

Clean Energy Bridge to Research (CEBR) is a summer research program sponsored by the University of Washington (UW) Clean Energy Institute (CEI). It supports a select group of undergraduates and community college teachers to participate in authentic research in solar, energy storage, and grid technologies under the mentorship of UW's world-class faculty and graduate students.



## Full Research Session / June 24–August 23, 2019

**For: Students who have completed their second year of college**

A nine-week immersive research project in a single lab leading to an abstract and poster. This session provides a stipend of \$5,000, on-campus housing, \$600 for food, and a \$500 travel allowance.

## Exploratory Session / June 24–July 24, 2019

**For: Students who have completed their first year of college**

A four-week early research experience where students will receive training, then complete a mini research project under the guidance of a graduate student and create an educational product related to their work. Students may apply for the Full Research Session the following year. This session provides a stipend of \$2,500, on-campus housing, \$600 for food and a \$500 travel allowance.

## Research Experience For Teachers / June 24–Aug 2, 2019

**For: Community college teachers**

A six-week session designed for teachers who have the goal of integrating clean energy research into their curriculum. This session provides a stipend of \$6,000.

*The CEBR program is open to U.S. citizens or permanent residents.*



## PROGRAM GOALS

- Encourage students to pursue STEM careers.
- Provide exposure to research at a hands-on level.
- Improve student knowledge about the nature of research including ambiguity, evolving understanding, and open endedness.
- Develop student skills in: formulating research questions, designing experiments, analyzing data, communicating results, and planning future steps.
- Learn about relevant, state of the art science and engineering in photovoltaics, energy storage, and smart grids in the domains of physics, chemistry, materials science, and electrical engineering.

## IMPORTANT DATES

- Application deadline: February 15, 2019 (apply online at [www.cei.washington.edu/cebr](http://www.cei.washington.edu/cebr))
- Program starts: June 24, 2019

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The Clean Energy Institute invites undergraduate students and community college teachers to apply for a research experience at the University of Washington in Seattle.

## Program overview

Participating students will have the opportunity to explore research that has the potential to revolutionize the field of clean energy. CEBR is a multidisciplinary program offering research experiences in a variety of scientific disciplines including chemistry, chemical engineering, physics, materials science and engineering, and electrical engineering.

Participants may select research projects across a broad range of topics and research areas. Students can choose to work on the theory that drives the development of new molecules for trapping solar energy, new electrode materials and chemistry for batteries, or models for grid management of renewable energy. Other labs work on integrating these new materials into devices at both the nano- and macro-scale.



Students and community college teachers will also participate in CEBR seminars, social activities, and field trips that provide them with networking and learning opportunities. They may join other enrichment and outreach activities sponsored by the Clean Energy Institute designed to acculturate the student and contextualize the CEBR experience within the field of clean energy and, more broadly, within science and engineering. These activities include technical content and career seminars, as well as workshops designed to teach students how to effectively present scientific research. Some students may be eligible to receive academic credit and be provided with the opportunity to attend professional conferences to share their work and learn from others.

By the end of the summer, students will be familiar with lab research and the technical, social, and cultural skills necessary to succeed in industry and academia. Students research activities may include literature search, experimental design, bench work, lab notebook management, mathematical modeling, instrumental characterization, computer/software control and analysis, lab safety, as well as communication,

## Expectations of CEBR participants

**Full Research Session:** Students are expected to work in their designated laboratory 40 hours per week for 9 weeks and complete an academically appropriate research project designed in conjunction with their advisor. By the end of the nine-week session, students are expected to complete an abstract or summary of their work, a poster, and a presentation. Other assignments may be required.

**Exploratory Session:** Students will conduct a focused research task in a lab 40 hours per week for 4 weeks and produce an educational product that helps translate the research to a non-technical audience. Students will have the opportunity to visit several labs and research settings as they establish relationships. Students who excel in the exploratory session may be invited to continue their research during their sophomore year the following summer.

**Research Experience For Teachers Session:** Community college teachers will participate in the exploratory experience with the goal of creating curricula that they can use to prepare students for clean energy content and research.

