RESEARCH EXPERIENCE FOR TEACHERS PROGRAM
June 13 - July 29, 2022

During this 6-week full-time, research experience, teachers work with a faculty member on an authentic research project and receive professional development virtually by the Penn State Center for Science and the Schools (CSATS) to help translate the experience to the classroom. Teachers will conduct their research either in-person or virtually based on the research placement and the teacher’s location. There are a variety of placements to choose from, but teachers will be placed based on their areas of interest and courses taught.

Deadline to apply: April 17, 2022
Visit our website for more information and to apply! csats.psu.edu

PROGRAM BENEFITS

Stipends
$5000 stipend for the summer program and developing a classroom research project to implement during the academic year
$1500 stipend for implementing the classroom research project with students during the academic year

Classroom materials
Receive up to $1000 stipend for materials and resources needed to implement the classroom research project

Conference presentation
Option to present at M.J. Murdock Partners in Science Conference in San Diego, CA, January 2023

Graduate course credit
Opportunity to earn up to 3 graduate credits through Penn State (SCIED 597) - ask about this!
Agricultural and Energy Engineering
Consortium for Cultivating Human And Naturally regenerative Enterprises (C-CHANGE) seeks to optimize the production of renewable natural gas and its byproducts through anaerobic digestion of herbaceous biomass and manure on farms in the upper Midwest and mid-Atlantic regions. Note: This placement will be conducted virtually with potential for in-person work.

Bioinformatics
This project will focus on gene regulation and transcription factor binding to introduce concepts in bioinformatics. Participants will learn how to computationally process DNA sequencing data, map regulatory events, and analyze their features. Note: This placement is preferred to be in-person at University Park, but could be offered virtually.

Architectural Engineering
This placement engages secondary STEM teachers in a research experience with a faculty member in architectural engineering. These researchers consider both the human experience in buildings as well as building system efficiency. Science topics include indoor air quality, lighting effectiveness, thermal comfort, and energy efficiency. Note: This placement is being offered virtually.

Electrical Engineering
The Multi-agent Networks Laboratory aims to develop distributed algorithms for swarms of mobile robots (e.g., drones and autonomous cars) which are capable of sensing, computing, communicating and actuating. The algorithms allow the robots to collectively accomplish missions, which are beyond the capabilities of individual robots, through local information sharing and dynamic planning in dynamically changing, uncertain and adversarial environments. Note: This placement is being offered in-person at University Park or virtually.

Biomedical Engineering
Building on fundamentals of physics and anatomy, this project will focus on using a computational model to understand how the effects of musculoskeletal injury and how treatment can improve function. Note: This placement is being offered in-person at University Park.

Estuarine Metabolism
This project aims to better understand the regional effects of climate change by exploring the biogeochemistry of the Chesapeake Bay through analysis of estuarian carbon dioxide and photosynthesis. Note: This placement is being offered virtually, with an opportunity for some in-person field work.

Meteorology
This project aims to better understand and document the daytime evolution of the planetary boundary layer—the lowest layer of the atmosphere that is in contact with the Earth’s surface and varies in depth from a few tens of meters at night to a few km during the day. This important atmospheric layer will be observed using data from National Weather Service dual-polarization radars and from small weather balloons launched from Penn State. Teachers will assist in data collection and data processing. Note: This placement is being offered in-person at University Park.

Materials Engineering
This program engages secondary teachers with a faculty member in materials science/engineering or electrical and computer engineering that work on the ASSIST project (https://assist.ncsu.edu/). This project aims to develop wearable sensors that run on energy harvested from the environment. Note: This placement is being conducted virtually or in-person at NC State.