CHEMICAL AND ENVIRONMENTAL ENGINEERING
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2027

PROJECT TITLE: Tracking river nutrients through satellites and deep learning

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Project Description

Project overview
Excess nitrogen and phosphorus are the most widespread pollutants in U.S. rivers and a major cause of harmful algal blooms. Our group combines satellite imagery and deep learning to estimate nutrient levels for U.S. rivers, and study how they are regulated by climate and land use activities.

The UPRISE student will receive training in:
(1) Water quality modeling, GIS, satellite data processing, and machine learning through hands-on workshops.
(2) Scientific writing and presentation skills

Research tasks include:
(1) Processing satellite data, developing/running the nutrient model, or analyzing nutrient trends and algal blooms.
(2) Collecting river water samples on field trips and measuring nitrogen and phosphorus in the lab.
(3) Presenting research outcomes

Who should apply
Rising juniors and seniors in environmental or civil engineering, geography, environmental science, computer or data science, or related fields. Programming experience is helpful but not required. Students new to research are encouraged to apply.