

DEPARTMENT OF CHEMICAL AND ENVIRONMENTAL ENGINEERING
COLLEGE OF ENGINEERING AND APPLIED SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2025

PROJECT TITLE: Sampling and analysis of wastewater, stormwater, and algae-impacted surface water

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Project Description

Changing climate has shown us alteration in flood events and temperature of surface waters, consequently harmful algal bloom events and storm events occur at different frequencies and scales from what we used to know. These changes eventually impact environmental resources, including sources of drinking water. The current project aims to provide the student with an opportunity to monitor the water quality of a variety of water in the region, including algae-impacted waters in lakes and rivers (e.g., Lake Erie), Ohio River water (multiple sites along the river), and rainwater (as well as storm runoffs). Understanding the quality of these water facilitate better management of water resources, and improve our understandings of community exposure to contamination via drinking water. Students will engage in field sampling to sites of interest, contributing to multiple research projects. The undergraduate student will be working in Dr. Niu's Emerging Contaminants Lab and be jointly supervised by a doctoral student and the PI. The project represents an opportunity to learn the fate and exposure of emerging contaminants, to familiarize with the principles of water treatment, to operate drinking water treatment units on the laboratory scale, and to gain experience with advanced analytical instrumentation. The outcomes of the project could guide more efficient and systematic management of various surface water and guard water security in an era of unprecedented environmental changes.