CHEMISTRY
ARTS & SCIENCES

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2025

PROJECT TITLE: Carbon sensors for neurochemical detection

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Project Description

Students will develop new electrochemical sensors to detect neurotransmitters in real-time. The Ross lab develops new methods to measure neurotransmitter signaling in tissue with subsecond resolution. To detect molecules in tissue on this timescale, requires carefully designed sensors with high sensitivity, selectivity, and fast temporal resolution. Students will learn how to fabricate sensors and methods to characterize them. Some example methods students will learn are fast-scan cyclic voltammetry. Raman Spectroscopy, Scanning electron microscopy imaging, atomic force microscopy, and other various electrochemistry techniques.