

One Health Research Symposium: April 12, 2024

Undergraduate Research Opportunity Networking Session Position Details

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TABLE 1: A study of disparities in environmental health - Supervisor: [Dr. Jennifer Richmond-Bryant](#), Dept. of Forestry and Environmental Resources

Much of our group's work has an "environmental justice" focus in which we characterize exposures in marginalized communities. In our lab, we maintain the perspective that community data belongs to communities, so we provide frequent updates to community partners on our findings and what they might mean. My research uses different quantitative and qualitative methods to characterize air pollution levels around sources. In a quantitative analysis, a researcher in our lab might model spatial patterns in emissions or concentrations based on existing data or transport and dispersion models. We may compare those results across demographic groups. Or, we might test different relationships between air pollutant exposures and health outcomes and test if those relationships vary for different demographic or social conditions. From a qualitative perspective, we have recently performed oral history interviews for community partners and then used the information gleaned from our interviews to look for patterns in diagnosed conditions or symptoms. We were able to use that information to also explore questions about exclusion of community partners from decision-making processes.

Research the student may work on:

The student will have several options for research experiences during their time in our lab: sample collection, quantitative data analysis, modeling, or qualitative data analysis. Because our lab has a variety of ongoing projects, the student can select one project of interest or can dabble in a couple of projects. The student may also perform some literature review to support their project. The student will be expected to create a poster to present during NC State's Summer Undergraduate Research Symposium. We will also spend some time on career development (resume, LinkedIn, applying to graduate school or jobs).

Research setting: Computer: analysis of emissions and concentration data from a field study (one in Colfax, LA to study emissions from an open burn/open detonation hazardous waste thermal treatment facility, one using national facility-level emissions data)

Dates: March 1, 2020 - ongoing

Hours per week: 5-10

Compensation: \$15/hr for Federal Work-Study only, or volunteer

Qualifications: Willingness to learn, enjoys working with data

TABLE 2: Paid Undergraduate Research Opportunity in Agricultural and Farmworker Health - Supervisor: [Dr. Catherine LePrevost](#), Dept. of Applied Ecology

Seeking one student for a paid (\$15/hr) research and mentorship experience for Fall 2024, with an option of expanding into Spring 2025. There is a preference for a student with farmwork experience, from a farming family, from a family with experience in migrant or seasonal farm labor, or with equivalent experience or interest.

The student will work with research mentors on a range of community-engaged projects related to farmworker health, learning how to plan and carry out research projects. The student will participate in team science approaches to research and participate in a network mentor program with professionals and graduate students working in agricultural and farmworker health. Students interested should reach out to Paul Janampa, pjanamp@ncsu.edu, with a resume or questions.

This program is funded by the North Carolina Farmworker Health Program, NC Department of Health and Human Services and the National Institutes of Health.

Research setting: Remote/Raleigh (for in-person meetings), with occasional travel throughout North Carolina

Dates: Fall 2024 with a potential of expanding into Spring 2025

Hours per week: 10

Compensation: \$15/hr

Qualifications: There is a preference for a student with farmwork experience, from a farming family, from a family with experience in migrant or seasonal farm labor, or with equivalent experience or interest.

TABLE 3: Research Assistant in Poultry Food Safety - Supervisor: [Dr. Lin Walker](#),
Prestage Dept. of Poultry Science

Under the supervision of the faculty member, the undergraduate student will work independently or collaboratively using traditional and molecular microbiology research methods to qualify and quantify the common foodborne pathogens (e.g., *Salmonella*, *Campylobacter*, *Clostridium perfringens*, Shiga toxin-producing *E. coli*) in poultry, with the goal to improve the food safety of poultry products.

Typical Duties May Include:

- Prepare culture media and other materials for pathogens research
- Conduct microbiological research and collect data through complex techniques and procedures
- Write research reports and edit manuscripts based upon current work
- Meet with faculty supervisor to discuss performance and research progress
- Perform other related duties as required

Research setting: Labs in Scott Hall and animal facilities (Turkey Education Unit & LAR)

Dates: ongoing

Hours per week: up to 10

Compensation: \$12/hr

Qualifications: Current enrollment as an undergraduate at NC State University.

Biology/microbiology background preferred. Skills/Abilities:

- Ability to work independently
- Attention to detail, meticulous worker
- Good oral/written communication skills

TABLE 4: Characterization of wireless biosensors for continuous monitoring -

Supervisor: [Dr. Abraham Vazquez-Guardado](#), Dept. of Electrical and Computer Engineering

We are seeking motivated undergraduate students to participate in a research project focused on the development and deployment of wireless biosensors for real-time monitoring. As an undergraduate researcher, you will have the opportunity to work closely with members of the Vazquez Research Group in a collaborative and supportive environment. This hands-on research experience will allow you to gain valuable skills in experimental design, sensor fabrication, data analysis, and communication of scientific findings.

Key responsibilities: sensor and device fabrication, characterization, testing; conduct independent research and document and present their findings.

Research setting: Lab; Research Building 2 in Centennial Campus

Dates: Fall, starting around August 15, 2024

Hours per week: at least 5

Compensation: Volunteer, but Dr. Vazquez-Guardado supports student fellowship applications to work in his lab. For example, COE students qualify for undergraduate research positions. ASSIST center also provides undergraduate research fellowships.

Qualifications: Desired qualifications include enthusiasm for interdisciplinary research in biosensor engineering, wireless bluetooth communication, and biomedical applications; basic laboratory skills and familiarity with experimental techniques.

TABLE 5: Developing extreme weather climatologies and resources for vulnerable populations in the Triangle - Supervisor: [Dr. Kathie Dello](#), North Carolina State Climate Office

We are seeking an undergraduate researcher to develop climatologies of weather extremes and resources to distribute to groups that work with vulnerable populations in Wake, Orange, Durham, Chatham, and Johnston Counties.

Research setting: remote/State Climate Office

Dates: Summer 2024

Hours per week: 10

Compensation: \$20 per hour

Qualifications: Some knowledge of data and programs (e.g., excel) is helpful, but not required. Rising junior or senior preferred.