BIOLOGY MEETS ENGINEERING
SUMMER 2025 INTERNSHIP OPPORTUNITIES
BOWLING GREEN STATE UNIVERSITY

1. **Biology Greenhouse Project**
   The use of microbial and non-microbial biostimulant in herbs and vegetables
   This project focuses on evaluating the growth of basil, rosemary, eggplant, and strawberry plants under two commercials microbial and non-microbial biostimulants. We aim to explore how these factors influence plant development and performance.

   We are looking for a curious and motivated high school student to gain hands-on research experience in plant science. The student will assist in measuring plant growth, learning about plant biology, fertilizer application, and comparing results. This project involves working in a greenhouse environment, gaining practical skills in plant care, including watering, monitoring, and maintaining healthy growing conditions.

   Participants will develop an understanding of scientific research methods, data collection, and analysis. This project offers a great introduction to horticulture and plant science for those interested in pursuing further studies or careers in agriculture, biology, or environmental science.
   Plants to be used: Basil, broccoli, eggplants, rosemary, begonia, dahlia, and strawberry.
   Fertilizer: Jack's Professional 20-20-20 general purpose, and 25-5-15 high performance.
   Biostimulants: Cease (*Bacillus subtilis*) and LALSTIM OSMO (Glycine betaine).
   Website: https://www.bgsu.edu/arts-and-sciences/biological-sciences/facilities-and-resources/greenhouse-facilities.html
   Requirements: Available to work in the morning and early afternoon, preferably starting between 8 AM and 10 AM.

2. **Crayfish Orientation Project**
   How do crayfish use odor plumes to locate food? This project is designed to understand the neural and behavioral mechanisms aquatic organisms use to find

food and other sources. Aquatic animals often don't have use of light to find important resources, so they rely on odors which are distributed by currents and waves. As a result, odors plumes are form that are filaments of odors contained within large areas of non-odor making this a complex problem.

We are looking students interested in the intersection of physics, neuroscience, and animal behavior. Students will begin to understand how water disperses chemicals and how animals have evolved behavioral and sensory mechanisms to gather appropriate information about their environment. This requires using animals in different assays as well as animal care and maintenance.

Participants will design projects, gather data, and perform analysis of movement data. The end goal is to understand how animals perform these tasks and to understand how changes in different aquatic environments could disrupt this ability.

Animals to be used: Faxonius rusticus, the rusty crayfish.
Biostimulants: Sardine gelatin will be used as an attractive source.
Website: https://pmoore7.wixsite.com/labsensoryecology
Requirements: Available to work in the morning and early afternoon, preferably starting between 8 AM and 10 AM.

3. **Toxicology in mammalian systems**

Early exposure and maternal effects of toxins in rats. I am currently involved in several lines of research in the field of developmental neuroendocrinology. In one project, we are examining the synergistic effects of maternal infection and common endocrine-disrupting toxicants on development of the prefrontal cortex and executive functions in perinatally exposed offspring. Additionally, we are conducting another series of experiments aimed at assessing the effects of various agricultural practices on neurodevelopment and cognitive maturation. Third, we are interested in the developmental ontogeny of dopaminergic cells of the midbrain during adolescence, with a particular focus on how pubertal hormones regulate dopamine cell number. Lastly, we are conducting a study to assess the effects of nightly blue light exposure throughout adolescence on development of the prefrontal cortex, hippocampus and learning/memory ability.

Animals to be used: Laboratory rats.
Biostimulants: Light and toxins.

Website: https://www.bgsu.edu/arts-and-sciences/psychology/people/jari-willing.html
Requirements: Available to work in the morning and early afternoon, preferably starting between 8 AM and 10 AM.