University Scholars Program 2023

The University Scholars Program introduces undergraduate students at the University of Florida to the exciting world of academic research. Students launch into a full research project under the guidance of a UF faculty member. Through this initiative, students develop an understanding of and an appreciation for the scholarly method. The University Scholars Program represents students from all disciplines. Scholars are selected by each college or unit partner though a competitive process to participate.





Name: Ryan Ames College: College of Agricultural and Life Sciences Major: Biological Engineering Minor: N/A

Mentor: Dr. Razieh Farzad

Project Title: Shrimp structure and composition database preparation for alternative seafood production

Project Description: Current seafood production faces numerous issues: overfishing, marine habitat damage, and significant wastefulness. Cellular agriculture is a technology where agricultural products are cultured from cells in a bioreactor as opposed to harvested from livestock. Cellular agriculture has the potential to cause 92% less global warming, produce 93% less air pollution, use 95% less land, and require 78% less water than traditional agricultural practices. The research goal of this experiment is to investigate shrimp muscle's morphology and physicochemical properties and to establish a database. This will provide a framework for future work in the field.

Research Interests: Sustainable food systems, waste management, and circular economy

Academic Awards: Kemerait Family Internationalization Fund Scholarship, University of Florida International Center Scholarship, University Scholars Program Involvement: University of Florida Kickboxing Club, Study Abroad Peer Advisors, Society of Hispanic Professional Engineers Volunteering: SHPE Jr. Mentorship

Hobbies and Other Interests: Training/fighting/teaching Muay Thai, learning Spanish, studying/discussing philosophy, training calisthenics, scuba diving





Name: Maeve Barger College: College of Liberal Arts and Sciences Major: French and Francophone Studies; Interdisciplinary Studies-Human and Organizational Development Minor: International Development and Humanitarian Assistance; Business Adminstration

Mentor: Kimberly Wiley

Project Title: A Comparative Study on the Motivations of Child Advocacy in Child Welfare Organizations in France and the United States

Project Description: In France and the United States, the child welfare system is plagued with problems including lack of funding, instability, bureaucracy, lack of safe foster homes and adequate foster parents, and a shortage of child welfare workers (Baritello; National Technical Assistance and Evaluation Center for Systems of Care). By gaining a better understanding of the motivations behind why child welfare workers participate in child advocacy, strategies can be developed that appeal to their motivations. This could help organizations attract and retain high-quality employees who desire to improve the child welfare system and the care at-risk children receive (National Technical Assistance and Evaluation Center for Systems of Care). This research project will examine these issues in the form of a comparative case study between France and the U.S. to study the motivations behind participating in child advocacy across two cultures and countries. Through understanding the motivations that draw caring, passionate, and qualified individuals to the child welfare system that impacts a wide array of individuals in the U.S. and France, the quality of the systems can improve, allowing foster children to be more successful and better cared for in their lives.

Research Interests: Nonprofit Leadership, Social Entrepreneurship, French Language and Culture, Social Psychology

Academic Awards: University of Florida President's Award and Dean's List, Connor Scholarship, Beyond 120 Scholarship, University of Florida Honors Program Involvement: Emerging Scholars Program, Pi Delta Phi (French Honors Society) Volunteering: Westside Baptist Church Hobbies and Other Interests: French, Traveling, Art, Running, Reading





Name: Jessica Barrera-Solis College: College of Liberal Arts and Sciences Major: Biochemistry Minor: N/A

Mentor: Taehoon Kim

Project Title: Agrobacterium-Mediated Rice Transformation to Characterize Protein-DNA Interactions Using Chromatin Immunoprecipitation

Project Description: Chromatic Immunoprecipitation(chIP) is fundamental molecular biology technique use to identify novel protein-DNA interactions. To perform a ChIP experiment, it is essential to generate a transformed plant expressing the gene of interest (GOI) as well as epitopes, which are antigenic peptides that bind to specific antibodies. Agrobacterium-mediated rice transformation is a widely used method for generating transformed rice plants with stable insertion of the cassette into rice genome. Therefore, we employed Agrobacterium-mediated rice transformation to produce transformed rice plants for our ChIP experiments.

Research Interests: Protein/chemical processes

Academic Awards: Machen Florida Opportunity Scholarship, Hispanic Scholarship Fund finalist, University Scholar Program Involvement: Food and human Nutrition Club, Baking 4 wellness, SHPE Volunteering: Wilmot Garden Hobbies and Other Interests: Yoga, vegan baking, journaling





Name: Walker Bensch College: College of Agricultural and Life Sciences Major: Environmental Science Minor: Entomology

Mentor: Rachel Mallinger

Project Title: Assessing the Impact of Land-use Change on the Wing Morphology of Southeastern Blueberry Bee (Habropoda laboriosa)

Project Description: Investigating the effect of urban and agricultural land use on the wing morphology of Habropoda laboriosa through geometric morphometric technique. Trends in wing shape and size may provide insights into the differing selective pressures of urban and agricultural landscapes on bee populations.

Research Interests: Conservation ecology of plant - pollinator communities

Academic Awards: Five times CALS Deans List Recipient, Three times Doris Lowe and Earl and Verna Lowe Scholarship Recipient, CALS Honors Program Member Involvement: Environmental Science Alliance Member Hobbies and Other Interests: Hiking, traveling, landscape and macro photography





Name: Tyler Bui College: College of Agricultural and Life Sciences Major: Nutritional Sciences Minor: Chemistry

Mentor: Dr. Zhiyong Cheng

Project Title: Studying adipose tissues to identify the molecular mechanism and develop mechanism-based therapeutics for metabolic disorders.

Project Description: Adipose tissue plays key roles in human health. In addition to storing excess energy as fat, adipose tissue has been shown to secret hormones (e.g., leptin and adiponectin) and regulate body temperature. However, the underlying mechanism remains incompletely understood. This research project will use cultured cells (e.g., 3T3L1 cells and C3H10 cells) to examine how nutrients (e.g., lipids and minerals) regulate the adipocyte development (i.e., cell growth and differentiation) and function (i.e., lipid accumulation and hormone synthesis). The methods include quantitative polymerase chain reaction (qPCR), Western blotting analysis, and oil red O staining. Understanding the molecular mechanism of adipose development may lead to the discovery of new target to promote adipose health and prevent adipose dysfunctions that precedes obesity and metabolic syndrome.

Research Interests: Mechanisms for nutrients, hormonal signaling, and metabolism, adipose tissues, metabolic health and diseases

Academic Awards: Principal Honor Academic Award, CALS Dean's List, SAT Scholarship, Presidential Award, Florida's Bright Futures Scholarship Volunteering: Oldsmar Care Hobbies and Other Interests: Competing in Marathons, running, weightlifting, triathlons, cooking, traveling





Name: Aneth Castaneda-Garcia College: College of Agricultural and Life Sciences Major: Plant Science Minor: N/A

Mentor: Jeongim Kim

Project Title: The Role of Mediator Subunit 5 on Phenylpropanoid Production in Tomato

Project Description: The proposed project will elucidate the role of mediator subunit 5 (MED5) in tomatoes and provide theoretical knowledge to optimize an efficient strategy to improve tomatoes' nutritional and agricultural value. Though studies on MED5 have been done in Arabidopsis, studies have yet to be conducted to ascertain any roles of MED5 on phenylpropanoid production in tomatoes. Therefore, the proposed research project aims to determine the function of MED5 in tomatoes. The first objective of this project is to establish med5a/b1/b2 triple mutants. The second objective is to characterize med5 mutants in order to compare morphological phenotypes and metabolite production with wildtype plants.

Research Interests: Medicinal plants, plant genetics, and organic and sustainable crop production

Involvement: Gator Salsa Club and MFOS Scholars Program Hobbies and Other Interests: Salsa dancing, cooking, gardening, and listening to music





Name: Esha Chakraborti College: College of Agricultural and Life Sciences Major: Nutritional Sciences Minor: AI in Public Health and Healthcare

Mentor: Dr. Melissa Vilaro

Project Title: Developing a Novel Communal Coping Cardiovascular Risk Reduction Intervention Supporting Dietary Adherence Among African American Cancer Survivors

Project Description: This is the pilot program of a larger NIH funded project to reduce disparities in health outcomes among African American cancer survivors. It aims to use family and other social support systems as a part of a behavioral intervention for patients with cardiovascular disease.

Research Interests: Nutrition, Behavioral Medicine, Health Disparities

Academic Awards: Phi Beta Kappa Honor Society; Dean's List; National Merit Scholar Involvement: Phi Delta Epsilon: Pre-Medical Fraternity; Vital Readings Book Club; Luminaries (UF Honors Program)

Volunteering: Equal Access Clinic Network; Peak Literacy: Reading Coach; UF Shands NICHE Volunteer Program; Texas Girls State: Staff Member

Hobbies and Other Interests: Cooking, Exercising, Arts and Crafts, Reading





Name: Qiaowen Chen College: College of Agricultural and Life Sciences Major: Environmental Science (will change to Biology, Data Science) Minor: N/A

Mentor: Dr. Tie Liu

Project Title: Cultivating Freshness: Exploring Factors that Affect the Shelf Life of Lettuce Cultivars

Project Description: The preservation of freshness and shelf life are critical components of successful lettuce cultivation. This ongoing study aims to examine the factors that impact the shelf life of different lettuce cultivars through a series of continuous experiments on their leaves. To achieve this goal, we are utilizing various methods, including imprinting, weight loss measurement, leaf morphology analysis, hyperspectrum imaging, and RNA extraction to comprehensively examine the cultivars. Our study seeks to potentially impact the wider agricultural industry. The development of more effective methods for lettuce cultivation and preservation could positively impact both the quality and quantity of lettuce production, not only in post-harvest field, but also in pre-harvest field. Further research will be necessary to fully understand the factors that influence the shelf life of lettuce and to optimize these methods. These efforts could ultimately lead to a more robust and reliable lettuce industry, benefitting both producers and consumers.

Research Interests: Post-harvest, Genetics, Machines Learning

Academic Awards: 22Fall CALS Dean's List Involvement: UF Chinese Student Association Volunteering: ENGAGE FLORIDA Hobbies and Other Interests: Dancing, Singing, Traveling, Theatre, Movies





Name: Cade Cooper College: College of Agricultural and Life Sciences Major: Microbiology Minor: Pathogenesis, Bioinformatics

Mentor: Kevin Folta

Project Title: Predicting Lettuce growth through analysis of seedling light response

Project Description: This project hypothesizes that exploitation of light signaling in lettuce seedlings can be used to improve varieties of lettuce and predict specific phenotypic developments.

Research Interests: Archaeal, Lettuce seedling light responses

Academic Awards: University Scholars Program Involvement: UF Pre-vet Club Hobbies and Other Interests: Fishing





Name: Kayla Ehrlich College: College of Agricultural and Life Sciences Major: Environmental Science; Sustainability Studies Minor: English

Mentor: Mark Clark

Project Title: Carbon Input/Output of Restored Oyster Reefs

Project Description: Oyster reefs have been ecological pillars of many estuaries across the globe as ecosystem engineers, benthic habitat providers for other marine species, and shoreline stabilizers through wave attenuation and vegetative support. Over the past 130 years, however, 85% of oyster reefs have been lost for various reasons. As a result, there are several ongoing initiatives across the state of Florida aimed at protecting and regenerating oyster reefs and the ecosystem services they provide. A potential service oyster reefs could provide is a form of carbon sequestration; however, the determination of the net carbon yield is difficult to determine as oysters do not have an analogous vegetative component and calcification of oyster shell releases CO2. This study would generate a net carbon emissions calculator for oyster reefs based on the following criteria: organic carbon content of the organic matter in buried sediments, organic carbon content and inorganic carbon content of the buried shell, a life cycle assessment of substrate material used, and the emissions from shipment of materials.

Research Interests: Wetlands, hydrology, plant science, microbiology, conservation ecology, savanna ecology, forest ecology

Academic Awards: Recipient of the William Bartram Undergrad Scholarship 2023, Recipient of the Black and Latinx Birders/Birders Fund scholarship 2022, Florida Georgia Louis Stokes Alliance For Minority Participation Scholar 2022

Involvement: PRISM Honors Magazine

Volunteering: Alachua Audubon Society, Sweetwater Wetlands Park, UF-IFAS Extension Cedar Key

Hobbies and Other Interests: Bird watching, hiking, thrifting, drawing, painting, writing, reading





Name: Maya Fives College: College of Agricultural and Life Sciences Major: Environmental Science Minor: Wildlife Ecology and Conservation; Leadership

Mentor: Dr. Matt Hallett

Project Title: A Study on Wildlife Temporal Behaviors During the Covid-19 Pandemic in Alachua County Wildlife Corridors

Project Description: The objective of this study is to determine the anthropogenic influence on wildlife temporal behaviors in Alachua County parks and preserves by comparing species-specific temporal behavior patterns during the parks' closure amid the COVID-19 pandemic, directly after the parks' reopening, and about one year after the reopening. Camera trap data will be collected and analyzed to determine significance.

Research Interests: Human-wildlife interactions

Academic Awards: Doris Lowe and Earl and Verna Lowe Scholarships Involvement: Outdoor Area Conservation Committee, Green Greeks, Kappa Kappa Gamma, Alpha Zeta, UF Honors, CALS Honors, URSP, Lakes Vegetation and Landscaping Committee Hobbies and Other Interests: Hiking, traveling, meeting other people, spending time with my loved ones, petting animals





Name: Lauren Geiss College: College of Agricultural and Life Sciences Major: IS-EMANR & Natural Resource Conservation Minor: Wildlife Ecology and Conservation

Mentor: Dr. Emma Matcham

Project Title: Soil Aggregate Stability and pH in Silage Corn and Peanut Production Systems

Project Description: Soil aggregate stability is an indicator of soil health as it relates to porosity, organic matter content, biological activity, and water holding capacity. pH in soils affects the availability of nutrients in the soil, which directly relates to crop health and production. Generally, greater pH indicates lower soil aggregate stability, which can affect the retention of water and nutrients during plant growth. However, this relationship is not well known in sandy soils such as those found in Florida. In this project, we aim to assess the relationship between soil aggregate stability and pH across silage corn and peanut fields being treated with fertilizer treatments of ammonium nitrate, gypsum, and lime. Our objectives are to (1) determine whether soil aggregate stability and pH are correlated in sandy soils, and (2) determine whether soil aggregate stability and pH will vary in relation to applications of different common agricultural inputs such as ammonium nitrate, gypsum, and lime.

Research Interests: Nutrient cycling, soil chemical & physical properties

Volunteering: City of Safety Harbor Hobbies and Other Interests: Marching band, art, makeup





Name: Duane Hardy College: College of Agricultural and Life Sciences Major: Plant Science Minor: N/A

Mentor: Masanori Fujimoto

Project Title: An analysis of microplastic abundance and distribution in agricultural soils

Project Description: The study's aim is to investigate the abundance and distribution of microplastics in agricultural soils of Alachua County, Florida. It is predicted that soil on farms with a history of plastic usage will contain microplastics, regardless of crop type or farming practice, and that farms with a longer history of plastic use will have a higher concentration of microplastics. The study will be approved by IRB prior to collecting survey about history of plastic use and collecting soil samples. Soil samples will be taken from local crop production farms, both organic and conventional, analyzed for microplastics, and the data collected will help evaluate the potential environmental effects of microplastics in the soil.

Research Interests: soil health and fertility. plant-microbe interactions. organic and sustainable crop production systems. microalgal biostimulants and biofertilizers in crop production. composting systems. soil-based carbon sequestration. ecosystem conservation. agroecosys

Academic Awards: CALS Dean's List for Fall 2022, Phelps Scholarship recipient Spring 2023, Edith Nourse Rogers STEM Scholarship recipient Spring 2023,

Hobbies and Other Interests: plant collector/enthusiast. container/indoor gardening. reading non-fiction books. hiking/camping. skateboarding and snowboarding.





Name: Kylie Hollis College: College of Agricultural and Life Sciences Major: Environmental Science and Marine Sciences Minor: N/A

Mentor: Anna Braswell

Project Title: The importance of shell quality and stability for restoration of a native ecosystem engineer - Eastern Oyster (Crassostrea virginica)

Project Description: I aim to understand the preferential settlement of larval eastern oysters in Florida's Big Bend to better oyster restoration efforts in the area. Oysters are sessile organisms, however, the larvae have some ability to choose where they settle based on several environmental preferences. While there is literature on other environmental cues for settlement, it is unclear to what extent shell quality and substrate stability play a role in choosing attachment sites. To address this gap in knowledge, I will compare settlement and growth of larval oysters on combinations of clean recycled shells, natural shells from the site, loose shells, and anchored shells. These findings will help determine which attributes to prioritize in restoration projects, ultimately helping the ecological and economic health of the Big Bend coastal communities.

Research Interests: Oyster restoration, marsh ecology, coastal ecology

Academic Awards: President's Honor Roll, CALS Dean's List Involvement: Marine Biology Club Hobbies and Other Interests: Hiking, live performances, reading, music





Name: Ethan Lantzy College: College of Agricultural and Life Sciences Major: Biological Engineering (Land and Water Resources Specialization) Minor: N/A

Mentor: Eban Bean

Project Title: Identifying Effects of Time and Storage Conditions on the Spectrophotometric Analysis of Tannic

Acid to Improve Low-Cost Water Quality Analysis with GatorSpec

Project Description: It is vital to have an accurate measure of a water sample's chemical composition for legal, research, and agricultural purposes. However, chemical composition analysis is expensive and time-consuming with current methods. Spectroscopic techniques hold promise as a low-cost and accurate method of water quality analysis, especially when coupled with machine learning. The Urban Water Resources Engineering lab in UF's Agricultural and Biological Engineering Department has developed a low-cost UV-Vis spectrophotometer (GatorSpec) that measures electromagnetic radiation in the UV and visible light range. However, there is a knowledge gap for the relationship between absorbance spectra and sample preparation, storage, and time before sampling. This project seeks to characterize interferences and potential sources of error within GatorSpec's detection of chemical parameters and concentrations, as well as better understand artificial sample preparation and storage. This will be achieved through studying the spectrophotometric analysis of tannic acid compounds using GatorSpec.

Research Interests: Water resources conservation, nutrient management, sustainable materials, food waste, and more!

#### Academic Awards: Dean's List

Involvement: Honors Program, University Research Scholars Program, Florida Running Club Volunteering: UF Native Plant Nursery, Wilmot Botanical Gardens, and CROS Ministries Hobbies and Other Interests: Running, reading, cooking, and hiking





Name: Thelwell Lloyd College: College of Agricultural and Life Sciences Major:

Minor: N/A

Mentor: Derek Farnsworth

Project Title: TBD

Project Description:TBD

**Research Interests:** 

Academic Awards: Involvement: Volunteering: Hobbies and Other Interests:





Name: Amber Lopez College: College of Agricultural and Life Sciences Major: Soil, Water, and Ecosystem Sciences Minor: N/A

Mentor: Dr. Jonathan Judy

Project Title: Microplastic Occurrence Drinking Water Treatment Residuals

Project Description: Ubiquitous in nature, microplastics have been discovered on all continents and in all oceans throughout the world. However, limited information exists regarding the presence of microplastics in drinking water treatment residuals. Our research will focus on the quantification and identification of microplastics in residuals to determine if land-application is a suitable method of disposal.

Research Interests: Coastal biogeochemistry; Water sustainability and availability; Marine biology

Academic Awards: Frederick B. Smith Scholarship; Doris Lowe and Earl and Verna Lowe Scholarship; Dean's List

Involvement: Fellowship of Christian Athletes; Intramural Flag Football

Volunteering: Girl's Place (Volleyball Coach, Referee)

Hobbies and Other Interests: Exploring local trails with my dog; playing sports with friends; traveling to new places and trying new things; going to sporting events; working out and running





Name: Marina Marquis College: College of Agricultural and Life Sciences Major: Wildlife Ecology and Conservation Minor: Spanish

Mentor: Brett R Scheffers

Project Title: Water loss and its relationship with traits, phylogeny, and decision making in Madagascar frogs

Project Description: The proposed study thus aims to investigate (1) the effects of traits and phylogeny (evolutionary relationships) on water loss in several species of frogs present in Madagascar, and (2) the consequences of water loss on the decision making and performance of Madagascan frogs. We expect that certain traits such as body size will predict the rate of water loss in Madagascar frog species and that rate of water loss is phylogenetically linked (i.e., closely related species will share similar hydration). We also hypothesize that water loss will impact their decision-making and performance, which has downstream consequences on their ability to survive and adapt under environmental change. Approximately 60 Madagascan frogs were put through two experiments: a vertical movement experiment and the horizontal movement experiment, both of which tested a frog's ability to find water resources. Specifically, the horizontal movement experiment provides frogs with a simple choice and tests whether frogs can choose the correct path towards water when dehydrated. The vertical movement experiment expands this question to include their ability to climb and find water resources. This experiment expands the horizontal movement experiment to include niche partitioning. Gaining an understanding of the phylogenetic relationships between water source seeking behaviors and frog species/species traits as well as the consequences of dehydration on decision making in frogs may have important implications for how frogs will respond to changing temperatures, rainfall patterns, and habitats in Madagascar.

Research Interests: I am interested in tropical ecology, conservation ecology, and wildlife behavior.

Hobbies and Other Interests: I enjoy hiking and wildlife watching. I am also very interested in intraspecific cooperative behaviors.





Name: Ashley Mae Peters College: Herbert Wertheim College of Engineering Major: Agricultural and Biological Engineering Minor: N/A

Mentor: Dr. Ana Martin-Ryals

Project Title: AD Effluent Derived from Lettuce Waste as a Supplemental Fertilizer for CEA Systems

Project Description: The goal of this project is to investigate the potential for recycling lettuce waste as biologically derived nutrient and energy source for controlled environment agriculture (CEA) systems through anaerobic digestion (AD). The study will explore the effect of supplementing commercial fertilizer with nitrified anaerobic digestion effluent (ADE) on lettuce yield and quality in hydroponic and greenhouse CEA systems.

Research Interests: Controlled Environment Agriculture Systems Design, Agriculture, Horticulture and Engineering

Involvement: Girls Who Code Volunteering: Strong Roots Movement and Read Lead Achieve Hobbies and Other Interests: Gardening, cooking, nature walks and fitness





Name: Claire Pierce College: College of Agricultural and Life Sciences Major: Plant Science Minor: n/a

Mentor: Dr. Kimberly Moore

Project Title: Combating the Negative Effects of Salt Water Intrusion on Native Plants in South Florida

Project Description: Water is a vital resource to the green industry with water conservation as a top priority. Demand for fresh water is increasing all over the world. Another issue in Florida is saltwater intrusion into wells. Depending on your location in the state and the quality of the well water, growers could experience an EC of 2 dS/m (200 ppm Na) up to an EC of 4 dS/m (400 ppm Na). With salt avoidance, as salts accumulate there is increased selectivity for K, resulting in transport of K inward and Na outward. However, in plants with a low salt tolerance, excess Na interferes with K absorption and could lead to K deficiency. Knowing that K contributes to osmoregulation, we question if the addition of K to the growing substrate would improve plant growth when watered with salt water. If the addition of K to the substrate improves plant growth of low salt tolerant plants when watered with water that is high in Na, this would improve grower's results. Our objective is to test if the addition of K at varying rates to the substrate along with a controlled-release fertilizer improves plant growth when watered with water). The benefit is that regardless of the salt tolerance of the plant and the source of the water, the addition of K to the substrate would allow growers to use that water more effectively.

Research Interests: Salt water intrusion on native plants

Volunteering: Volunteer work at the FLREC in the Environmental Horticulture lab Hobbies and Other Interests: In my free time I enjoy reading, going to the beach, skating, and going to yoga.





Name: Julia Quinones College: College of Agricultural and Life Sciences Major: Nutritional Sciences Minor: Bioinformatics

Mentor: Dr. Diana Taft

Project Title: Analyzing Antimicrobial Resistance Genes in Chronic Kidney Disease Progression

Project Description: My project aims to determine if there is an association between uremic toxin levels and carriage of antimicrobial resistance genes in the gut for individuals with chronic kidney disease. Chronic kidney disease (CKD) results in uremic toxin buildup within the body. This buildup likely leads to suboptimal white blood cell functioning which increases risk of infection in CKD patients. With more infections, CKD patients tend to be given more antibiotics and to be in the hospital more where they are at increased risk of acquiring nosocomial drug-resistant bacteria. As a result, CKD patients experience more antimicrobial resistant infections and colonization than the general population. In humans, the gut is where the microorganisms with AMR are primarily found. For this project, I will develop statistical models describing the relationship between abundance of antimicrobial resistance (AMR) genes and levels of uremic toxins from sampled individuals. I expect that higher levels of uremic toxins will correlate with greater AMR gene abundance and greater AMR diversity.

Research Interests: Chronic disease, antimicrobial resistance, human gut microbiome

Academic Awards: Dean's List, President's Honor Roll, Mayo Clinic Summer Undergraduate Research Fellowship 2023 Involvement: Gator Scuba Club, Theta Alpha Christian Sorority Volunteering: Streetlight at UF Health, Fun & Fit Wellness Center at UF Health, Aces in Motion Hobbies and Other Interests: Church involvement, scuba diving, running, volleyball, and trying new outdoor recreational activities





Name: Lauren Roberts College: College of Agricultural and Life Sciences Major: Entomology and Nematology Minor: N/A

Mentor: Dr. Cameron Jack

Project Title: Evaluating the Effect of Oxalic Acid Vaporization on Honey Bee (*Apis mellifera*) Drone Reproductive Health

Project Description: The purpose of this study is to evaluate the effect of oxalic acid, a widely used organic miticide, on drone reproductive health when applied via vaporization during the late larval stage. Every year in the Bee Informed Partnership national survey, U.S. beekeepers identify queen failure as a top three colony stressor. Although often overlooked, drone health directly impacts queen productivity and longevity. To date, there have not been any studies on the effects of oxalic acid vaporization on drone larvae. This study will be useful for beekeepers, particularly queen breeders, who are interested in producing high-quality drones.

Research Interests: Honey bee reproductive health, genetics, queen breeding, and toxicology

Academic Awards: UF Presidential Scholarship, National FFA Organization Star in Agriscience Involvement: UF Bug Club

Volunteering: UF Honey Bee Extension and Research Laboratory

Hobbies and Other Interests: On the weekends you can find me working my own honey bee colonies. I enjoy producing honey and educating the public through my business called "The Pink Hives" that promotes women in beekeeping.





Name: Alexandra Scott College: College of Agricultural and Life Sciences Major: Natural Resource Conservation Minor: Wildlife Ecology and Conservation

Mentor: Andrew Carlson

Project Title: Using temperature modeling to predict the invasion potential of two nonnative cichlids in Florida rivers

Project Description: The aim of this project is to understand the effect of climate change on two ecologically, recreationally important nonnative fish in Florida, contributing to a larger project in the Florida Cooperative Fish and Wildlife Research Unit. Understanding how habitat changes could affect populations of Mayan Cichlids (Mayaheros urophthalmus) and Oscars (Astronotus ocellatus) can inform management practices and highlight areas of importance. This method of modeling has not been used in Florida before, so its novelty may provide insights for future conservation strategies.

Research Interests: fisheries, aquatic ecology, conservation biology/ecology, human dimensions,

Academic Awards: Dean's List, Doris Lowe and Earl and Verna Lowe Scholarship Involvement: GREBE, Society of Photography for Wildlife Conservation, Alpha Zeta Volunteering: The Florida Aquarium, Florida Museum of Natural History, Save McCarty Woods Hobbies and Other Interests: anything on the water (boating, fishing, tubing, etc.), gardening, playing with my pet cat, traveling





Name: Deyaneira Tirado College: College of Agricultural and Life Sciences Major: Microbiology and Cell Science Minor: Pathogenesis

Mentor: Dr. Mariola Ferraro

Project Title: Synthetic Cannabinoids as Host-Targeting Approach to Reduce Inflammation and Clear Intracellular Infection

Project Description: The objective is using cannabinoids as a potential host-directed therapy for clearing Salmonella infection by treating macrophages with synthetic or natural cannabinoids to activate CB2 receptors which lead to signaling cascades that modulate cellular function. Our goal is to determine whether cannabinoids alleviate the symptoms of salmonella infection and could potentially be used as a host-targeted therapy for bacterial infections.

Research Interests: Microbiology, Pathogens, Cannabis Therapy

Volunteering: HCA North Florida Hospital (Volunteer), Hobbies and Other Interests: Reading, Learning new languages





Name: Abigail Willer College: College of Agricultural and Life Sciences Major: Wildlife Ecology and Conservation Minor: Fisheries and Aquatic Sciences

Mentor: Christina Romagosa

Project Title: Diet analysis of non-native Cuban knight anoles (Anolis equestris) across thermal regions in Florida

Project Description: Cuban knight anoles (Anolis equestris) were first introduced to South Florida in the 1950s, though little is known about their impact on the ecosystem. These diurnal, arboreal lizards are found as far South as the Florida Keys, and as far North as Volusia County. In Florida, the non-native anoles have been observed preying upon small vertebrates such as nesting birds, making them a potential threat to Florida fauna. I aim to analyze differences in the diet of 90 Cuban knight anoles across three thermal gradients in south and central Florida to assess risk in different ecosystems. The lizards will be necropsied to collect gastrointestinal contents and body condition data. Diet contents will be washed, sorted, and identified morphologically to the lowest possible taxonomic level. Preliminary results show the consumption of various insects, fruits, and small lizards in Key Largo.

Research Interests: Invasion ecology, herpetology, freshwater fisheries, arachnology,

Academic Awards: Florida Wildlife Federation scholarship, Arthur K. Woodman scholarship Involvement: The Wildlife Society

Volunteering: National Wild Turkey Federation

Hobbies and Other Interests: Equestrian sports, fossil hunting, wildlife photography.





Name: John Williams College: College of Agricultural and Life Sciences Major: Entomology Minor: N/A

Mentor: Andrea Lucky

Project Title: Taxonomic Revision of the Nylanderia austroccidua (Hymenoptera: Formicidae) Species Complex

Project Description: The ant genus Nylanderia (Emery) includes 125 described species and likely hundreds more undescribed. Classifying taxa within this genus has been difficult since delimiting characters for species are subtle, leading to distantly related genera looking very similar. The goal of this project is to revise the taxonomy of the Nylanderia austroccidua (Trager) species complex to help understand the biodiversity of this genus and be better prepared against invasive species. Nylanderia austroccidua is a single species that has a large geographic range, from Texas to Panama, and has a varied morphology as well; a vast native range and morphology likely means there is undiscovered species. In total, I anticipate 3-5 new species, I will image and collect qualitative and quantitative data from x specimens using 24 standardized measurements. The morphological and geographic data will be used to delimit new species and their boundaries of their native range, and a dichotomous key will be made.

Research Interests: ant taxonomy, evolution and medical entomology

Academic Awards: Williams Scholarship Hobbies and Other Interests: Hiking and insect collecting and curation

