

UNDERGRADUATE RESEARCH PROGRAM

Since its launch in 2000, the UF/IFAS Undergraduate Research Summer Internship program has helped more than 450 UF students get hands-on research experience, working side-by-side with university faculty members and earning a paycheck — but more importantly, gaining experience that gives them a competitive edge.

Students have conducted research on everything from bioenergy to lobster diseases, with quantifiable impact. In post-internship surveys, students reported changes in their competence levels in 19 skills, including how to think logically about complex material and synthesize information from diverse sources. Faculty members become mentors and say the students often end up in leadership roles in their labs. Eligible interns can work for six weeks full-time or 12 weeks part-time. The program aims to draw underrepresented students into science, technology, engineering and math disciplines.

Many internships result in published research, helping aid students' academic résumés before they apply to graduate school, medical school, law school or dietetics programs. And they've had scientific impact: helping college students combat excessive weight gain, assessing the human-immune response implications of supplements, helping protect a vital seafood industry and developing ways to cultivate algae for biofuel production. Examples of the internship program are highlighted below.

NATURAL
RESOURCES



HUMAN
SYSTEMS



AGRICULTURE



COLLEGE WEIGHT GAIN

UF/IFAS' Karla Shelnett has helped give undergraduates hands-on experience with the scientific process, collecting data in the "bod pod," a device that volunteers can climb into and have their body fat percentages measured. Interns have assisted in all phases of the study, including record keeping and taking study participants' body measurements such as hip and waist circumference, height and weight. The research is part of a larger effort to assess health behavior and college students' perceptions of the healthfulness of their campuses, as well as their own health. For the undergraduate research interns, the program offers hourly pay, which can make it financially possible for them to participate in the program without holding off-campus jobs.



PROBIOTIC INTERVENTION

Bobbi Langkamp-Henken's lab offers undergraduates research experience as they work to discover what types of dietary interventions can help college students bolster their immune systems to fend off infections. A recent study involved the use of dietary supplements as possible aids to avoiding colds and flu at exam time. Students have been trained to process blood and stool samples from study subjects and Langkamp-Henken has reported the interns often take on leadership roles in the lab and with human studies. One benefit of the experience, Langkamp-Henken said, is that she writes a detailed letter of recommendation for all undergraduates who complete the program, something that can help them gain admission to professional schools.



BIOENERGY

Undergraduate research interns working with Ann Wilkie participate in a 12-week program that develops critical thinking skills in a research environment. Wilkie's program covers topics including renewable energy, waste management, climate change, food and energy production, sustainable agriculture and ethical concerns related to biofuels. Undergraduates collaborate on research, conduct individual research and grow food and energy crops. In the most recent program, interns conducted research on the cultivation of algae for bioremediation of wastewater and bioresource recovery. Previous cadres have studied topics such as the anaerobic digestion of food wastes, biodigester designs for small farms and communities, and biodiesel and biogas produced from oil crops and organic residues.



LOBSTER VIRUS

UF/IFAS researcher Don Behringer is one of the nation's pioneers in researching the only known virus that kills the Caribbean spiny lobster, *Panulirus argus* — a coveted seafood species with an annual harvest worth approximately \$30 million to the state. Behringer's undergraduate research interns traveled to the Florida Keys to get their feet wet, literally, as they surveyed, captured and studied juvenile spiny lobsters, looking for ways to manage the virus, known as PaV1. Some of the work involved investigating whether healthy lobsters can detect and, thus avoid diseased lobsters. For undergraduate interns, the work provides more than a résumé line, it's an opportunity to be at the forefront of an important, ongoing scientific investigation.



SUSTAINABLE NURSERIES AND LANDSCAPES

Undergraduate interns working with Kimberly Moore, a UF/IFAS professor of environmental horticulture at the Fort Lauderdale REC, have helped search for ways to create more sustainable plant nurseries and landscapes. They've participated in a variety of research projects, such as collecting samples and running nutrient analyses on soil, water and tissue samples for salts, pH, nitrate and phosphate levels, as well as taking soil samples to monitor changes in electrical conductivity. In one 2013 project, undergraduate interns helped Moore investigate the impact of using different volumes of reclaimed waste water on plant growth. Students have also helped Moore collect leaf transpiration data to monitor water stress in landscape and greenhouse settings.



NATURAL ENEMIES FOR INVASIVE WEEDS

UF/IFAS Professor Jim Cuda is an entomologist who studies the biology and impact of natural enemies that attack several of Florida's most harmful invasive weeds. About a dozen undergraduate interns in Cuda's lab have conducted experiments on tropical soda apple, Brazilian peppertree and hydrilla. As part of the search for management methods, students have reared colonies of insects, conducted twice-daily monitoring of insects preying on hydrilla and worked with fungal pathogens kept under quarantine. The research focus, Cuda says, is to answer key questions about the biologies and impacts of natural enemies on several of Florida's invasive weeds. At least four of his undergraduate interns have been named as co-authors in published research papers.

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