

PURSUIT

UNIVERSITY OF CENTRAL FLORIDA | COLLEGE OF SCIENCES | 2017-2018



UCF

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A MESSAGE FROM THE DEAN

Given how large **THE COLLEGE OF SCIENCES** is – the largest college at UCF, 11,279 undergraduate majors, 1,000 graduate students and over 56,000 alumni – it is not a surprise that our impact is so great. In this issue we describe some of our important work helping solve society’s problems and deepen our understanding of the world. Here are some highlights from this past academic year:

- The new National Center for Integrated Coastal Research was formed to address important societal, economic and environmental issues that determine the health of our coastal communities. UCF Coastal is a university-wide effort to tackle big coastal challenges.
- An anthropology assistant professor is heading ground-breaking research into cleft lip and palate surgery. John Starbuck discovered an extra bone obstructing nasal airways that must be removed to improve nasal breathing.
- UCF RESTORES is expanding its services to first responders, such as those called into the Pulse Nightclub tragedy and the Marjory Stoneman Douglas High School shooting.
- UCF and partners have taken on responsibility for one of the world's top planetary science groups. On April 1, UCF took the helm of the Arecibo Observatory in Puerto Rico, a step on our path to becoming a national leader in space research.
- Communication will be a key part of the new UCF Downtown campus. I view this as once-in-a-generation opportunity to boost the profile of this important part of the university. A big step in this direction was the creation of a new intercollege school, the Nicholson School of Communication and Media – including all of the Communication programs plus Digital Media, Film and the Florida Interactive Entertainment Academy.
- We have started two important new Ph.D. programs: the Big Data Analytics Ph.D. (housed in Statistics and offered together with Computer Science) plus the Integrative Anthropological Sciences Ph.D.
- The UCF Arboretum was honored when the Florida Urban Forestry Council presented UCF with an award for Outstanding Urban Forestry, the first for any university in the state of Florida.

It’s been a wonderful year. Go Knights!



Michael Johnson, Ph.D.
Dean of the College of Sciences

PURSUIT

2017-2018

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NATURE NEXT DOOR

The UCF Arboretum consists of more than 800 acres of campus natural lands. The Arboretum works to ensure that these lands contribute to UCF's academic, recreational and social programs.

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CATCHING CRIMINALS WITH CHEMISTRY

AS a forensic chemist, alumna Danielle Ostrow lends her skills to help law enforcement individuals and the court system put criminals behind bars. She spends her days at the Pinellas County Forensic Laboratory, identifying and analyzing controlled substances.

A typical day doesn't exist in this line of work. New drugs are constantly created and old ones are chemically altered to circumvent current drug laws, so Ostrow always has the chance to discover new substances.

“My most memorable experience on the job so far was finding a controlled substance that had never been seen in the lab by any of the analysts,” she said. “Since then, the drug has been seen on multiple occasions, but the initial thrill of being the first analyst to receive evidence containing tertylone was exciting.”

Tertylone, a synthetic and created drug, exists because amateur street chemists tried to create synthetic cannabis. Ostrow originally found the drug as a residue on plant material, because individuals mixed it with cannabinoids during creation. This blending of materials makes it difficult to identify substances based on visual appearance alone, so Ostrow and other forensic chemists must use a Gas Chromatography Mass Spectrometer and other tests to identify the substance.

The lab often must rush many cases. Sometimes trial deadlines need to be met, so Ostrow must expedite her analysis to grant officers probable cause for warrants. Other times, the lab receives a subpoena for an analyst needed to testify as an expert witness in court. Occasionally, there's even reason to believe evidence may contain fentanyl. If that happens, the evidence must be handled with care.

Fentanyl and its derivatives are up to 10,000 times more potent than morphine, and can easily be inhaled or absorbed through the skin. This results in unintentional overdose, putting the lives of any forensic chemists analyzing it at risk. When evidence suspected to contain fentanyl enters the lab, Narcan is kept on hand to counteract the effects of the opioid.

While UCF may not have prepared Ostrow for frequent, unintentional exposure to a drug that could kill her, it certainly helped lay the foundation for her career. As part of the forensic science degree program, Ostrow completed a 400-hour internship. It was an opportunity to



take the knowledge she obtained in the classroom and apply it to real life, giving her on-the-job experience.

“My professors had high expectations and provided the necessary materials in order to understand theories and instrumentation,” Ostrow said. “I was able to learn the material rather than memorize it.”

After she completed the internship and graduated with her bachelor's degree in forensic science, as well as a minor in chemistry, she landed her current job—a job which helps her land others in jail.



TO LEARN MORE

about UCF's Forensic Science Program visit:
sciences.ucf.edu/chemistry



Working in the White House



MICHAEL

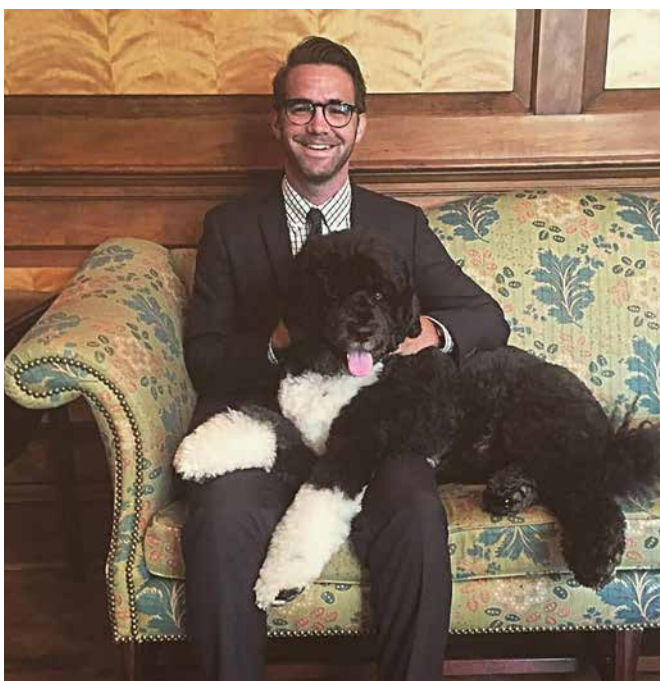
Taylor is in touch with the pulse of the American people. A political science alumnus of 2013, Taylor became the letter writer, engagement and events coordinator in the

Office of Presidential Correspondence during the Obama administration.

He was in charge of maintaining a connection between the people and the White House, where

he scoured the presidential mail looking for letters containing stories of hope to highlight. “The executive branch can seem distant, so we wanted to take stories of real Americans and have them feel heard,” Taylor said.

His job allowed him glimpses into America’s best and worst days. When national tragedies like the Pulse nightclub shooting occurred, Taylor immediately reacted to the situation. He helped former President Barack Obama distribute letters of condolence to victims’ families. But he was also present during America’s happier moments. He welcomed 9/11 responders and Wounded Warriors, as well as otherwise exceptional, inspirational or hurting people, to the White House. They would participate in events like the Easter Egg Roll or the annual Trick-or-Treat, and sometimes were invited to spend the holidays with the president on the South Lawn.



“Often, I think we, as a society, can get really bogged down in the negative things that happen here in America and across the world, and because of that we can lose sight of the amazing things that happen here, too,” he said.

In quieter moments, Taylor reflected on the words of former Press Secretary Tony Snow, who encouraged White House employees to remember their position and understand how blessed they are. This sentiment remained with Taylor during times where he was alone in the West Wing, or staring at the history in the Secretary of War Suite in the Eisenhower Building or finding himself resting his legs on a couch in the red room after working until 1 a.m.



“It was an indescribable experience,” Taylor said. “Long hours were made easier because you were working for a cause that is so much larger than yourself.”

When the Obama administration ended, Taylor took a job as a senior analyst at Accenture Federal Services. Now he uses the skills he learned from his time at the White House and his education to consult on behalf of federal government clients.

“Regardless of the politics, my job is to do what’s best for our clients—the American people,” Taylor said. “Working on projects that create real change for every American is the best part of my job.”

TO LEARN MORE

about UCF’s Political Science Department visit:
sciences.ucf.edu/politicalscience

MATH WITH AN INTERNATIONAL IMPACT

THE UCF Mathematics Department welcomed Eduardo Teixeira, Ph.D., as a new professor this fall. As an esteemed mathematician and winner of the 2017 Ramanujan Prize, Teixeira specializes in partial differential equations, free boundary problems and harmonic analysis.

Before accepting a position at UCF, Teixeira was a professor at the Universidade Federal do Ceara in his home country of Brazil for nine years, where he founded and directed what became one of the major research groups in nonlinear partial differential equations in Latin America.



Faculty

“I felt I could contribute to the development of the mathematical Brazilian community; an endeavor that would ultimately have important academic and social impacts,” Teixeira said.

It was his mathematical work as well as his social outreach commitment in Brazil that caught the attention of the International Centre for Theoretical Physics (ICTP), who, partnered with the International Mathematical Union (IMU) and the Department of Science and Technology of the Government of India, awarded him the 2017 Ramanujan Prize. This award recognizes researchers who have conducted outstanding research in a developing country within any branch of mathematics.

“The Ramanujan Prize should be thought of as the ‘Nobel in mathematics’ for those mathematicians with connections to the developing world,” said Ken Ono, Ph.D., and longtime research mathematician.

Teixeira received the award for his research within the field of partial differential equations. Partial differential equations describe natural phenomena through mathematical models of physical laws.

“We find them in physics, biology, chemistry, even financial mathematics and social behavior,” Teixeira said. “I focus at the interface between applied and pure mathematics. I work with regularity theories, trying to understand the smoothness of the solutions.”

He obtained his Ph.D. in 2005 and his career in the United States blossomed, but Teixeira wanted to return to Brazil. While

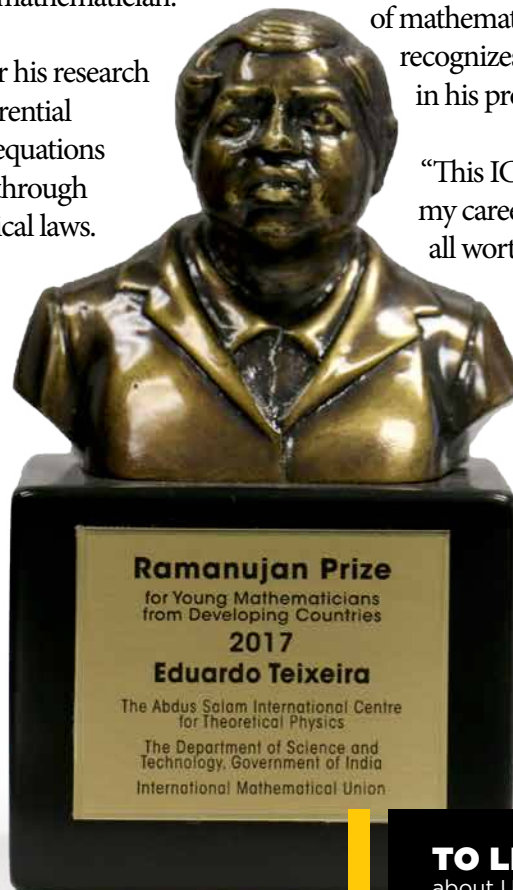


there, he worked to make mathematics more appealing to the general public. Ultimately, his decision to return to Brazil allowed him to make an impact in the realm of mathematics education. The ICTP Ramanujan Prize recognizes his dedication to making a social impact in his profession.

“This ICTP Prize crowns this important part of my career,” he said. “It’s somehow telling me ‘it was all worth it.’”

In addition to the Ramanujan Prize, Teixeira is also an elected Fellow of the Brazilian Academy of Sciences and a recipient of the Mathematical Congress of the Americas Prize.

He now brings his knowledge and devotion to the field of mathematics to UCF, inspiring students to think creatively and view math as not just a tool, but a human endowment all should value.



TO LEARN MORE

about UCF’s Mathematics Department visit: sciences.ucf.edu/mathematics




Photo by:
Daniel Gooding
UCF Biology Department
Ph.D. Candidate

ZOMBIE ANTS

UCF

Assistant Professor Charissa de Bekker, Ph.D., studies zombie ants. Looking at photos, you may think a zombie ant has undergone a Halloween Horror Nights make-up session. The ants are found on pieces of vegetation, such as Spanish moss or pine needle, with stalks growing out of their heads. They don't move, because they've died clinging to the piece of vegetation. De Bekker is trying to figure out what happens to them, and how it happens.

Here's what we know: a fungal parasite infects carpenter ants and through behavioral manipulation, gets them to leave their nests and their regimented lives, eventually biting down on a plant and then dies. The parasite gets into the ant's brain and manipulates its behavior. It's the stuff of a horror movie or a zombie TV show. How does the parasite manipulate the ant to do that?

Faculty



“No one knows how parasites manipulate the brain so precisely,” de Bekker said. “Even the most brilliant neurologists can’t change behavior.”

How the parasite changes its host so drastically has remained a mystery, until de Bekker began looking at another aspect of her research: the circadian clock.

“Every living organism has a biological clock. It controls our metabolism, for example,” she said. “But now we now have found parasites also have biological clocks, and manipulate the clock of its host.”

De Bekker’s latest paper on the biological clock, “Daily Rhythms and Enrichment Patters in the Transcriptome of the Behavior-manipulating Parasite *Ophiocordyceps kimflamingiae*,” was published by *Plos One*.

So what does that mean for the zombie ants of Central Florida? Carpenter ants are nocturnal and only forage for food at night. However, infected ants will leave the nest during the day—a very strange behavioral change. Colleagues of de Bekker’s in Thailand have found infected ants leave their nests at solar noon – every time. At de Bekker’s previous university, the ants left nests at a different time. Even in her current lab at UCF, the ants start changing behavior at a different time. This has led her team to begin researching the manipulation of the ant’s biological clock.

Ph.D. student and co-author on the paper, Ian Will, met de Bekker in Munich while he was studying for his master’s degree. He was also intrigued by the parasite, and once de Bekker settled in Orlando, he followed her to continue his studies.

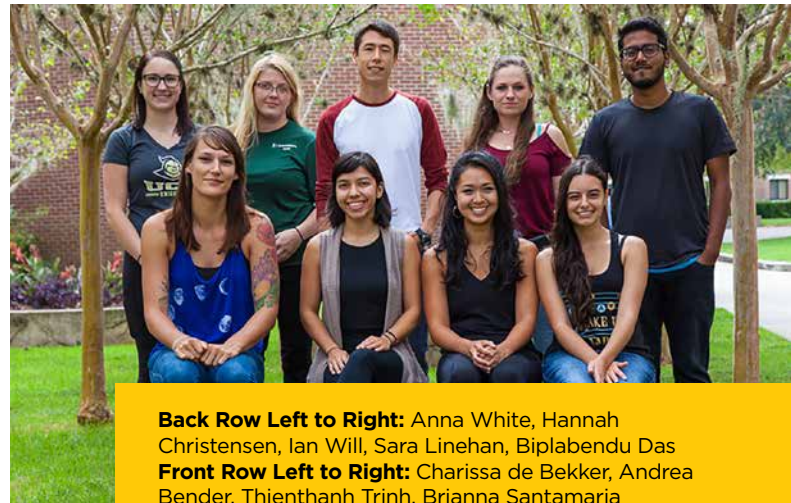
“I’m looking for what genes are turning on and when,” Will said. “We can now infect them in the lab

to watch their pattern of behavior and sample them when they start acting funny and before they start to bite.”

Although de Bekker hasn’t cracked the code on the tie between changed behavior and the biological clock, she and her team of UCF students, both graduate and undergraduate, will continue to study the tie between the two. The implications of understanding the relationship may affect how scientists understand infectious diseases. Malaria, for example, appears in humans as bursts of fever.

“There are 24 hour rhythms with malaria, which is what helps people identify it,” de Bekker said. “There are scientists looking into the biological clock and if it is disturbed by the parasite that causes malaria. We can really learn how diseases might affect us if we find out how the biological clock is affected by parasites.”

De Bekker’s research will continue to focus on unraveling how parasites can so precisely manipulate animal behavior by discovering which fungal effectors are being produced to establish manipulation and how it reroutes the behavioral output of an ant brain.



Back Row Left to Right: Anna White, Hannah Christensen, Ian Will, Sara Linehan, Biplabendu Das
Front Row Left to Right: Charissa de Bekker, Andrea Bender, Thienthanh Trinh, Brianna Santamaria

TO LEARN MORE

about UCF’s Biology Department visit:
sciences.ucf.edu/biology

Centers

THE NATIONAL CENTER FOR INTEGRATED COASTAL RESEARCH

UCF is positioned to be a global leader in coastal research with the launch of the National Center for Integrated Coastal Research. UCF Coastal, as it is nicknamed, will generate data and provide expertise to help address coastline vulnerabilities ranging from extreme weather and public health to tourism and urban planning.

UCF Coastal integrates science with societal needs to find solutions. Our team of interdisciplinary researchers and scientists is committed to an evidence-based, whole-community approach to increase the resiliency and sustainability of coastal communities by bringing together:

- biologists
- chemists
- engineers
- emergency managers
- sociologists
- political scientists
- medical researchers
- economists
- urban planners

Responsible management of Florida's exceptional coastal resources and ocean-based economy depends on innovative scientific research to address complex environmental, economic and social challenges.





WHY FLORIDA?

THREATENED INFRASTRUCTURE

- Shoreline erosion
- Flood damage and disruption, including “sunny day” flooding in South Florida urban areas, some of which could eventually become uninhabitable
- Salinization of freshwater aquifers due to increased extraction of ground water, which also causes sinkholes

ENVIRONMENTAL DEGRADATION

- Phosphate and nitrate pollution affecting marshes and waterways like the Indian River Lagoon System, a \$3.5 billion economic engine for Florida
- Threatened animal populations, including manatees suffering the loss of grazing habitat

PUBLIC HEALTH

- Introduction of mosquito-borne diseases such as Zika, dengue and chikungunya, as well as other invasive plant and animal species



Center Director, **Graham Worthy, Ph.D.**, leads the charge in a comprehensive approach to addressing the problems facing coastal communities.

WHY COASTAL RESEARCH?

3 BILLION PEOPLE live within 100 miles of a coastline

Coastal communities generate more than **\$7 TRILLION** annually

40 PERCENT of the world's population live in coastal communities

GOALS

- 1.** Lead a world-class effort to assess natural and human-related impacts to the health, restoration and sustainability of coastal systems.
- 2.** Conduct long-term, integrated, multi-disciplinary research with strategic external partners.
- 3.** Communicate findings to the general public in an effective and efficient way to advance scientific inquiry, support resource conservation and management and to assist policy makers.
- 4.** Train the next generation of scientists to enter the workforce as effective researchers and science emissaries, with interdisciplinary skills that can bridge the gap between science and society, serving as translators and communicators.

TO LEARN MORE

about UCF's National Center for Integrated Coastal Research visit: ucf.edu/research/coastal-center



ANTHROPOLOGIST CHANGES LIVES

JOHN Starbuck, Ph.D., thought studying anthropology might lead him to a career in a museum, but it's done more than he could've imagined – his research and discoveries are changing the lives of people affected by Down syndrome and those with cleft lip or palate.

Growing up, Starbuck wasn't interested in college. His mother worked minimum-wage jobs and his father wasn't around. Despite his home life, he became a 21st Century Scholar in eighth grade which gives disadvantaged children an opportunity to attend college as long as they meet the requirements of a good GPA and pledge not to commit crimes or use drugs. Starbuck also credits his interest in higher education to a girlfriend who helped motivate him. As an undergraduate he was accepted into the McNair

TO LEARN MORE

about UCF's Anthropology Department visit:
sciences.ucf.edu/anthropology

Scholars program at Indiana University – Purdue University Indianapolis.

“I bought into the idea that an undergraduate education could take me somewhere different and ran with it,” Starbuck said. “I worked in a lot of restaurants in high school, and it was easy to see that those paths have limited opportunities.”

Starbuck was paired with a research mentor in his major – anthropology. It was then that he began studying facial reconstruction from a forensic context and completed a capstone project. This led him to a graduate lab in a highly ranked anthropology program at Pennsylvania State University where he became interested in Down syndrome and how an extra copy of a chromosome 21 alters facial development and appearance. “We collected 3D images and when you go through them, if you didn't know any better you would think

they are all from the same family,” Starbuck said. “How do these individuals have different genetic backgrounds and all look so similar?”

His research led him to post-doctorate work at the Indiana University School of Dentistry in the Department of Orthodontics and Oral Facial Genetics looking at unilateral and bilateral cases of cleft lip with or without cleft palate. Traditionally, cleft lips and palates are repaired when the child is young by a plastic surgeon, but later can lead to dental issues, requiring additional surgeries. Starbuck realized they were forgetting something: everything in the skull is related – a concept known to anthropologists as morphological integration.

“In the skull, there were different issues that weren’t addressed because plastic surgeons tend to focus on making the soft-tissues of the face look right, but children born with clefts may have impaired breathing abilities due to internal, deep bony obstructions that make them more susceptible to infections,” Starbuck said.

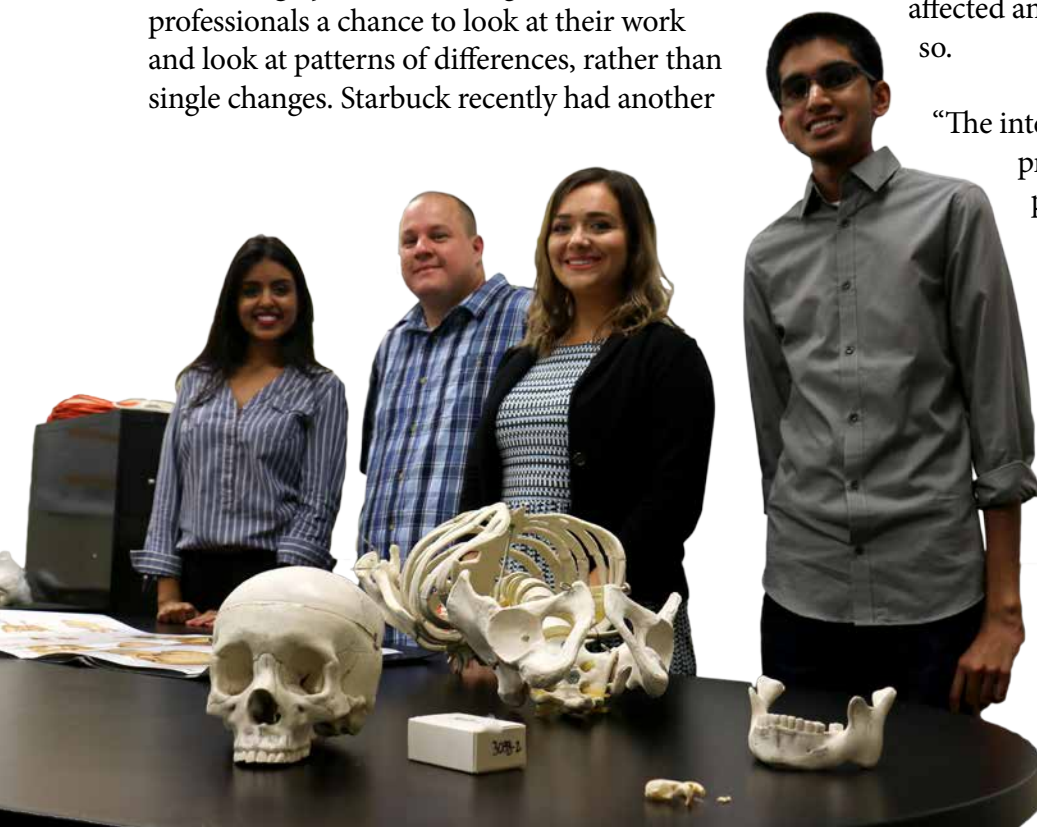
By looking at 3D CBCT images of patient skulls, Starbuck and his plastic surgeon collaborators discovered that there is extra bony matrix present in some individuals that should be surgically removed. These findings were published in the *Annals of Plastic Surgery*. His research gives medical professionals a chance to look at their work and look at patterns of differences, rather than single changes. Starbuck recently had another



research breakthrough at a lab he partners with in Indianapolis, run by Dr. Randall Roper, a geneticist.

Using EGCG, an extract from green tea, Roper’s team of researchers treated Down syndrome mouse models to see if EGCG toned down the over expression of a gene known as *Dyrk1a*, which plays a strong role in skull development. After six weeks, the offspring were measured by Starbuck and a student researcher, and they found that cranial vault shape was entirely corrected in Down syndrome mouse models treated with EGCG in utero. This is a major medical finding, published in *Human Molecular Genetics*. Starbuck and Roper, along with their collaborator Paul Territo at the Indiana University School of Medicine, want to look more in detail at the brains to see if they were also affected and are currently seeking funding to do so.

“The interesting thing is that most medical practitioners have given up on preventing health issues that occur due to trisomy 21, and focus more on treating what they can to improve quality of life,” Starbuck said. “But we need to do more research on the skull and brain to be sure, and funding is absolutely necessary to carry out these experiments.”



UCF DOWNTOWN

NICHOLSON SCHOOL OF COMMUNICATION AND MEDIA

A 21st-century city needs a 21st-century campus. A place where new ideas can flourish from a foundation that's built on innovation. One that will transform lives and our community for decades to come.

The new interdisciplinary inter-college school, Nicholson School of Communication and Media, will be located on the downtown campus. By fall 2019, human communication, communication and conflict, digital media and all communication graduate programs will be located downtown. The Florida Interactive Entertainment Academy, which houses the interactive entertainment master's program, is already on the downtown campus. Advertising/public relations, film, journalism and radio-television also will subsequently move downtown.

UCF Downtown will welcome 7,700 students to live, learn and work in downtown Orlando, providing innovative education for high-demand fields that integrate with industry, and place thousands of students within walking distance of jobs and internships. With your help, UCF will create a game-changing campus in the heart of our great city. Let's build our future together.



ORLANDO'S UNIVERSITY

We have a strong commitment by all partners not just to be in downtown, but to be of the downtown community.

- UCF President Emeritus, **John C. Hitt**

HALL OF FAME INDUCTION

Deanna D. Sellnow, Ph.D., professor of communication in the Nicholson School of Communication and Media at UCF, was inducted into the Central States Communication Association (CSCA) Hall of Fame at its annual convention on April 6, 2018.

“It was both humbling and an honor,” Sellnow said. “I am now counted among an amazing group of dedicated colleagues that devote themselves tirelessly to research, teaching and service in the field.”

Sellnow served as president of CSCA 2006 to 2007 and led several initiatives that set the organization on the path to what is widely recognized as the premiere regional communication association in the United States.

She researches strategic instructional communication, a field that is intentionally goal-driven communication. Scholars work in partnership with professionals working in the public and private sectors to solve real-world problems.

Sellnow’s research is focused on risk and crisis situations both within the U.S. and abroad. She and her research partner and spouse, Tim Sellnow, Ph.D., have developed a model for designing effective risk and crisis messages that can be used by emergency managers and other key spokesperson to get disparate publics to take appropriate actions for self-protection in the event of a risk or crisis situation.

Together they have published research regarding its utility in biosecurity, bioterrorism, food safety, earthquake forecasting and response and pandemics such as Ebola and Zika. This summer the Sellnows are traveling to Entebbe, Uganda, to conduct research on its utility with Ugandan people.

TO LEARN MORE

about UCF’s Nicholson School of Communication and Media visit: communication.ucf.edu



Partnerships

BIG DATA WITH A LOCAL IMPACT

FROM developing predictive models to interpreting data, UCF graduate students had the chance to put their data analytics skills to the test as CFE Federal Credit Union launched its inaugural Lending Analytics Competition with the UCF Department of Statistics.

From October 2017 to January 2018, student teams used data sets to predict lending risks facing the credit union industry.

“As the field of data analytics grows exponentially, it has become more important than ever for companies to use big data to make strategic decisions,” said Kevin Miller, CFE’s President and CEO. “At CFE, we believe in the value of data analytics in the banking industry and beyond, and are proud to invest in UCF’s graduate-level programs.”



Together CFE’s Business Intelligence department and the UCF Department of Statistics developed a competition designed to reduce consumer lending risks. Teams received data sets with disguised information about CFE’s loan portfolio, along with data dictionaries to help students better understand the industry-specific data. With



BRINGING HOME THE GOLD

A \$5,000 check was presented to the UCF Statistics Department by CFE representatives Jason Mitzrahi, Kristen Ward and Daniel Kenon. \$3,000 of that check was the first place prize issued to Yanmei Patella, Jingrong Dai, Mingming Zhou and Assistant Professor Daoji Li.

this information, teams created predictive models to determine which data points are most closely associated with loan charge-offs, which is when a person fails to repay their loan. The student teams communicated their findings in a project report to present to senior management.

The first place team included Mingming Zhou, Jingrong Dai and Yanmei Patella, who worked almost every day during the competition period and used their analytic skills, data mining knowledge and the SAS platform to accurately predict whether repaying a loan would fail, and what the expected loss would be for CFE.

“Our students work very hard and produce incredible head-turning work,” said Assistant Professor, Daoji Li, Ph.D., who advised the winning team. “Winning this competition is a very noteworthy accomplishment because it is not a toy project—it’s a real one.”

Two students from the winning team took Li’s Data Mining II class during the spring 2017 semester. He also teaches Data Mining I in the fall semester of every year.

“This win makes me happiest because we can use the data mining and analytical skills learned from Dr. Li’s class to successfully solve a real-world problem,” said Zhou, the captain of the winning team. “I hope to be a data scientist after graduation from UCF. This is a good experience.”

The teams’ models were tested against a wider data set, and three teams were selected based on how closely their models predicted factors related to failure of loan repayment.

On March 22, UCF hosted its annual Data Analytics Symposium, featuring professors and industry professionals as keynote

speakers. During the event, CFE announced the three teams, and the first-place winners had the opportunity to present their findings. CFE awarded a total of \$5,000 in scholarships to the winning teams.

CFE has partnered with the Department of Statistics in the past to support their programs and hire graduate-level interns. In the future, CFE plans to host additional data analytics competitions that address issues facing the banking industry.



TURNING NEIGHBORS INTO PARTNERS

Statistics chair, Shunpu Zhang works to create partnerships with local businesses that benefit both the businesses and the students of the UCF Statistics Department.

“We look forward to more CFE-sponsored competition opportunities for our students in the future and more collaborations, especially with our Ph.D. program in Big Data,” Statistics Chair Shunpu Zhang, Ph.D. said. “The students really learned the difference between textbook data and real data and practiced their skills. The competition was a success.”

TO LEARN MORE

about UCF’s Statistics Department visit:
sciences.ucf.edu/statistics

GENEROUS KNIGHTS

Giving Back

JIM AND JULIA

Rosengren recently committed \$6.6 million to support a variety of programs at the University of Central Florida. It is among the largest alumni commitments in university history. Combined with their previous donations, the Rosengrens have committed \$7.95 million to UCF – the largest total from an alumnus in university history.

While donors often target a single program, Jim Rosengren, '81, said he and his wife, Julia, are passionate about so many things at UCF they couldn't pick just one.

"We just decided to spread the love around a little bit," he said. "It is important to us to be able to take some of our wealth and put it in areas we are passionate about."

Among other areas across UCF, their donation will directly support the College of Sciences with:

- An endowed chair to support the activities of UCF RESTORES, a clinic operated by Deborah Beidel, a Pegasus Professor of Psychology. The clinic has shown remarkable success treating veterans and first responders with PTSD.
- The UCF Marine Turtle Research Group, which for more than 30 years has conducted research on the Archie Carr National Wildlife Refuge, one of the most important sea turtle nesting sites in the world.
- An endowed professorship in the College of Sciences.



The Rosengrens live in Dallas, where Jim recently retired as executive chairman of Heritage Health Solutions, a health care company that serves more than 3 million veterans through government contracts. They have a personal connection to each of the areas benefitting from their philanthropy.

Jim's son Josh – an Army veteran – was treated at the UCF RESTORES clinic after returning from two tours in Iraq with severe PTSD symptoms.

Julia also accompanied sea turtle researchers during their work at the Archie Carr National Wildlife Refuge, where she helped release a wayward hatchling and witnessed a mother turtle lay her eggs in the sand.



TO LEARN MORE

about how you can help the College of Sciences visit:
ucffoundation.org/givetoCOS

LEAVING THE NEST

UCF alumna Simona Ceriani published a new study that finds sea turtles are what they eat – but where they eat may be even more important.

Ceriani, who is a tenured research scientist with Florida Fish and Wildlife Conservation Commission, collaborated with three UCF Department of Biology researchers on the study which was published in *Scientific Reports*.

“Where you eat and what you eat matters for humans and we found that it does, in fact, matter for turtles,” Ceriani said. “We found that females who eat in southern areas tend to have more offspring.”

During a nine-year period, the scientists examined chemical signatures of more than 700 loggerhead turtles, which nest at the Archie Carr National Wildlife Refuge south of Melbourne. Coupled with GPS tracking, the team was able to map the signatures across the western Atlantic Ocean from the waters off of Nova Scotia to the Yucatán.

Florida is one of the major nesting grounds for loggerhead turtles in the United States. The

Carr refuge accounts for 14 percent of the loggerhead nests in the northwest Atlantic, which is the largest subpopulation in the world.

The study showed that most Carr female loggerheads do not leave the coastal waters that fall under the U.S. jurisdiction. However, the foraging areas where the refuge nesters migrate from vary from year to year. Turtles spend 99 percent of their time in the water, so tracking their whereabouts can prove difficult. The chemical analysis costs \$10 per turtle compared to \$2,000 to \$5,000 required for individual GPS tracking.



TAKING INVENTORY

Simona Ceriani taking inventory of the sea turtle eggs.

TO LEARN MORE

about UCF's Marine Turtle Research Group visit: sciences.ucf.edu/biology/mtrg

“We need to know where they go so that we can protect them, if they need to be protected,” Ceriani said.

As a result of the study, conservation biologists such as Ceriani will look at two key locations to protect sea turtles: the waters off eastern Central Florida and the waters of Andros Island in the Great Bahama Bank.

“This is a cool new tool that could help focus conservation and manage efforts,” she said. “Since most turtles remain in the United States, what we do can either have a positive or a detrimental impact. We are the steward for this species.”

COMING HOME

2017 Nest Numbers*

Leatherbacks:	23
Loggerheads:	9,690
Green Sea Turtles:	15,765

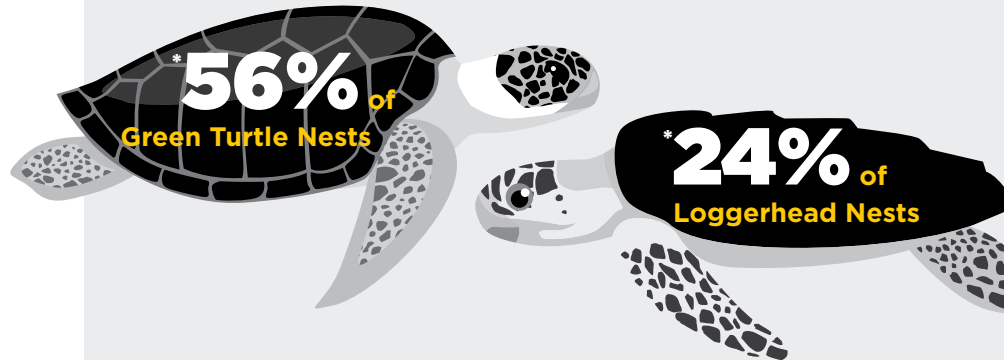


Led by Kate Mansfield, Ph.D., Associate Professor in the biology department, the **UCF Marine Turtle Research Group** is leading the way in sea turtle biology, ecology and conservation.

DURING THE 2017 SEASON

HURRICANE IRMA

RESULTED IN THE LOSS OF:



*Statistics based on the Brevard County portion of the Archie Carr Refuge

Initiatives

UCF
RESTORES
HOPE





ON

October 15, 2016, this message was posted on Facebook by a firefighter:

PTSD for firefighters is real. If your loved one is experiencing signs, get them help quickly. 27 years of deaths and babies dying in our hands is a memory that you will never get rid of. It haunted me daily until now. My love to my crews. Be safe, take care. I love you all.

The firefighter then drove to a rural area of his county and shot himself, leaving behind a wife, children and a fire company devastated by his death. Another first responder committed suicide.

UCF RESTORES, a clinic dedicated to PTSD, anxiety and trauma treatment, had a focus on combat veterans. Recently, they were inundated with requests from firefighters who requested services following the firefighter's death. They did not want their lives to end in the same tragic way.

The clinic is working to expand its services as a result of societal events including the tragedy of the Pulse nightclub shooting, and the Marjory Stoneman Douglas High School Shooting in Parkland, Florida. Suicide rates are increasing among first responders.

UCF RESTORES is the only program in the United States that combines virtual reality assisted exposure therapy with group treatment, using an intensive three-week treatment format. Originally what began as a response to veteran's suffering from PTSD, the first round of 100 veterans participated in a research trial whose results indicated that 65.9 percent of participants no longer met the criteria for PTSD. Six months later, all treatment gains had been maintained with a relapse rate of only 1 percent.

"In 2016 we began treating first responders, and now we've treated more than 122 first responders, mostly firefighters but some police, from across Florida," Director Deborah Beidel, Ph.D. said. "We have to remember there is no VA for first responders."

UCF RESTORES is now at capacity. PTSD continues to affect communities nationwide, disintegrating families and individuals. The goal is to alleviate suffering and to restore lives, families and communities.

TO LEARN MORE

about UCF RESTORES visit:
sciences.ucf.edu/restores

Initiatives

ADOPTING ARECIBO

ON April 1, UCF took the helm of the Arecibo Observatory in Puerto Rico and is on track to become a national leader in space research. Located in Puerto Rico, the Arecibo Observatory is the most powerful single-dish radio telescope in the world. The radar system gathers information about planets, moons, asteroids and comets.

Faculty in the College of Sciences and at the Florida Space Institute in Central Florida Research Park already work on NASA missions and with commercial space companies on a variety of projects that involve asteroids, the moon and Mars. Many of those faculty are already working on plans to conduct more in-depth or completely new space research, now that the observatory is available.

“UCF is now an important player in how astronomy moves forward in the U.S.,” said physics Associate Professor Yan Fernandez. He is a co-principal investigator on the Arecibo project.

“There are only two telescopes with radar capacity in the world and Arecibo is one of them. To have this type of technology associated with UCF is going to make us an even more attractive institution for space studies,” Fernandez said.

The UCF led team, which includes Universidad Metropolitana in Puerto Rico and Yang Enterprises, Inc., reached an agreement with the National Science Foundation to manage the facility for the next five years.

The new agreement means the Arecibo Observatory will continue to offer scientists from around the world an opportunity to pursue radio astronomy, atmospheric science and planetary radar research.

Built in the 1960s, the observatory continues to make significant contributions to understanding the universe. Scientists from around the world have used it to do everything from monitoring binary pulsars to verifying the existence of gravitational waves. The observatory will also continue to track potentially dangerous near-Earth objects.

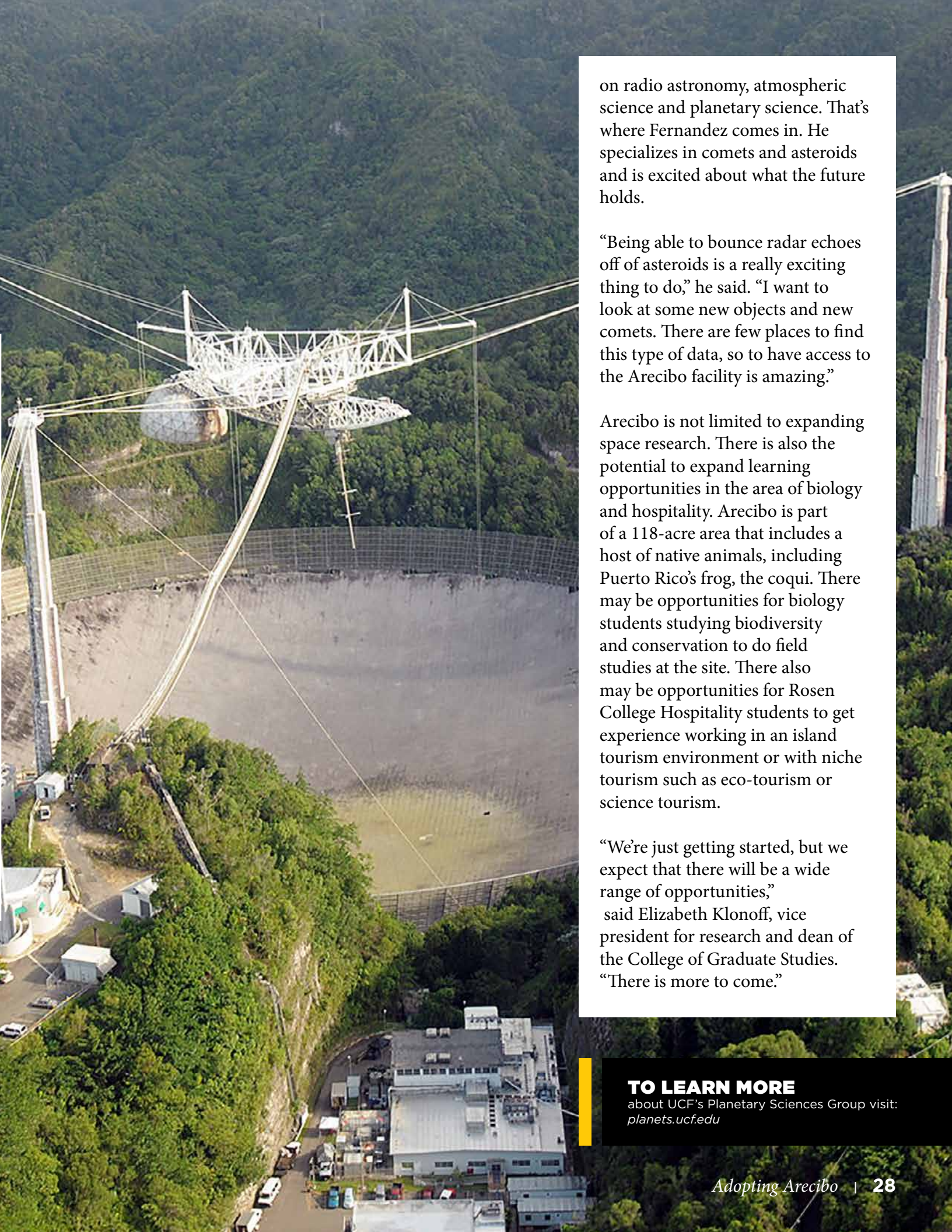
Several scientists at the facility, who are now part of UCF, focus their research



ON TOP OF THE WORLD

UCF faculty Yan Fernandez and researcher Naomi Pinilla-Alonso crossing the catwalks at the Arecibo Observatory.





on radio astronomy, atmospheric science and planetary science. That's where Fernandez comes in. He specializes in comets and asteroids and is excited about what the future holds.

“Being able to bounce radar echoes off of asteroids is a really exciting thing to do,” he said. “I want to look at some new objects and new comets. There are few places to find this type of data, so to have access to the Arecibo facility is amazing.”

Arecibo is not limited to expanding space research. There is also the potential to expand learning opportunities in the area of biology and hospitality. Arecibo is part of a 118-acre area that includes a host of native animals, including Puerto Rico's frog, the coqui. There may be opportunities for biology students studying biodiversity and conservation to do field studies at the site. There also may be opportunities for Rosen College Hospitality students to get experience working in an island tourism environment or with niche tourism such as eco-tourism or science tourism.

“We're just getting started, but we expect that there will be a wide range of opportunities,” said Elizabeth Klonoff, vice president for research and dean of the College of Graduate Studies. “There is more to come.”

TO LEARN MORE

about UCF's Planetary Sciences Group visit:
planets.ucf.edu



STATISTICS AND THE SHUTTLE

JIMMY

Rudolph '76 was hired to work at the Kennedy Space Center on NASA's new Space Shuttle Program right after he graduated from Florida Technological University.

In a room full of old-school engineers who didn't always trust computers, Jimmy made a name for himself after he learned a computer programming language in just one day. He was writing code the first week on the job.

His mission was to fuel the launch vehicle for the space shuttle without causing damage or blowing anything up. As a statistics major, Jimmy didn't have an extensive engineering or computer science background – in fact he was happy that he landed a job that seemed more interested in his secondary skills. Even though he began as a double major, the cost of creeping tuition bills forced him to sit down with an advisor to re-evaluate his specialization.

“At the time the statistics major option was new,” Jimmy said. “We looked at the curriculum and realized it was divided up into three portions: one third math, one third statistics and one third computer science. It was a versatile blend of all three.”

It took Jimmy and his team five years to code and test the control software set using the math model simulator that he also created.

“Several veteran engineers doubted that it was ever going to work, that we could never write something to do the loading for the launch vehicle and the three main engines. But I kept saying that we could do it,” Jimmy said. “I didn't know any better because I was young and straight out of college. I was working with engineers who were veterans of the Apollo, Gemini and Mercury programs.”

SPACE SHUTTLE COLUMBIA

A new era in space flight began on April 12, 1981, when Space Shuttle Columbia, or STS-1, soared into orbit from NASA's Kennedy Space Center in Florida.

Alumni

Jimmy and his team pulled it off. The simulator helped prepare for the first-ever launch of the space shuttle in April 1981, with the world watching on TV.

“I worked with the team to put the astronauts into space. You could stand outside and watch the space shuttle go up. You could feel the sound waves hitting you and you’d hold your breath,” he said. “When the mission would be complete and the shuttle would land with a sonic boom, I’d think, ‘Wow. That’s so cool. I helped do that.’”

And he did for 41 years. Jimmy moved into managerial roles, becoming the youngest manager at three supervisory levels. He was the Director of Safety, Quality and Mission Assurance for 12 years during the busiest time of space shuttle processing and eventually became the Vice President of Space Division APT Research. Reflecting back on his career, Jimmy recognizes a few places he needed to adjust his passion for excellent work, including too-high standards for co-workers and employees – and his own work ethic of 60 to 70 hours a week.

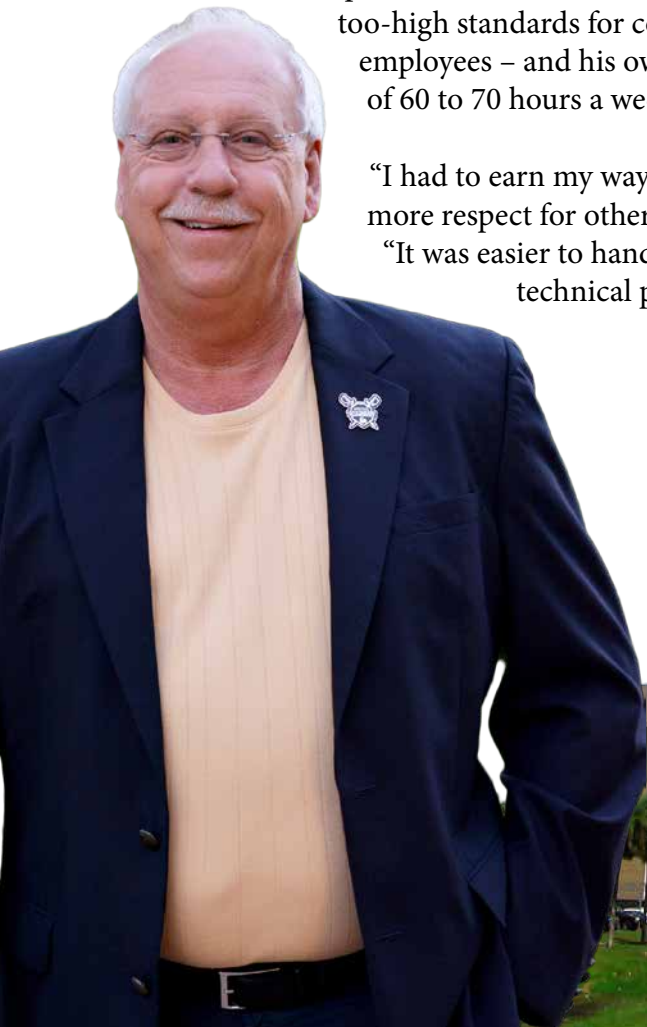
“I had to earn my way, but have more respect for others,” he said.

“It was easier to handle the technical part, but

I realized everyone can do some tasks really well, but not necessarily every task as well. So you have to assign people to the right tasks to help the mission to succeed. My guide for balancing time is to work hard, have fun and respect others.”

Although Jimmy officially retired from Kennedy Space Center in May of 2017, he isn’t leaving the aerospace business entirely – he is available as a part-time consultant. Besides the software set he created that was used successfully for over 30 years, he is also proud of his diploma – a Florida Technological University original.

“I was out of college a year or two when FTU became UCF,” Jimmy said. “The university called to see if I wanted a new diploma and I declined. But 40 years later that seems sort of ironic. Look at UCF now.”



TO LEARN MORE

about UCF’s Statistics Department visit:
sciences.ucf.edu/statistics

CRASHING AT THE COACH'S OFFICE



ROBERT

Aronoff '92 intended to spend his first night on UCF's campus in his car. To his surprise, he spent that warm August night sleeping on a couch in the head football coach's office.

He was accepted to the university the same day he arrived—which also happened to be the first day of classes.

After creating his schedule and realizing his first class began early in the morning, he decided not to take the five-hour round-trip back home. Instead, he pulled his Ford Bronco II off onto one of the many dirt paths, and settled in for the night. It would be a short sleep.

Aronoff awoke around midnight to a flashlight beam in his face and a UCF patrol officer knocking on his window. After explaining his situation and being led out of the woods, he thought he would be escorted off campus or booked for trespassing. But he wasn't. The officer instead led him to the rear entrance of a building on the other side of campus, and unlocked an office. He instructed Aronoff to set an alarm and leave by 6 a.m., but allowed him to sleep on the sofa.

The next morning, Aronoff turned on the light and realized he was in the office of Gene McDowell, the UCF Knights head football coach. At this moment, Aronoff knew he made the right decision to attend UCF.

He then spent the next four years developing his passion for education, speech, debate, athletics, philanthropy and the university he now thanks for his success.

Aronoff earned his B.A. in speech, with a minor in organizational communication, in 1992—before the UCF School of Communication became the Nicholson School of Communication four years later.

After graduation, he became a reporter and then a speech writer and then a professor, which he does to this day as an instructor at Collin College in Fisco, Texas. He teaches public speaking, interpersonal communication and, his personal favorite, business and professional communication.

"No matter what people do after college, they will need to professionally communicate," Aronoff said. He designed this course to help students effectively communicate in the same way he was taught at UCF.

Throughout his academic and professional journey to success, he has stayed connected with his alma mater. He even had the chance to connect with the man who unknowingly provided the roof over his head during his first night at UCF. When Aronoff met Gene McDowell at a UCF alumni event and told him his story, McDowell laughed as he exclaimed, "I knew people were sleeping on my couch!"

It was the accommodation Aronoff received that night, along with inspiration from his UCF professors, that motivates him to give back to the UCF speech and debate teams, as well as UCF athletics.

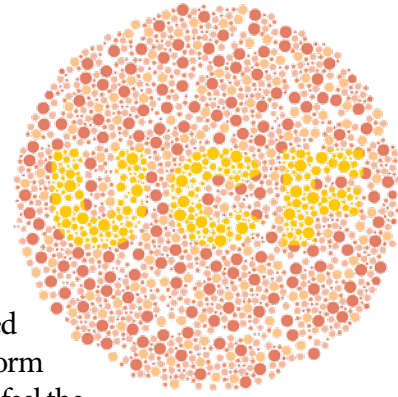
Aronoff hopes these gifts will help other students find their calling and strengthen a growing athletics program for future generations to enjoy.

TO LEARN MORE

about the College of Science's Alumni Chapter visit:
ucfalumni.com/sciences



Students



CRACKING THE CODE FOR COLORBLIND TESTS

TATIANA Fedotava-Molden, a first-year Ph.D. student in the Department of Chemistry, has already had her first research breakthrough and publication in one of the most prestigious international chemistry journals.

Molden began working in Associate Professor Dmitry Kolpashchikov's lab, where research is focused on biochemistry of nucleic acids, DNA and RNA. Many research projects in the group are dedicated to development of sensors for detection of DNA and RNA targets. Kolpashchikov had an idea to develop a sensor that would be based on the change of solution into gel state, rather than color change, and he asked if anyone in the lab would be up for trying to get his idea to work. Previous students had tried, but had given up.

Molden, however, decided to take this project on.

"I kept trying, because there wasn't any reason why it wouldn't work," said Molden, who cracked the code.

Most current tests rely on colors to show a positive or negative result, which can't be performed by colorblind people or while in

the dark. The new way of DNA detection that Molden developed will give users the result in the form of gel – so people will be able to feel the result, not rely only on a color.

Their research was published in *Chemistry Communications* and took the cover of the journal. In addition, it was highlighted by, *Chemistry World*, a monthly chemistry news magazine published by the *Royal Society of Chemistry*.

"The only drawback to this type of testing is that you need more DNA than conventional tests, but we are going to work on that," Molden said. "We can try amplification of DNA or RNA, to get the quantity necessary for the test. I think next we will try to detect viral viruses like Zika or influenza using our technology."

For a chemistry Ph.D. student, Molden had an interesting start. When she lived in Russia, she went to school for journalism and found herself at movie premieres interviewing and mingling with the stars. After moving to the United States in 2006, she decided to go back to school but for something completely different: science.

"I always liked science so I started taking classes at Daytona State," she said. "I got really good at chemistry and loved it, and people were always asking me if I was a chemistry major."

Molden transferred to UCF, undecided whether she would continue to pursue chemistry or go for biomedical sciences. She happened to take Kolpashchikov's class, where she discovered her passion for biochemistry and received an award for outstanding biochemistry student of the year.

"It was clear to me that biochemistry was the right choice," she said.



TO LEARN MORE

about UCF's Chemistry Department visit:
sciences.ucf.edu/chemistry

ORLANDO'S URBAN FOREST

THE UCF campus welcomed home 29 new trees on April 18, 2018, in observance of the university's ninth annual Arbor Day, a holiday that encourages public tree planting and care. Over the past eight years, more than 130 trees have been added to the UCF campus in observance of the day.

The new additions, which were planted around the Student Union, will help maintain the campus' canopy value of \$4.32 million, which considers environmental impact, monetary value and aesthetic appeal.

In February, the Florida Urban Forestry Council presented UCF with an award for the Outstanding Urban Forestry Program, the first for any university in the state of Florida.

The award honors the management and care for trees within a city. Within UCF's Urban Forestry Program, a team of six people, including three certified arborists, spend about 6,000 hours every year installing, removing, air spading, fertilizing and pruning vegetation on campus to help the university maintain its commitment to ecosystem health and preservation.



Led by **Patrick Bohlen, Ph.D.**, Professor in the biology department, the **Arboretum at UCF** cultivates, celebrates, and communicates the value of plants, ecosystems and biodiversity to human well-being.

Through the Department of Landscape and Natural Resources, UCF is working toward a more diverse and appropriate tree canopy, with a dominance of native trees and understory plantings.

“A lot of universities don't have an urban forestry program, and many institutions contract the work out,” says John Guziejka, an urban forester and biologist at UCF. “We have a lot of huge trees reaching the peak of their life on campus, and I ride around to see what trees pose a hazard.”

Not only does the team work to prevent accidents, they plant trees to slow stormwater runoff, which allows water to enter the ground more quickly and reduces the chance it picks up paved-surface pollutants.

TO LEARN MORE

about UCF's Arboretum visit:
arboretum.ucf.edu

“We are committed to providing a forestry canopy that provides ecosystem services,” Guziejka says. “Ecosystem services are what the trees can do for us.”

The trees on the UCF campus improve air quality, provide shade and nutrient filtration, and promote energy conservation. Of the 500 acres of forested conservation land on campus, 82 acres make up the Arboretum.

A sample of 5,320 urban trees at UCF were found to sequester 67 tons of carbon from the atmosphere and put out 161 tons of oxygen each year, according to a recent student study. With the help of students, UCF arborists are working to learn more about the amount of oxygen produced throughout the university’s natural lands.

Another task of the Urban Forestry Program is conducting prescribed fire burns. Burning the forest is crucial to keeping the ecosystems on UCF’s campus healthy, and the campus even safer.

Biologists like Guziejka are certified to start fires — another unique aspect to UCF’s program.

“Not many universities have 800-plus acres attached to the main campus,” he says. “The fires promote biodiversity and turn over nutrients into the soil. The university cares about wildfire mitigation and by burning the parcels of land we are helping prevent a catastrophic wildfire.”

Students interested in getting hands-on experience and becoming involved in the Urban Forestry Program can enroll in a biology course called Urban Ecological Field Studies, taught by Jennifer Elliott, a biology instructor who manages the UCF Arboretum.

“In the class, students explore different pockets of biology such as evaluating trees, looking at storm water and managing lands,” says Guziejka, who often works with students in the course. “Students lead real research initiatives and present their findings at conferences. It’s exactly what professionals do and students leave the class really knowing what a job in this field would be like.”



“We are committed to providing a forestry canopy that provides ecosystem services,” says **John Guziejka**, an urban forester and biologist at UCF. “Ecosystem services are what the trees can do for us.”



THE INDIA CENTER AT UCF

THE India Center at UCF developed in 2012 with the help of many supporters and an enthusiastic commitment of Central Florida's Indian-American community. More recently, The India Center became part of the Department of Political Science in the College of Sciences. It continues to structure its activities around its mission to broaden awareness and understanding about India at UCF and in the Central Florida region.

Co-chairs Kerstin Hamann, Ph.D., and John Bersia, are excited to lead the effort to steer The India Center on its path to developing into a preeminent center with a national and international reputation. This effort will be based on strengthening partnerships and is supported by an ambitious fundraising goal to establish an endowed professorship to lead The Center as it broadens its scope and activities in the coming years.

PARTNERSHIP HIGHLIGHTS

In April 2018, the Indian American Chamber of Commerce hosted Dr. Katikeya Singh at UCF, in conjunction with The India Center. Discussions centered on Smart City Initiatives, Orlando economic partnerships, the Smart Grid Program at UCF, conservation biology and political issues concerning empowering women.



The India Center hosted, “U.S.-India Space Cooperation: A Project for India” in May 2018 to begin working on several objectives that will forge links between U.S. and Indian scientists, engineering and public policy experts that focus on space. The objectives will examine U.S. policies governing the sharing of cutting-edge space technology and U.S. India space cooperation.

As part of a budding partnership between the India Center, CSIS and Madhya Pradesh, UCF hosted Vivek Aggarwal, Principal Secretary to the Government of Madhya Pradesh in April 2018. He was accompanied by Dr. Kartekeya Singh of CSIS and Tim Jetty, Indian Vice Consul General from Atlanta.

Aggarwal met with a variety of Central Florida stakeholders, including Orlando Mayor Buddy Dyer, Orange County, members of the Indian-American community, representatives of the business community, and UCF researchers and administrators. The visit explored a wide range of partnership opportunities, but focused extensively on energy, smart city initiatives and research cooperation. UCF may also have the opportunity to collaborate with universities in Madhya Pradesh.



TO LEARN MORE

about The India Center at UCF visit:
theindiacenter.ucf.edu

CIVICS IN ACTION

IN September 2017, the Lou Frey Institute in the Political Science Department received the National Civic Learning Award for Exceptional Service in recognition of national leadership in civics education.

The Lou Frey Institute was recognized for its work and accomplishments in building a quality civic education program in Florida's K-12 school system. The institute is leading the charge as a model for national civics education, and was placed into the Congressional Record on September 21, 2017.

This work became apparent after the February 14 shooting in Parkland, Florida, killing 17 students and adults at Marjory Stoneman Douglas High School. In the weeks that followed, students went from giving TV interviews to lobbying politicians in Tallahassee to holding a town hall on CNN.

TO LEARN MORE

about the Lou Frey Institute at UCF visit:
loufreyinstitute.org

Frank Islam and Ed Crego of the *Washington Monthly* wrote, “It is worth considering that the students at Stoneman Douglas, as well as all of the students in the state of Florida, have been the beneficiaries of what is arguably one of the nation’s most comprehensive and successful efforts to teach civic knowledge and engagement.”

The Association of Former Members of Congress will be collaborating with Lou Frey and its partners at the Campaign for the Civic Mission of Schools to work on models of civic education policy and implementation, drawing on the lessons learned from the outstanding work done in Florida. The need for quality civic education programs across all 50 states has attracted the attention and support of a community of political leaders that can help move civics education to the next level.



Alumni

2018 OUTSTANDING ALUMKNIGHTS

THE College of Sciences' alumni base has grown to over 56,000 alumni. Staying connected to the university is key to the advancement of our students and programs. Our alumni can stay connected through mentoring, guest speaking opportunities, volunteering through our college's alumni chapters or contributing to one of our many programs, scholarships or faculty funds.

The UCF College of Sciences Alumni Chapter and the UCF Nicholson School of Communication Alumni Chapter support UCF Alumni and UCF College of Sciences initiatives by cultivating a legacy and nurturing lifelong relationships with the college's current and future alumni. Programmatic efforts focus on professional development and networking, while offering meaningful opportunities for engagement that generates multifaceted support for UCF.

In March 2018, the College of Sciences Alumni Chapter hosted the fourth annual Outstanding AlumKnights Awards. One awardee is chosen from each department and school within the college and they are chosen based on distinguished professional achievement, exceptional community service in support of the university and a reflection on the college's mission.



Anthropology

Gene Dixon '92

Geospatial Management Consultant



Mathematics

Alan Gross '91

Financial Advisor and Vice President of Investments at Wells Fargo Advisors



Sociology

Sophia Dziegielewska '81, PhD

Tenured Professor of Social Work at the University of Central Florida



Biology

Clay Scherer '94, PhD

Global Technical Manager of Professional Pest Management at Syngenta



Chemistry

Debbie Dunn '72, PhD

Retired Recruiter at Fortune Personnel Consultants, former Vice President at Oxford Molecular Group



Communications

Gina Castle Bell '06 '08MA, PhD

Tenure-track Assistant Professor at St. John's University



Physics

Roland Williams '71 '78MS

Retired Lead Engineer for Boeing Company



Political Science

Rishi Bagga '03, JD

Attorney & President of the South Asian Bar Association of North America



Psychology

Chip Headley '78 '97MBA

Co-managing Partner and CEO at Artistry Hotels



Statistics

Joey St. Germain '07

Assistant Vice President and Actuary at Hannover Life Reassurance Company of America

TO LEARN MORE

about the College of Science's Alumni Chapter visit:
ucfalumni.com/sciences



Peter Dowling

Assistant Director of Alumni Engagement

Peter.Dowling@ucf.edu
407.823.3491

CLOSING THE HEALTH GAP

SELECTED as a Health Policy Research Scholar, sociology Ph.D. candidate Harvey Nicholson works to close the gap in health disparities throughout the United States. Out of 295 applicants, Nicholson was one of 40 chosen to be a part of this national leadership program funded by the Robert Wood Johnson Foundation.

Nicholson's research focuses on the risk involved with substance-use behaviors like illicit or prescription drug misuse. He pays particular attention to these issues as they exist in black and other stigmatized groups in society.

Nicholson chose to attend UCF for his doctoral study because of the faculty and their research focus in substance use and social inequalities.

"The faculty in UCF's sociology department have been great," he said. "On numerous occasions and still to this day, I have been able to collaborate with faculty on research and learn skills necessary to conduct sound empirical research in my field."

UCF faculty member, Amy Donley,

Ph.D., served as Nicholson's mentor as he went through the application process. After submitting letters of recommendation from other faculty members as well as his resume, Nicholson participated in an interview process and found out a few weeks later that he received the award and was officially a Health Policy Research Scholar.

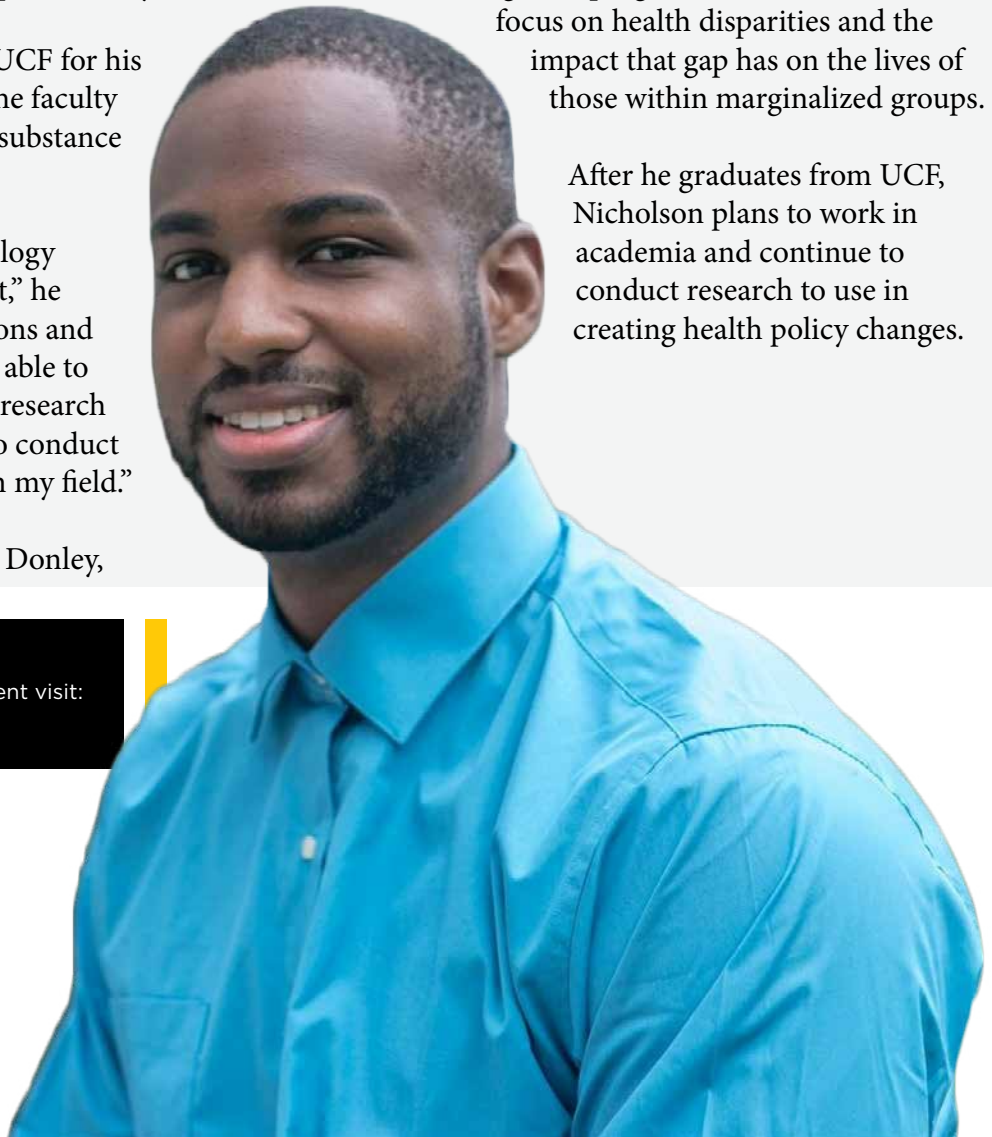
"I was in shock," he said. "However, I was and still am extremely proud to have my hard work recognized by such a prestigious program like the Robert Wood Johnson Foundation."

Through the program, he will continue to focus on health disparities and the impact that gap has on the lives of those within marginalized groups.

After he graduates from UCF, Nicholson plans to work in academia and continue to conduct research to use in creating health policy changes.

TO LEARN MORE

about UCF's Sociology Department visit:
sciences.ucf.edu/sociology



SPEAKERS 2017-2018



Arson Scene to the Courtroom

Michael Sigman, Ph.D.

September 20, 2017

Engaging Communities: Maps, Apps & Drones

Timothy Hawthorne, Ph.D.

October 11, 2017

Where Condors Reign: Vertical Archaeology in the Mountains of Peru

J. Marla Toyne, Ph.D.

January 17, 2018

Orlando: Is it a Coastal City?

Graham Worthy, Ph.D.

February 21, 2018

A Peek Inside the Adaptable Aging Brain

Nichole Lighthall, Ph.D.

March 21, 2018

Cubesats: Big Science in Tiny Spacecraft

Adrienne Dove, Ph.D.

April 18, 2018

A DISTINGUISHED VENUE

The Distinguished Speaker Series has been held at Tuscowilla Country Club since the 2016 series began.



2017-2018 DISTINGUISHED SPEAKER SERIES

THE

College of Sciences Distinguished Speaker Series brings renowned speakers from UCF to enrich the lives of members of the Central Florida community. Our speakers address topics relevant to the natural, computational, social or behavioral sciences and to the societal implication of developments in these fields. We invite you to join us and enjoy these wonderful evenings with food, drink and intellectual stimulation.

In its fourth year, the series has become extremely popular with local community members and alumni. The talks in this year's series have reached capacity, with audiences at 100-plus in attendance. Make sure to check our website for information on the 2018-2019 DSS.



TO LEARN MORE

about the Distinguished Speaker Series visit:
sciences.ucf.edu/DSS

INTEGRATIVE ANTHROPOLOGICAL SCIENCES PH.D.

UCF'S new integrative anthropological sciences Ph.D. is anything but a traditional degree.

Students entering the program will benefit from a methods-focused education which encourages them to integrate advanced methodological expertise with anthropology's strengths in diversity. Students will address enduring problems not just in the social sciences, but also in the health sciences and business. They will learn practical skills such as geospatial analysis, modeling and visualization and ethnographic analysis, which are applicable to many career paths. The focus is on giving students critical skills to analyze the dynamics of transformation and change in societies of the past and today.

Those who complete the program can expect to get jobs in high-growth areas including remote-sensing sciences, health-sciences research and management and cultural-resource management, in addition to becoming life scientists, natural-science managers or college educators.

"Anthropologist Ruth Benedict once said that the purpose of anthropology is to make the world safe for human differences," said Associate Professor Beatriz Reyes-Foster, the graduate coordinator who is implementing the program. "I think this brand-new program, with its unique focus on preparing students who are literate in both the 'hard' sciences and the analytical strengths of anthropology, will help future anthropologists continue to fulfill this purpose in an ever complex and challenging world."

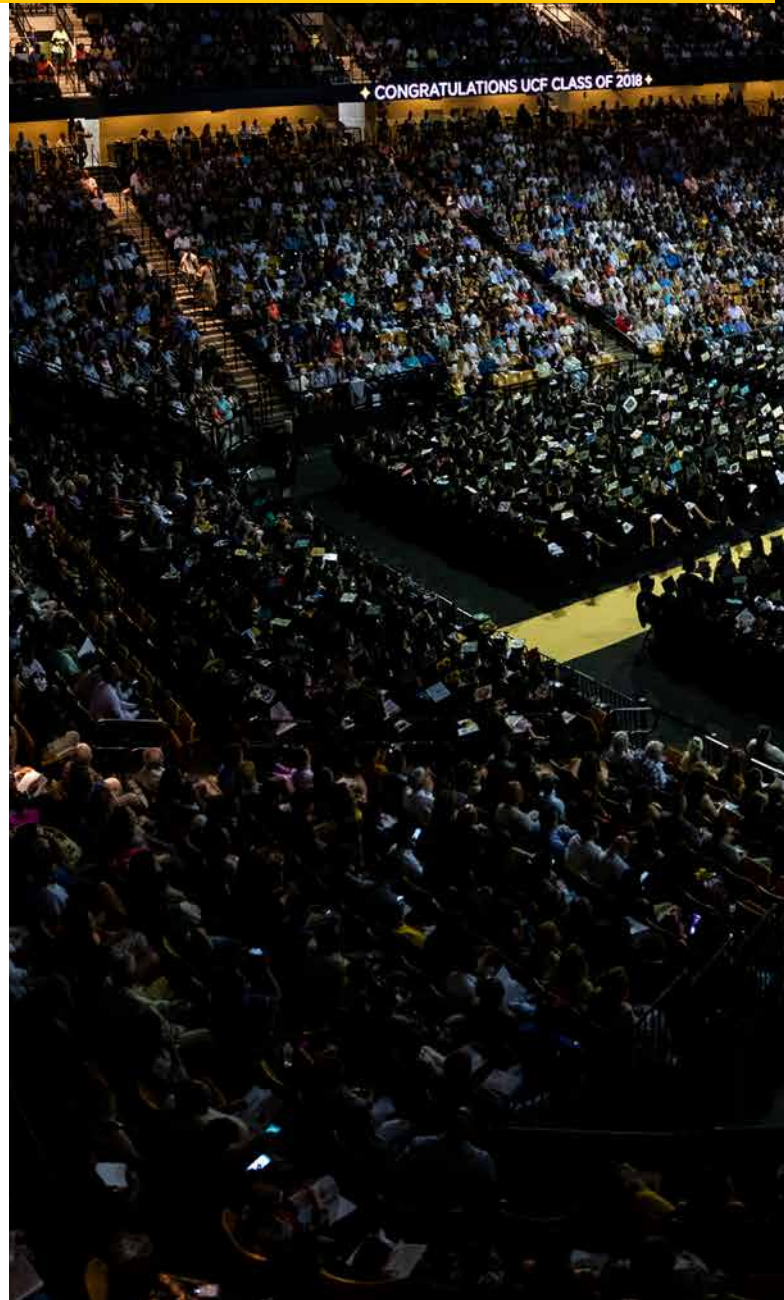
TO LEARN MORE

about the Integrative Anthropological Sciences Ph.D. visit: sciences.ucf.edu/anthro-phd

THIS IS BIG.

AND IT'S ONLY GETTING BIGGER.

The College of Sciences has added two new **PH.D. PROGRAMS** to its curriculum.





BIG DATA ANALYTICS PH.D.

UCF'S

Department of Statistics offers one of the only Big Data Ph.D. programs in the world, and the only program of its kind in Florida.

The field of big data has recently exploded. As companies continue to collect more and more data about their customers, there is a gap to fill with an industry professional who can interpret it. Big data analysts take a massive set of both structured and unstructured data, and reveal patterns or trends that help companies make business decisions. The data is only as good as the analyst, and companies are looking to fill these positions. Every industry is boosting their investment for big data analytics in infrastructures, software and human resources.

Shunpu Zhang, Ph.D., Chair and Professor of the UCF Department of Statistics, says UCF's strong industry partners will help make this Ph.D. an extremely successful program.

"As one of only several Ph.D. programs in the world, we anticipate that 90 percent of our graduates will attain employment in industry or government, driven by the large demand, and the remaining 10 percent will seek academic positions," Zhang said.

Students in the Ph.D. program will not only work with data. The curriculum also includes an interdisciplinary component that combines the strength of statistics with computer science. After graduation students will work in a variety of fields including banking, media and entertainment, government, insurance, natural resources and retail. The list of applications of big data analytics is endless.

TO LEARN MORE

about the Big Data Analytics Ph.D. visit:
sciences.ucf.edu/big-data

NEW FACULTY

The quality of our faculty is the foundation of our academic mission. Each one of these individuals adds expertise that enhances the college's strengths in our disciplines across the physical, natural and social sciences. Listed here are the talented individuals joining the UCF College of Sciences faculty in the 2017-18 academic year.

CURRENT FACULTY

71

Assistant Professors

12

Associate Instructors

33

Associate Lecturers

87

Associate Professors

19

Instructors

40

Lecturers

85

Professors

113

Staff

NEW PROFESSORS, ASSOCIATE & ASSISTANT PROFESSORS



NESETTE FALU, Ph.D.

Anthropology, Assistant Professor

Socio-cultural research interests



MICHELLE R. GAITHER, Ph.D.

Biology, Assistant Professor

Ichthyology, deep-sea, coral reefs, genomics, eDNA



KOLLBE AHN, Ph.D.

Chemistry, Assistant Professor

Biomaterials: materials chemistry
Adhesion: surface and polymer chemistry



TITEL JURCA, Ph.D.

Chemistry, Assistant Professor

Synthetic inorganic chemistry



DENISIA POPOLAN-VAIDA, Ph.D.

Chemistry, Assistant Professor

Atmospheric and combustion chemistry



VASILEIOS ANAGNOSTOPOULOS, Ph.D.

Chemistry, Assistant Professor

Environmental radiochemistry



JONATHAN CARANTO, Ph.D.

Chemistry, Assistant Professor

Metalloenzymology, biosynthesis and microbial physiology



XIAOHU XIA, Ph.D.

Chemistry, Assistant Professor

Materials science, nanotechnology and bio-sensing

NEW INSTRUCTORS, LECTURERS & VISITING FACULTY



JIHYUN KIM, Ph.D.
Communication, Assistant Professor
 Technology for health, online education and parasocial relationships



REGINA FRANCIES, Ph.D.
Communication, Lecturer
 Health communication and marginalized women



PATRIC SPENCE, Ph.D.
Communication, Associate Professor
 Crisis and risk communication



ADAM PARRISH, Ph.D.
Communication, Lecturer
 Interpersonal communication and persuasion



NAN YU, Ph.D.
Communication, Associate Professor
 Health communication and communication technology



NICHOLAS SCIULLO, J.D., Ph.D.
Communication, Lecturer
 Critical and cultural theory and debate



ABEY LOPEZ GARCIA, Ph.D.
Mathematics, Assistant Professor
 Multiple orthogonal polynomials and their asymptotic properties



SEONGCHUN KWON, Ph.D.
Mathematics, Lecturer
 Differential geometry and algebraic geometry



MARK EHRHART, Ph.D.
Psychology, Professor
 Organizational climate and culture, justice and citizenship behaviors



LAURA YANG, Ph.D.
Mathematics, Lecturer
 Combinatorics



STEVE JEX, Ph.D.
Psychology, Professor
 Occupational stress, interpersonal mistreatment and workplace incivility



JOHN HANLEY, Ph.D.
Political Science, Lecturer
 American politics, Congress and constitutional law



JONATHAN COX, Ph.D.
Sociology, Assistant Professor
 Racial identities and racial ideologies of college Millennials



NATHAN ILBERTON, Ph.D.
Political Science, Lecturer
 Congressional politics, American political institutions, institutional interactions, representation



SHIYANG SU, Ph.D.
Psychology, Visiting Assistant Professor
 Psychometrics and educational measurement

2018 PRIORITIES

1. Improve student success: progression, retention, graduation and careers.
2. Improve student learning: innovation, experimentation and evaluation.
3. Strengthen research and research funding.
4. Shape nationally competitive Ph.D. programs and professionally useful master's programs.
5. Increase fundraising – both annual giving and major gifts.
6. Foster internationalization efforts in appropriate departments.
7. Improve a culture of diversity and inclusiveness for faculty and students.
8. Improve faculty career success and satisfaction.

CONGRATULATIONS!

Two UCF Physics Department professors, Eduardo Mucciolo and Enrique Del Barco, were honored by President Hitt and the UCF Board of Trustees for their American Physical Society Fellow appointments. Congratulations!



NATIONAL RANKINGS

BestColleges.com

Best Online Bachelor's Programs:

#1 ANTHROPOLOGY POLITICAL SCIENCE
PSYCHOLOGY SOCIOLOGY

AffordableColleges.com

Affordable Online Bachelor's Programs:

#1 SOCIOLOGY **#2** PSYCHOLOGY

U.S. News and World Report

Best Graduate Programs:

#61 PHYSICS



COLLEGE OF SCIENCES TOP ALUMNI EMPLOYERS

- The University of Central Florida - 919
- Orange County Public Schools - 314
- Florida Hospital - 244
- Lockheed Martin - 215
- Valencia College - 200
- Orlando Health - 168
- Walt Disney World - 167
- Publix Super Markets - 114
- Seminole County Public Schools - 110
- The Walt Disney Company - 100

TOP MAJORS AT UCF

#2 **PSYCHOLOGY**
3,790 Students


#8 **BIOLOGY**
1,819 Students

18% UCF
UNDERGRADS
Pursue **COS** Degrees



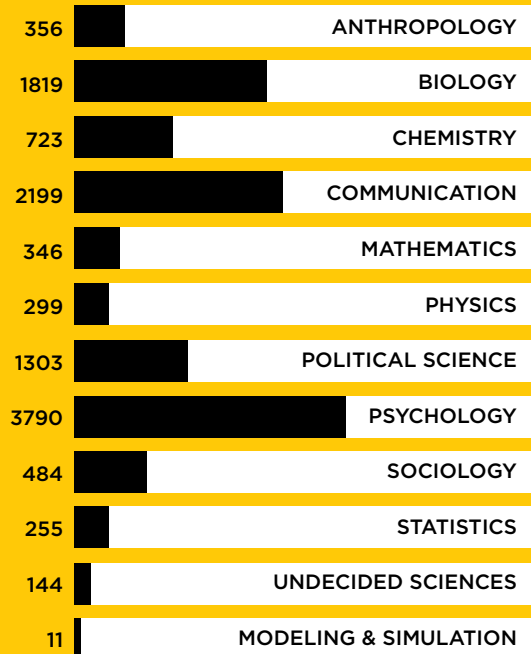
2652

DEGREES CONFERRED
2017-18 Graduate & Undergraduate

46 
**STUDENTS AWARDED
ENDOWED SCHOLARSHIPS**

COLLEGE OF SCIENCES ENROLLMENT

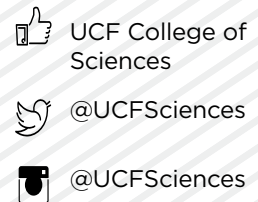
11,729
students enrolled



*Fall 2017 Total Enrollment

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\$92,350
In Student Awards



*Data Provided by ikm.ucf.edu



UCF

College of Sciences