



PURSUIT

ANNUAL REPORT 2016-2017

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A Message from the Dean

“

“Education helps us be fully human, teaching the joy of discovery, learning, and mastery, giving us better understanding of ourselves and the world around us, and knowing that we are prepared for life’s challenges.”

The College of Sciences continues to be the largest college at UCF, with approximately 11,000 students, 55,000 alumni and 467 faculty and staff members. Through research and discovery, the college expands knowledge in communication and the physical, biological, social, behavioral, and computational sciences. We seek to conduct research that matters, and to prepare students to be thoughtful, ethical, and engaged members of society locally, nationally, and worldwide.

OUR GOALS INCLUDE:

- Increase the academic and career success of students in all fields
- Improve the quality and quantity of international experiences for students
- Recruitment of students from underrepresented groups into the sciences
- Expansion and strengthening of Ph.D. programs
- Recruitment and success of world-class faculty
- Increased national and international recognition of our quality and impact

ACCOMPLISHMENTS OVER THE PAST YEAR:

- Big Data Developments:** The UCF Department of Statistics, working together with the College of Engineering and Computer Science and the College of Business Administration, is shaping a nationally competitive interdisciplinary Data Analytics program and establishing ties with interested industry partners.
- Restoring Hope:** UCF RESTORES is making an impact on PTSD and stress disorders in veterans and first responders.
- UCF Marine Turtle Research Group:** Solidified partnership with the U.S. Fish and Wildlife Service which will establish a permanent conservation research facility along the southern Brevard County coastline.
- Galactic Impact:** Diligently making a name for UCF in the world of planetary exploration.
- Sustainable Coastal Systems:** Faculty cluster initiative that integrates science and social needs to address coastal issues and train students in conservation and resource management.
- Global Information Systems:** Helping to protect ancient sites and to solve problems across the globe relevant to climate change, human adaptation, land use, and more.

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

PURSUIT

Annual Report 2016-2017

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BIG DATA

S Y M P O S I U M

Developments in Big Data

In January 2017, the UCF College of Sciences, College of Business Administration and College of Engineering and Computer Science hosted the UCF Big Data Symposium. More than 200 UCF alumni, faculty, students and community partners attended the event.



The three UCF colleges with specialized graduate programs in Big Data, including Data Mining, Data Analytics and Management with a Data Analytics Track, set up tables displaying research and information for engaging attendees.

A faculty member representing each college sat on a panel at the event to answer questions relating to Big Data research and education in their respective areas. The panelists discussed practical ways that companies, nonprofits and individuals can tap into Big Data to benefit their communities and society, as well as UCF's role in preparing students to work in the field.



**TO LEARN MORE ABOUT THE DATA
MINING PROGRAM VISIT:**
dms.stat.ucf.edu



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“PTSD is a debilitating disorder that affects an individual’s ability to work and contribute to society. PTSD is treatable and the inability of state citizens to access effective care affects the individual, their family and also Florida’s economy,” Beidel said. “Our mantra is UCF RESTORES – lives, families, communities.”

Deborah Beidel, Ph.D.

Restoring Hope

As more veterans come home from war, and as our own first responders deal with more instances of tragedy, **DEBORAH BEIDEL, Ph.D.**, said her work treating Post-Traumatic Stress Disorder is more important than ever. But even as the UCF RESTORES clinic sees more patients needing treatment for PTSD, most recently an influx in Orlando first-responders, the clinic’s funding remains uncertain.

Beidel, the UCF Trustee Chair and Pegasus Professor of Psychology and Medical Education, leads the UCF RESTORES clinic which has treated more than 250 soldiers and first responders for PTSD using an innovative technique called “exposure therapy.”

The method incorporates virtual reality combined with group treatments for anger, depression, guilt, and social isolation using a unique three-week program. The free of charge intensive treatment has significantly improved symptoms in most patients, with about two-thirds no longer showing the clinical criteria for a PTSD diagnosis. Beidel said that a six-month follow-up showed no relapses.

The vision of UCF RESTORES is to serve all of Florida’s citizens who suffer from PTSD as a result of traumatic events. This includes not only veterans/active duty personnel and first responders, but also civilians who have been affected by traumatic events (such as the Pulse nightclub shooting), Beidel said.

Funding from the Department of Defense ran out last year and the clinic has been dependent on philanthropy to keep providing needed services. The clinic needs steady funding to continue its work, Beidel said, so it doesn’t have to turn people away or set up long waiting lists.

Beidel’s ultimate goal is that there would be a mix of funds coming from individuals who have insurance coverage, as well as governmental and philanthropic sources. Ideally, she’d like to set up a \$10 million endowment which could cover operating expenses in perpetuity but that is a long term goal and short term solutions are currently needed.

FOR MORE INFORMATION ON UCF RESTORES PLEASE VISIT:

sciences.ucf.edu/restores



Fighting Inequality with GIS

China's socioeconomic transitions have dramatically accelerated its economic growth in the last three decades, but are also companioned with continuous environmental degradation. **YINGRU LI, Ph.D.**, assistant professor in Geographic Information Systems (GIS), is working on a five-year research project involving China's socioeconomic inequalities.

Five research teams composed of professors and students from the U.S., Canada, and China focus on different

perspectives of China's regional inequality and development, involving retail location analysis and planning, childhood obesity, water quality and environmental pollution and geospatial modeling.

Dr. Li's research team has been collecting data focusing on metropolitan areas such as Beijing-Tianjin and Zhengzhou-Kaifeng. They plan on using GIS, spatial statistics, remote sensing, and hydrologic models to further examine environment and health issues in China.

Beauty From Above

The University of Central Florida is using geographic information systems, better known as GIS, to help solve problems across the globe. **TIMOTHY HAWTHORNE, Ph.D.**, assistant professor in the sociology department, is at the forefront of this initiative through the Citizen Science GIS organization he founded when he arrived at UCF in 2015.

Hawthorne led students through multiple projects in 2016-2017 to fulfill its mission; to work with communities across the globe to visualize local knowledge through GIS, drones and collaboration.

UCF hosted the UCF Geographic Information Systems Research Experience for Undergraduates (REU) in summer 2016. The international REU site, held in Orlando and Belize, was funded by the National Science Foundation. The program hosted eight competitive undergraduate students from across the country who worked side by side with Belizean residents, local leaders, and community groups to map local knowledge about marine debris, flooding, and tourism.

In addition, a team of UCF students forms the Open Reef Mapping Society which uses GIS to help map the islands off Belize in Central America. The students' work gives researchers around the world high-resolution data related to climate change, human adaptation, land use, shoreline boundaries and damages.



**TO FOLLOW THE RESEARCH OF THE
OPEN REEF MAPPING SOCIETY VISIT:**
citizensciencegis.org/openreef

Satellites to Protect Ancient Sites

SCOTT BRANTING, Ph.D., assistant professor in anthropology, gets his hands dirty on plenty of digs, but some of his most important work now involves satellites instead of shovels.

Since 2014, Branting has been a principal investigator on a U.S. Department of State project meant to track damage to cultural-heritage sites in war-torn Syria and northern Iraq. It's a monumental task documenting wanton destruction of ancient sites – some of them thousands of years old – by fighters from the Islamic State and other forces.

Branting works with a team from the American Schools of Oriental Research. In 2014, the State Department accepted a proposal to collaborate with ASOR to document, protect and preserve cultural-heritage sites in Syria. The project soon expanded to include northern Iraq.

“It’s horrific and it’s widespread. Cultural heritage has been specifically targeted – it’s not just collateral damage and not just by the Islamic State”

Scott Branting, Ph.D.

Branting and his team are doing that by melding ancient history with cutting-edge science. They’re examining high-resolution photos taken by satellites to document sites’ current conditions and monitor them for damage.

What they’ve seen is disturbing: The ancient Citadel in Aleppo surrounded by bomb craters. The columns of the Tetrapylon toppled and a portion of the façade of the ancient Roman theater destroyed by ISIS in the desert city of Palmyra, Syria, a United Nations Education Scientific and Cultural Organization World Heritage Site.

ASOR and Branting have the mission of sounding the alarm about the destruction. But they’re also documenting the sites’ pre-war condition so that “cultural heritage first-responders” can be better prepared to reconstruct or preserve what’s left once the conflict subsides. The work is important to the future economic solvency of these regions, as archaeological tourism is a significant source of money for governments and residents.



TO HELP SUPPORT THIS RESEARCH PLEASE VISIT:
sciences.ucf.edu/anthropology/kerkenes

Building a Difference

The UCF Marine Turtle Research Group, led by **KATE MANSFIELD, Ph.D.**, assistant professor in the biology department, is leading the way in sea turtle biology, ecology and conservation.

In November 2016, UCF solidified a partnership with the U.S. Fish and Wildlife Service which will establish a permanent conservation research facility along the southern Brevard County coastline. The agreement gives the university more control and responsibility for the existing property on-site, establishes a protocol that will allow UCF to build research facilities and a plan that will give UCF oversight of the facilities for 40 years or more.

The partnership was celebrated with 'A Knight for the Sea Turtles' where guests gathered at the site in Melbourne Beach. Mansfield spoke about the group's research goals and how she hopes to see the facility expand to support much-needed equipment storage and protection, a full-service wet lab, a classroom, and space to encourage working groups, training and collaboration.

TO FOLLOW THE MARINE TURTLE RESEARCH GROUP VISIT:

sciences.ucf.edu/biology/mtrg

"State funding is not going to pay for the facilities' expansion. Philanthropy is the key to bringing UCF to the forefront of sea turtle research."

Michael Johnson, Ph.D.

"This partnership creates a foundation from which we hope to foster new research, hands-on education, and provide scientific advisory service to the local community and state and federal management agencies."

Kate Mansfield, Ph.D.

Galactic Impact

UCF has diligently and methodically been making a name for itself in the world of planetary exploration, and it's beginning to pay off in big ways. Faculty are offering their expertise on missions that will advance our understanding of the cosmos.

NEW HORIZONS

DAN BRITT, Ph.D., professor in the physics department, has been named to the New Horizons mission team as the spacecraft heads to the Kuiper Belt. He will help explore some of the oldest asteroids in the solar system thanks to a new NASA mission which will explore Jupiter's Trojan asteroids for the first-time. The robotic spacecraft will also explore larger asteroids within the asteroid belt. Scientists said they believe the Trojan belt is home to some of the oldest remnants of the solar system.

OSIRIS-REx

UCF Physics Professors **HUMBERTO CAMPINS, Ph.D.**, and **YAN FERNANDEZ, Ph.D.**, are part of the team that built and operate NASA's OSIRIS-REx, (an acronym for Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer, and the name of an early Egyptian god). The first-of-its kind American mission launched in September from the Kennedy Space Center to retrieve samples from the asteroid Bennu.

GOLD MISSION

RICHARD EASTES, Ph.D., of UCF's Florida Space Institute is leading the Global-scale Observations of the Limb and Disk (GOLD) mission scheduled to launch in late 2017 from Florida. The NASA instrument will study the upper atmosphere and the impact of space weather on Earth.

These are just a few of the scientists from the UCF Department of Physics and UCF's Florida Space Institute who are playing critical roles as NASA and private space companies race to get people back into space.

TO LEARN MORE ABOUT UCF'S PLANETARY SCIENCES VISIT:
planets.ucf.edu

“Being able to positively change something for other people is my dream. I love this work and want it to make an impact.”

Brian Zamarripa

Advocating for Women in STEM

UCF Physics doctoral student **BRIAN ZAMARRIPA** was awarded a National Science Foundation grant to fund his proposed research on gender disparity in the field of physics.

With parents hailing from Puerto Rico and Mexico, Zamarripa is part of a minority population himself. He believes that this can help him advocate for fellow under-represented individuals, like women.

Zamarripa found his way to UCF by participating in the American Physical Society's Bridge Program, which is a program designed to aid people of under-represented minorities in their pursuit of physics graduate degrees. He started in the doctoral program in the UCF Department of Physics in summer of 2016.

Zamarripa's research examines the differences in attitudes of women and men toward physics. He said that studies have shown that undergraduate students have variance between men and women in the way that they think about physics. These differences are not as apparent with physicists working in the field.

He wants to figure out why and when that shift in thinking happens. An eventual goal of his is to discover what keeps women in physics and to promote it through workshops or other initiatives.

LEARN MORE ABOUT THE STEM BRIDGE PROGRAM AT:

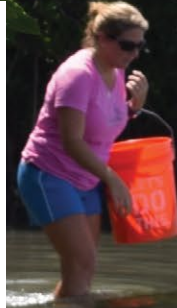
sciences.ucf.edu/physics/bridge

Living Shorelines

In August 2016, UCF faculty members led a group of K-12 educators through an informational and hands-on experience of UCF's restoration efforts in the Indian River Lagoon. The workshop was led by **LINDA WALTERS, Ph.D.**, Pegasus Professor in the biology department, and **MELINDA DONNELLY, Ph.D.**, doctoral researcher and instructor in the UCF Biology Department, as well as **PAUL SACKS, Ph.D.**, a science educator at Winter Springs High school.

Educators participating in the workshop establish mangrove nurseries for UCF at their schools each fall. During the workshop the educators tour the Indian River Lagoon on boats to collect the mangrove propagules (seeds). UCF provides the additional materials needed to sustain these mangrove nurseries in their classrooms.

The juvenile mangrove plants sustained in the educators' classrooms are given back to UCF in May which are then used in living shoreline stabilization. The propagules collected within Canaveral National Seashore specifically are used in park stabilization projects along highly eroded shorelines, especially historic shell midden sites.



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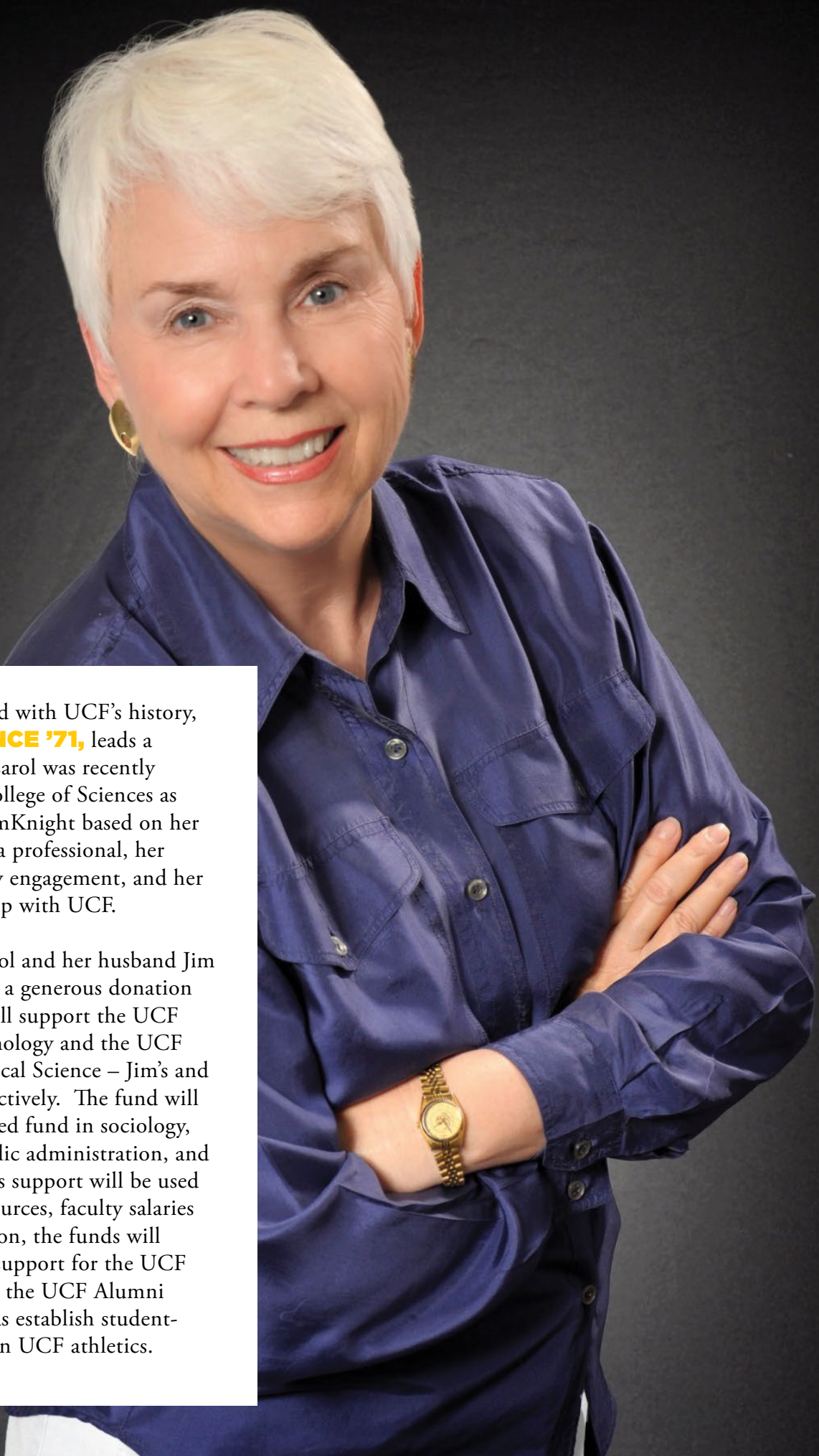
I would expect that educator-run nurseries have contributed over 10,000 plants to Indian River Lagoon restoration thus far.”

Linda Walters, Ph.D.



TO SUPPORT THE LIVING SHORELINES INITIATIVE VISIT:
sciences.ucf.edu/biology

Knights Giving Back

A portrait of Carol Lawrence '71, a woman with short white hair, wearing a blue button-down shirt and a gold watch. She is smiling and has her arms crossed.

A woman intertwined with UCF's history, **CAROL LAWRENCE '71**, leads a very dynamic life. Carol was recently recognized by the College of Sciences as an Outstanding AlumKnight based on her accomplishments as a professional, her extensive community engagement, and her continued partnership with UCF.

In August 2016, Carol and her husband Jim Lawrence, '71, made a generous donation to UCF. The fund will support the UCF Department of Psychology and the UCF Department of Political Science – Jim's and Carol's majors, respectively. The fund will also create an endowed fund in sociology, coastal research, public administration, and Africana studies. This support will be used for scholarships, resources, faculty salaries and grants. In addition, the funds will provide operational support for the UCF Equestrian Club and the UCF Alumni Association, as well as establish student-athlete scholarships in UCF athletics.



For millions of veterans, active duty personnel, and first responders, their self-sacrifices and service to others can carry a heavy physical and emotional toll.

JIM ROSENGREN '81, a disabled veteran, began his 23-year Army career as a field medic. Rosengren made a \$1 million commitment to support UCF RESTORES because he shares the vision of scientific research, cutting edge treatment and education for the next generation of health care providers.

With his commitment, Rosengren is ensuring that military personnel and first responders know that there will be No Soldier Left Behind — not just at the time of the trauma, but even when the memories follow them home.



Knights Swim with Sharks

More and more University of Central Florida students are swimming with the sharks thanks to Nicholson School of Communication alumnus **CLAY NEWBILL '82**. The Executive Producer of ABC's "Shark Tank" provides opportunities for his fellow Knights through an exclusive internship with the show.

Since he started the program in November 2012, 15 interns have participated in the internship in Hollywood, California. Interns in the program travel to Los Angeles to work on the Emmy-winning TV show for five to seven months. They have the opportunity to work in all three sectors of the show: casting, production and post-production.

"This internship is truly one of a kind," said Zoe Hammond, one of this year's interns. "I don't know who would be able to pass up the opportunity to work on an Emmy award-winning television show if you dream of working in the entertainment industry."

This year, the four selected interns also earned \$12,500 in scholarship funding, courtesy of Newbill's program, for relocation and living expenses. This is the second year in a row that Newbill has funded four interns, an increase from three in previous years.

UCF alumna and previous intern Kelly Nader has grown from intern to associate producer thanks to the opportunity. Nader does not expect the number of internships or promotions to decrease for UCF students any time soon.



"Clay could hire anyone who has worked in the industry and already knows how things go, but he gives this incredible opportunity to UCF students."

Zoe Hammond





Outstanding AlumKnights

The College of Sciences alumni chapter hosted the third annual Outstanding AlumKnights awards reception.

Ten alumni, one representing each department and school within the college, are nominated based on distinguished professional achievement, exceptional community service in support of the university and a reflection of the college's mission.

Tegan Sabatier '08

Anthropology

Jane Provancha '78

Biology

Dennis Donahue '75, M.D.

Chemistry

Debbie Perry '77, '82 M.S.

Mathematics

Joan McCain '82, '05 M.A.

Nicholson School of Communication

Scott Fouse '76

Physics

Alan Florez '98

Political Science

Alfredo Anthony '86

Psychology

Jessie Holton '10, '12 M.S., '15 Ed.D.

Sociology

Jimmy Rudolph '76

Statistics





DART FOR FAST FORENSICS

Direct analysis in real time – mass spectrometry, or DART-MS is an instrument that can analyze or screen any unknown gas, liquid or solid sample within 5 to 10 seconds. DART can rapidly analyze a variety of samples, including narcotics, fingerprint residues, explosives, inks, and lubricants, which NCFS has primarily centered its degradation and microbial research on.

National Center for Forensic Science

Recently celebrating their 20th Anniversary, the NCFS mission to provide relevant and responsive forensic science research and operational support to the criminal justice community often puts our faculty in the spotlight. Whether developing new ways to investigate sexual assaults, assisting European forensic scientists in building databases or supporting the local criminal justice system, NCFS faculty are working to improve the world through better forensic science.

GRANT TO AID SEXUAL ASSAULT INVESTIGATIONS

CANDICE BRIDGE, Ph.D., assistant professor in forensic science, was awarded a \$324,000 grant from the National Institute of Justice to develop new forensic science techniques to aid in sexual assault investigations.

Bridge will be working with instrumentation currently only available to the FBI and a limited number of federal and state forensic laboratories to investigate ways to identify rapists by means other than DNA evidence. Bridge works alongside her research group of 11 students that investigate lubricants used in sexual assaults in addition to research in the areas of drugs, toxicology, and gunshot residue.



TO LEARN ABOUT THE NATIONAL CENTER FOR FORENSIC SCIENCE VISIT:
ncfs.ucf.edu

ZOE LANDSMAN is, quite literally, a COSmic Knight. She's a doctoral student in the UCF Physics Department studying planetary science and plans to graduate in summer 2017. She also helps run the "Knights Under the Stars" events at the UCF Robinson Observatory, where the public is invited to visit the Observatory for telescopic views of the night sky and tours of the permanently-mounted 20-inch telescope.

Her primary research focus is the surface properties of asteroids. She and her physics professors use remote sensing data to look at light being emitted or reflected from asteroids in the main asteroid belt between Mars and Jupiter. Her thesis is about metallic asteroids and their origins.

Zoe likes asteroids because they give her a glimpse back into the time of the very early solar systems and shed a lot of light on how planets came to be.

All that being said, could you believe that she initially wasn't a physics major? When Zoe came to UCF for her undergraduate degree, she planned to major in English instead of a STEM major because of all the math classes that they require. Eventually, she decided that she had nothing to lose and changed her focus to something she had loved since she was a child – planets.

Zoe says that it can be intimidating being a woman studying in a field with a majority of men, especially when starting out. She urges all young women to take the plunge and "launch" themselves into studying whatever they want to study; to be out of this world.

**FOR MORE INFORMATION ABOUT
THE ROBINSON OBSERVATORY**

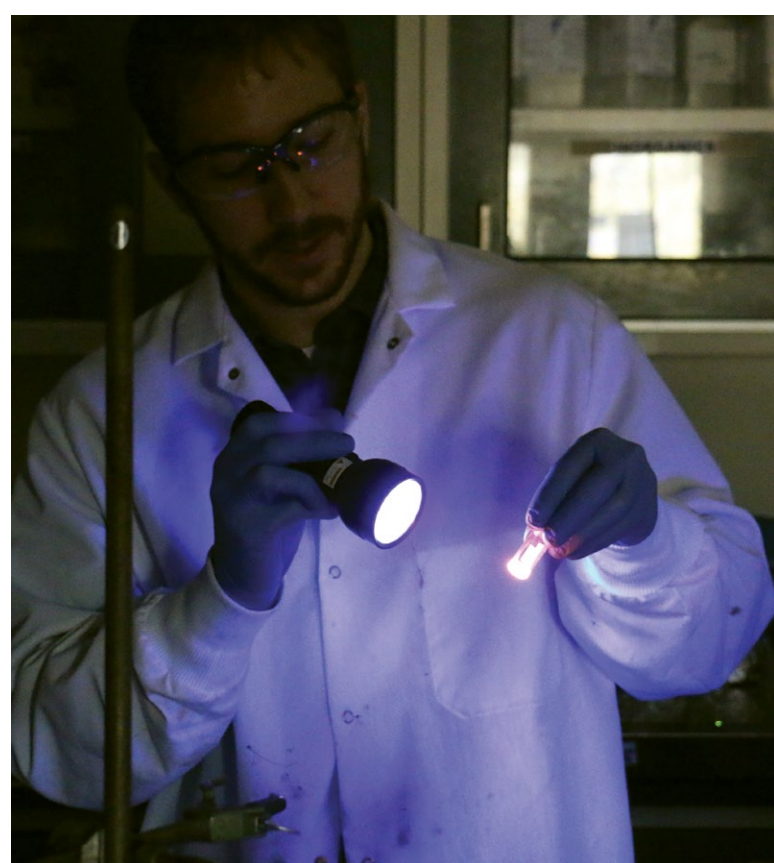
planets.ucf.edu/observatory



You would think pursuing your doctoral degree in chemistry would be enough to have on your plate, but not for COSmic Knight, **TYLER MAXWELL**.

He was assigned to work on an NSF funded project to develop nanomaterials for drug delivery to cancer cells. That's right, he's part of the effort to fight cancer. The nanoparticles Tyler helped develop are being explored for their capability to pass the blood-brain barrier in collaboration with a Mayo Clinic grant. Tyler is literally breaking barriers.

Along with two other students, Tyler decided to start a company called Suncoast Nanotech to market this patented nanoparticle synthesis process to other industries. Tyler doesn't stop there, he also works in the biomedical, materials science, and agriculture fields. He even helped develop a biocide material that was patented and is in the process of being licensed for large-scale production.



It hasn't been an easy road traveled by COSmic Knight **TASHANDA DENNISON**. The UCF Department of Sociology master's student has overcome many obstacles to get where she is today. She continues to work hard for her future... and for her family's.

When Tashanda was young she was a successful student with aspirations of being an aeronautical engineer. In the fourth grade she wrote a paper on what she wanted to be when she grew up only to be discouraged by her teacher. "You know, I don't really think you're going to be able to do that," Tashanda remembers hearing. And eventually, Tashanda says she started to believe it.

Soon after, Tashanda, who was growing up in a low-income Orlando community, became a juvenile delinquent. And after getting pregnant at 17, she learned the hardships of being a single mom.

Tashanda supported her son by working in call centers, barely surviving but trying to support her family. Not only was she still growing up, but so was her son. She struggled with keeping herself on track and keeping her son on track as well.

She started to realize that this life just wasn't working for her. With the encouragement of her friends, she decided to pursue a college degree.

After enrolling at Seminole State College, she quickly found intrigue in sociology and an inspiration in higher education. After completing her associate's degree, Tashanda decided to pursue an even higher level of education by earning her bachelor's degree in sociology at UCF.

She would be the first in her family to earn a college degree. Now the mother of two children, Tashanda has become a role model to them even more so than before. After seeing their mother walk at UCF

graduation, her children have become two of the biggest, yet smallest, Knight fans. Tashanda hopes her achievement will lead her following generation to walk across the stage here at UCF.

Tashanda focuses on social inequalities in sociology, hoping to give back with community organization and engagement. Eventually, she wants to earn her Ph.D. and become a professor at UCF.

UCF initiated a positive change in Tashanda's life, and now she wants to inspire that positive change in others as well.

FOLLOW US!

To keep up with our COSmic Knights, check us out on Facebook, Instagram, and Twitter!

 **UCF College of Sciences**

 **@UCFSciences**

 **@UCFSciences**



TO LEARN MORE ABOUT UCF'S FIRST GENERATION PROGRAM & SCHOLARSHIPS:
mass.sdes.ucf.edu/programs/first

Education and Recovery

For the past decade **THOMAS HALL '16, Ph.D.**, has been at the forefront of implementing one of the most premier prevention programs in the country at the University of Central Florida.

The UCF sociology alumnus is the director of Substance Abuse Prevention, Treatment & Recovery Services at UCF Student Health Services. Since 2010, Hall has mentored UCF students in recovery, enhancing their opportunities for academic success.

Hall has worked to combine UCF's prevention, treatment and recovery programs to create a continuum of care. Most campuses treat each service separately, but Hall has worked to combine the efforts seamlessly. He believes the Collegiate Recovery Community enables students to earn their degree while maintaining recovery.

Hall maintains an appointment in the UCF College of Medicine as an affiliated instructor for psychiatry.

TO LEARN MORE ABOUT THE CRC PROGRAM VISIT:

shs.sdes.ucf.edu/crc



Civics360

Middle school students across the state of Florida and all over the United States are learning civics through a program developed by the University of Central Florida's **LOU FREY INSTITUTE**.

Civics360 is an interactive civics review website provided by the Lou Frey Institute's Florida Joint Center for Citizenship. It evolved from the Escambia County Civics Review Site with the help of the institute's web development team.

The goal of the new website, which officially went online in early April, is to provide study materials and assessments to help middle school students understand civics.

STEPHEN MASYADA, Ph.D., director of the Florida Joint Center for Citizenship, said that the site was made to continue the institute's work with students and teachers across the U.S.

Other states and school systems across the country are welcome to use the content on the website, even though much of it is specific to the state of Florida. With only a month since the website's launch, there are currently about fifteen thousand registered users in Florida and about a thousand nationwide.

The development team is actively adding new exercises and assessments to give students plenty of resources. Masyada said that he only expects the program to keep growing.

TO LEARN MORE ABOUT THE LOU FREY INSTITUTE VISIT:

loufreyinstitute.org



Communicating During a Crisis

This March, nearly 150 crisis communication professionals and scholars from around the world converged at UCF as the Nicholson School of Communication hosted the 6th Annual International Crisis and Risk Communication Conference (ICRCC). This year's theme – Bridging the Gaps – put the focus on having scholars and practitioners come together to develop better ways for scientists to communicate risk and for companies and governments to navigate crises.

The whole point of the ICRCC is for us to keep moving forward and get better at communicating with the public," said **TIM SELLNOW, Ph.D.**, conference co-chair and Professor of Strategic Communication in the Nicholson School of Communication. "You can't expect one plan to work well across cultural spectrums," said **ANTONIA NOVELLO, Ph.D.**, former U.S. Surgeon General under President George H.W. Bush. "Different cultures process messages differently and react to them differently."

She noted that after the shooting at the Pulse nightclub in Orlando in 2016, "some Hispanic and Latino families assumed their loved ones were OK, mainly because they only understood a portion of what was being told to them. In a couple of cases it took multiple attempts to inform people their loved ones had been hurt or killed in the attack. Some of that was language, some of it was procedural."

Technological cultural differences may also play a role in risk messaging, said several severe weather

professionals. The growth of social media has helped emergency managers stay in touch with residents, said **KIMBERLY PROSSER** of the Brevard County Emergency Management Office, but "we have to remember that not everyone realizes that they don't need to have a Facebook account to see public Facebook videos.

**MORE INFORMATION ABOUT THIS
CONFERENCE CAN BE FOUND AT**
sciences.ucf.edu/communication/icrc



Ultraviolet Breakthroughs

FERNANDO URIBE-ROMO, Ph.D., UCF

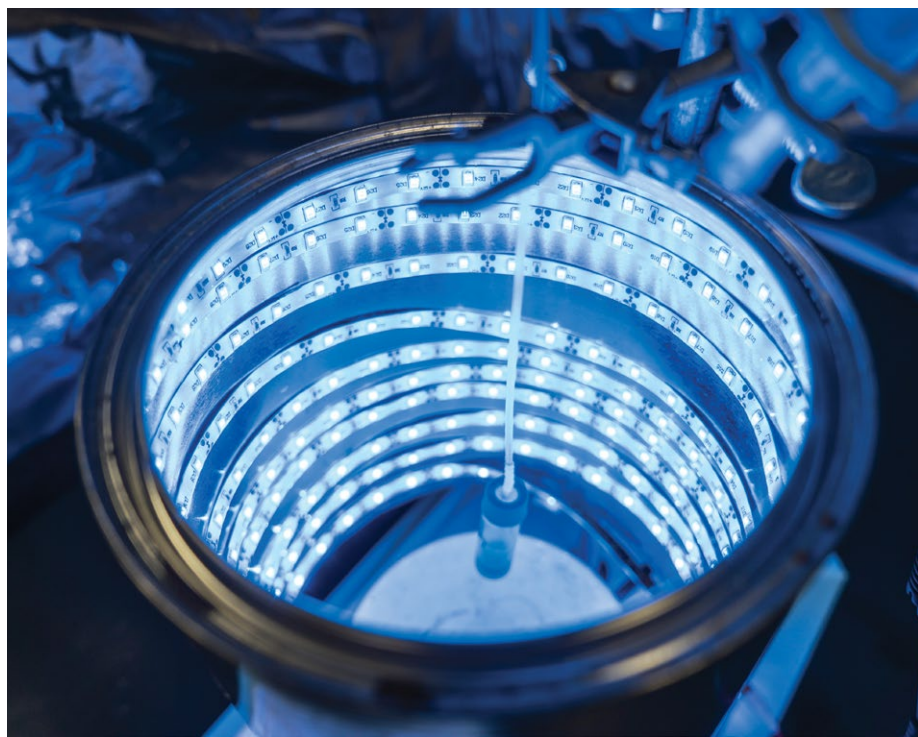
Assistant Professor of Chemistry, found a way to trigger the process of photosynthesis in a synthetic material. This process turns greenhouse gases, that are linked to climate change, into clean air and produces energy.

Uribe-Romo triggers a chemical reaction in a synthetic material called metal-organic frameworks (MOF) that breaks down carbon dioxide into harmless organic materials. It works like an artificial photosynthesis process similar to the way plants convert carbon dioxide (CO₂) and sunlight into food. Instead of producing food, Uribe-Romo's method produces solar fuel.

It's something scientists around the world have been pursuing for years, but the challenge is finding a way for visible light to trigger the chemical transformation. Researchers have tried it with a variety of materials, but the ones that can absorb visible light tend to be rare and expensive and make the process cost-prohibitive. Uribe-Romo made this process work with titanium.

His team assembled a blue LED photoreactor to test out the hypothesis. Measured amounts of carbon dioxide were slowly fed into the photoreactor — a glowing blue cylinder that looks like a tanning bed — to see if the reaction would occur. The glowing blue light came from strips of LED lights inside the chamber of the cylinder and mimic the sun's blue wavelength.

It worked and the chemical reaction transformed the CO₂ into



two reduced forms of carbon, formate and formamides (two kinds of solar fuel) and in the process cleaning the air.

Next steps are to see if the other wavelengths of visible light may also trigger the reaction with adjustments to the synthetic material. If it works, the process could be a significant way to help reduce greenhouse gases.

Other members of the team who worked on the paper include UCF graduate student Matt Logan, who is pursuing a Ph.D. in chemistry, and undergraduate student Jeremy Adamson, who is majoring in biomedical sciences. Kenneth Hanson and his research group at Florida State University helped interpret the results of the experiments.

Someday homeowners could purchase rooftop shingles made of the material, which would clean the air in their neighborhood while producing energy that could be used to power their homes.

TO LEARN MORE ABOUT THE UCF CHEMISTRY DEPARTMENT:

sciences.ucf.edu/chemistry

“The idea would be to set up stations that capture large amounts of CO₂, like next to a power plant. The gas would be sucked into the station, go through the process and recycle the greenhouse gases while producing energy that would be put back into the power plant.”

Fernando Uribe-Romo, Ph.D.

Distinguished
Speaker Series



The College of Sciences Distinguished Speaker Series brings renowned speakers from UCF and across the country 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.



DS **SPEAKERS**
2016-2017

MATTHEW TOCHERI, Ph.D.,
Evolution and the Significance of the
Hobbits
September 28, 2016

CLINT BOWERS, Ph.D.,
A Mostly Serious Talk About Serious Games
October 26, 2016

**TIM SELLNOW, Ph.D., &
DEANNA SELLNOW, Ph.D.,**
Communicating During a Crisis:
Making Connections that Matter with
Diverse Publics
November 30, 2016

GÜNEŞ MURAT TEZCÜR, Ph.D.,
What do Terrorists and Freedom Fighters
Have in Common?
January 25, 2017

RICHARD ROSENFELD, Ph.D.,
2015 Homicide Rise and the ‘Ferguson
Effect’
February 22, 2017

DANIEL BRITT, Ph.D.,
Orbits and Ice Ages:
The History of Climate
March 29, 2017

CHARISSA DE BEKKER, Ph.D.,
The Story of Zombie Ants:
How Can a Fungal Parasite Control Animal
Behavior
April 26, 2017

**FOR INFORMATION ABOUT THE
2017-2018 DSS VISIT:**
sciences.ucf.edu/DSS



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 2015-16 academic year.

CURRENT FACULTY

82

Assistant Professors

11

Associate Instructors

27

Associate Lecturers

77

Associate Professors

23

Instructors

46

Lecturers

87

Professors

114

Staff

New Professors, Associate & Assistant Professors



SHANA HARRIS, Ph.D.
Anthropology, Assistant Professor
Cultural and Medical Anthropology



CHARISSA DE BEKKER, Ph.D.
Biology, Assistant Professor
Behavioral Ecology



CHASE MASON, Ph.D.
Biology, Assistant Professor
Plant Ecology



GANG CHEN, Ph.D.
Chemistry, Assistant Professor
Materials Chemistry



YULIA GERASIMOVA, Ph.D.
Chemistry, Assistant Professor
Biochemistry



ROBERT LITTLEFIELD, Ph.D.
Communication, Professor
Strategic Communication



EDUARDO TEIXEIRA, Ph.D.
Math, Professor
Math Education



KATIUSCIA TEIXEIRA, Ph.D.
Math, Assistant Professor
Math Education



CHRISTOPHER BENNETT, Ph.D.
Physics, Assistant Professor
Planetary Sciences



ZHONGZHOU CHEN, Ph.D.
Physics, Assistant Professor
Physics Education Research



MENGYU XU, Ph.D.
Statistics, Assistant Professor
High-Dimensional Hypothesis Test



XIAOFENG FENG, Ph.D.
Physics, Assistant Professor
Condensed Matter Physics



YASUYUKI NAKAJIMA, Ph.D.
Physics, Assistant Professor
Condensed Matter Physics



MIHAI VAIDA, Ph.D.
Physics, Assistant Professor
Condensed Matter Physics



KONSTANTIN ASH, Ph.D.
Political Science, Assistant Professor
Political Conflict and Violence



ROBERT DVORAK, Ph.D.
Psychology, Assistant Professor
Behavioral Psychology



JAMES ILLINGWORTH, Ph.D.
Psychology, Assistant Professor
Industrial and Organizational Psychology



AMIE NEWINS, Ph.D.
Psychology, Assistant Professor
Clinical Psychology



MEGAN SHEROD, Ph.D.
Psychology, Associate Professor
Clinical and Health Psychology



ALEXANDER MANTZARIS, Ph.D.
Statistics, Assistant Professor
Datascience and Network Science



EDWARD GONZALEZ-TENNANT, Ph.D.
Anthropology, Visiting Lecturer
Spatial analysis, digital heritage in the American Southeast and Caribbean



DANA-MARIE DENNIS, Ph.D.
Chemistry, Visiting Lecturer
Forensic Science



ALAA HASHIM, Ph.D.
Chemistry, Visiting Lecturer
Biomolecules by means of NMR



REGINA FRANCIES, Ph.D.
Communication, Visiting Lecturer
Human Communication



ANNUM KARIM, M.A.
Communication, Visiting Instructor
Human Communication



ADAM PARRISH, Ph.D.
Communication, Visiting Lecturer
Human Communication



JEFF KUNERTH, MFA
Communication, Instructor
Mass Communication



ANDREA SCOTT, Ph.D.
Communication, Lecturer
Human Communication

New Instructors, Lecturers & Visiting Faculty



CHRISTOPHER SPINALE, Ed.S.
Lou Frey Institute, Instructional Specialist
 Action Civics Coordinator



JESSICA RACINE JACQUES, Ph.D.
Lou Frey Institute, Research Associate
 Civic Engagement and Education



VALERIE MCVEY, M.A.
Lou Frey Institute, Instructional Specialist
 Director of Curriculum



GAO-FENG ZHENG, Ph.D.
Math, Visiting Professor
 Partial Differential Equations



HONGWEI MEI, Ph.D.
Math, Visiting Assistant Professor
 Financial Mathematics



DUY LE, Ph.D.
Physics, Assistant Scientist
 Computational Physics



TEDDY REYNOLDS, Ph.D.
Political Science, Visiting Lecturer
 Terrorism, Radicalization & Intelligence



NICHOLAS BENCAZ, Ph.D.
Psychology, Visiting Assistant Professor
 Industrial and Organizational Psychology



MARTHA HUBERTZ, Ph.D.
Psychology, Visiting Lecturer
 Cross Cultural Psychology



VICIE HURST, Ph.D.
Psychology, Visiting Assistant Professor
 UCF RESTORES Clinician



JONATHAN MITCHELL, Ph.D.
Psychology, Visiting Assistant Professor
 The impact of integrated healthcare on
 ‘triple aim’ outcomes



AUSTIN NICHOLS, Ph.D.
Psychology, Visiting Assistant Professor
 Industrial and Organizational Psychology



MICHAEL ARMATO, Ph.D.
Sociology, Lecturer
 Gender, Masculinities, Social Stratification,
 Sociological Theory



BRITTANY JURASZEK, M.S.
Statistics, Instructor
 Statistical Methods



KATHLEEN SUCHORA, M.S.
Statistics, Instructor
 Undergraduate statistics

NOT PICTURED:

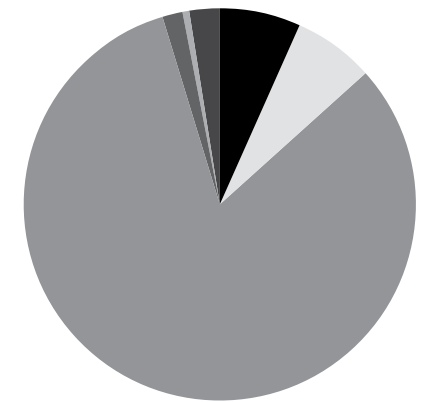
KRISTI ALEXANDER, Ph.D.
Psychology, Professor
 Pediatric Clinical Psychology

VU NGUYEN, M.S.
Psychology, Research Associate

**FOR THE FULL COLLEGE OF SCIENCES
FACULTY DIRECTORY VISIT:**
sciences.ucf.edu

Scholarships

45
Total Awarded
\$86k
In Awards



Top Majors by Enrollment

#1
Psychology- 3,762 Students
#10
Biology- 1,776 Students

Publications

665
Peer Reviewed- Journal
Articles, books, book chapters,
and conference proceedings.

2016 Patents

17
Total- Across the following
departments:
 Physics
 Chemistry
 Mathematics
 Psychology
 National Center for
 Forensic Science

**NATIONAL
RANKINGS:**

**U.S. News and World Report
Graduate Programs:**

Chemistry	117
Biology	188
Math	134
Psychology	112
Clinical Psychology	102
Physics	85
Sociology	102

GraduatePrograms.com:

Masters in Psychology	8
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TheBestSchools.org:

Anthropology	5
Psychology	14
Political Science	8
Sociology	6

**GRADUATE
ALUMNI:**

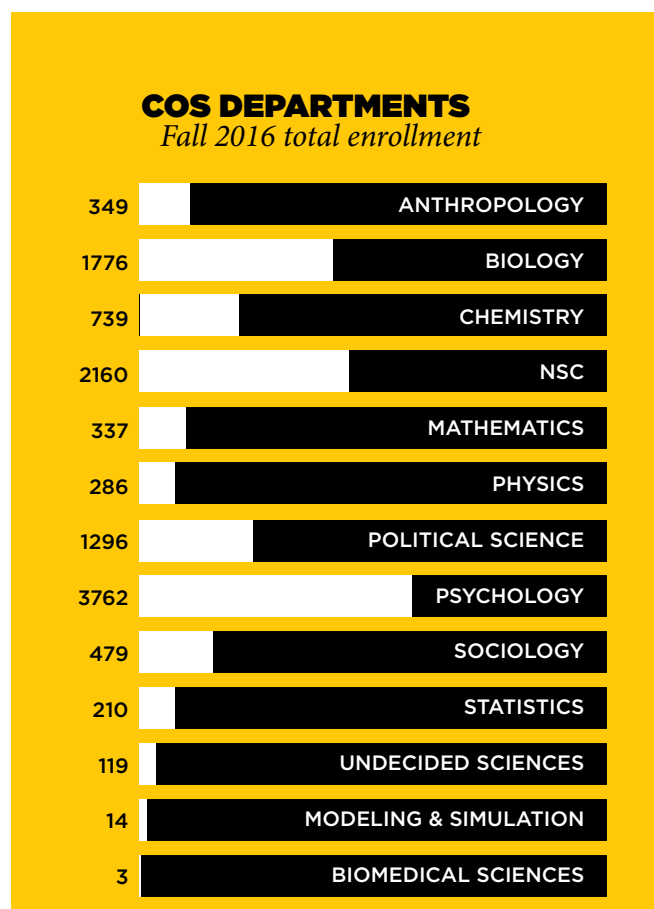
Summer 2016 - Spring 2017

60
 Doctoral Graduates

176
 Master's Graduates

UCF GOALS

1. Offer the best undergraduate education available in Florida
2. Achieve international prominence in key programs of graduate study and research
3. Provide international focus to our curricula and research programs
4. Become more inclusive and diverse
5. Be America's leading partnership university





UCF

College of Sciences