

R & I REVIEW

Volume 1, Issue 1 • Spring 2019



A note from the artist:

My photographs involve a thread of undeniable human connection to nature. For some, this thread had become ragged and weak, where it was once strong. My work seeks the physical and emotional connection we all hold within. That is the connection we hold with ourselves, with the environment around us, and with others. To feel is to be human, yet instead of embracing the feeling of the moment, we push it aside for other mundane distractions. I use both self-portraits and landscape photography to express my own inner emotion, my internal conflicts, that I myself have withheld from the world. Throughout this process I have discovered more about my own identity and the connection to the environment in which I was raised.

— Danielle Ronzo '19, recipient of the 2018-2019 Undergraduate Research and Inquiry Grant.



Pearls of June • 2019, Cyanotype • Danielle Ronzo '19

Opportunities in OURI



OFFICE OF UNDERGRADUATE
RESEARCH AND INQUIRY

- **Turn Your Ideas Into Reality**

Research opportunities at UT allow students to make important contributions to their fields while delving into subjects about which they are passionate.

- **Develop Key Skills**

Students who are involved in research develop outstanding critical thinking skills, become better communicators and learn to work collaboratively. These are all important skills sought by employers and graduate schools.

The Office of Undergraduate Research and Inquiry funds faculty-mentored student research and creative inquiry.

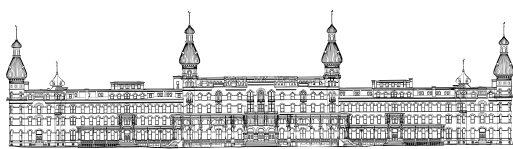
- **Undergraduate Research and Inquiry Grants**

Undergraduate Research and Inquiry Grants support students and faculty engaged in a mentored research project. The goal of this grant is to provide students with research or creative inquiry opportunities. These grants provide \$2,000 in supplies or travel funds and \$1,000 stipends for the faculty mentor and student. A faculty mentor can have up to three research students on this grant.

- **Summer Undergraduate Research Fellowships**

Summer Undergraduate Research Fellowships (SURF) program supports students and faculty engaged in a mentored research project over the summer. Working on research during the summer allows for the student and faculty to focus intensively on their topics. Students will be part of a community of researchers and will present their research to the University community in the fall semester. These grants provide \$2,000 in supplies or travel funds, a \$1,000 stipend for the faculty mentor and a \$3,500 stipend for the student. Students are also provided a housing if they choose to live on campus.

For more information, see www.ut.edu/inquiry/funding/ or contact OURI@ut.edu.



The University Of
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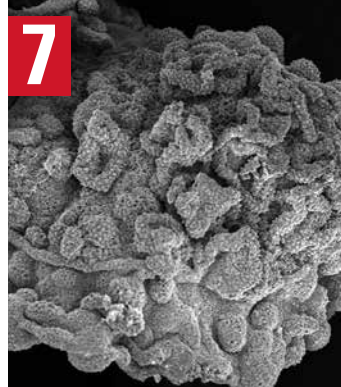
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Forty-Eight Students Receive OURI Grants

By Eric Freundt, director of the Office of Undergraduate Research and Inquiry

It has been a banner year for undergraduate research and creative inquiry at The University of Tampa. Inquiry is defined as a systematic process of exploration by collection and analysis of evidence. Students who engage in inquiry are empowered to explore their interests and often experience the thrill of discovery – making new connections that contribute to the scholarly conversation in their fields. In this issue, I am excited to highlight students and faculty who have engaged in inquiry over the past year.

This year we have had 41 courses across 14 majors that enable students to engage in inquiry as part of the curriculum. These inquiry-based courses allow UT students to begin to apply the tools of their discipline and to explore their own ideas. Having been in one of these courses can change the way that students approach their studies. One of these inquiry-based courses, Electron Microscopy, is featured on page 7. The students pursued their own research questions during the course and some of their findings will be published in on-campus undergraduate research journals as well peer-reviewed journals. A bulletin board in the hallway featuring pictures of the students working on their projects has the perfect caption to describe their growth over the semester: “Day 1: Students, 90: Scientists.” This is the type of transformative experience we want all our students to encounter in their courses regardless of their major.

We have also greatly expanded the number of opportunities for students to engage in faculty-mentored student research and inquiry, with 48 students from all four UT colleges receiving an Undergraduate Research and Inquiry grant for the 2018-2019 academic year. Many of these students have gone on to present their research at conferences around the country (and world) and are fantastic representatives of the culture of student scholarship at our institution. Some of these students are featured in “Spartans Present” section (see page 20). We have another cohort of scholars who will work on campus with faculty over the summer as part of the inaugural Summer Undergraduate Research Fellowship program (see page 18). These students will receive a \$3,500 stipend and have an additional \$2,000 to support their research or travel to present at conferences. Finally, we congratulate the 37 students who were selected to receive the 2019-2020 Undergraduate Research and Inquiry grants. We look forward to the many discoveries that will be made by this group of talented and committed students.





Juniors Research Vulnerabilities for Cyber Attacks on Critical Infrastructures like Power Plants

Published: Feb. 14, 2019

There is a trend for the world's critical infrastructures, such as power plants, nuclear facilities, dams and water treatment facilities, to become part of the internet of things (IoT). However, when these supervisory control and data acquisition (SCADA) systems were originally created, there was no internet and no threat of hackers, which leaves them vulnerable for malicious attackers to exploit the outdated facilities and cause serious damage.

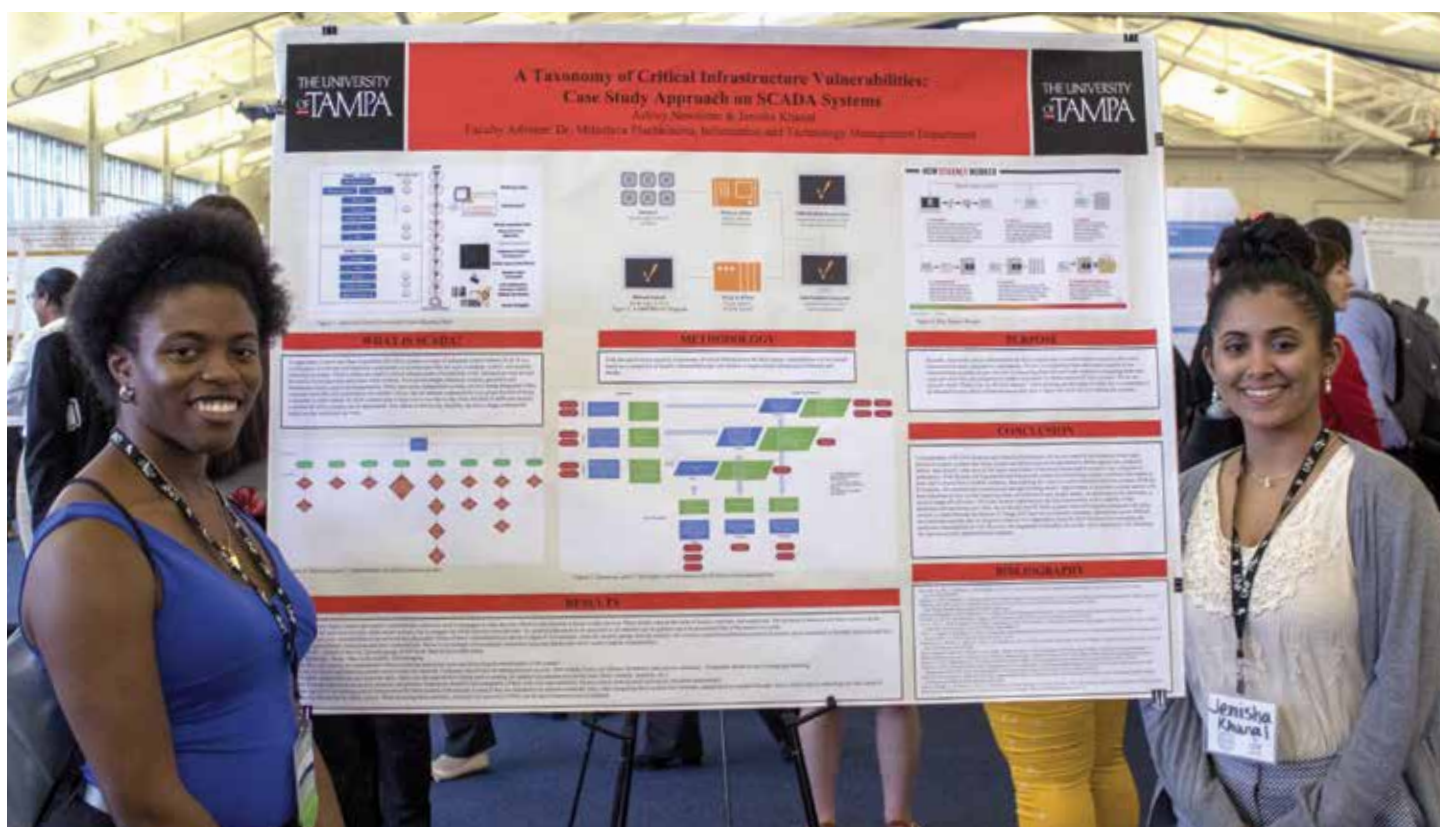
This trend caught the attention of student research assistants, juniors and cybersecurity majors Ashley Newsome and Jenny Khanal.

"They were made without security in mind," said Khanal, of Nepal. "Physical security yes, but they weren't considering cyberattacks."

Since last fall, Success Scholars Newsome and Khanal have been "investigating the myriad of vulnerabilities, possible threats, and the risks of connecting these devices to the internet or integrating them into corporate networks," and are developing a taxonomy to organize the weaknesses of SCADA systems, the repercussions of attack and possible mitigation efforts within the foundational frame of information security.



Cybersecurity majors Ashley Newsome (right) and Jenny Khanal's work on cybersecurity threats against critical infrastructure was accepted for presentation at the National Council on Undergraduate Research (NCUR), as well as the Florida Undergraduate Research Conference (FURC).



"By categorizing them, we will be able to provide more adequate measures to protect SCADA systems from the growing cyber threats," they wrote in their abstract. Newsome, who has a business analytics minor and is from Fort Lauderdale, explained that they used case studies such as the Stuxnet virus against the Iranian nuclear facility and the attack against the Ukrainian power grid to evaluate their taxonomy.

"Out of all the topics we came up with, this one we thought had the greatest impact on society and the world," said Khanal. "Something we could do research on and make a change."

Newsome and Khanal's work on cybersecurity threats against critical infrastructure was accepted for presentation at the National Council on Undergraduate Research (NCUR), which will be hosted at Kennesaw State University in Georgia on April 11–13. They also plan to submit their work, "A Taxonomy of Critical Infrastructure Vulnerabilities: Case Study Approach on SCADA Systems," to a peer-reviewed journal by the end of the semester.

Miloslava Plachkinova, assistant professor of cybersecurity, said the point of doing any research is to advance knowledge, to help others and to inspire students to think beyond the problems discussed in class.

"I push them to think big and show them that everything is possible if they work hard and are passionate about doing research and solving problems that seem impossible to solve," Plachkinova said. "Ashley and Jenny have picked a very serious topic to work on, and I am confident that they can make a difference in the future. We need people with fresh eyes like them to help us find innovative solutions and protect these critical infrastructures that are of national significance."

The topic was of such interest to Plachkinova, who is enrolled in UT's master's in criminology and criminal justice program, that she wrote a paper for class on policy analysis and evaluation related to such attacks and how we lack adequate legislation on cyber crimes and cyber terrorism. She presented it at an information technology security conference, BSides Tampa, and will expand upon it for her master's thesis.

O pportunities in OUR I



Caitlin Nordheim '19, recipient of the Undergraduate Researcher of the Year Award, works with Taegan McMahon on a contagious pathogenic fungus that has caused amphibian decline worldwide. Nordheim has worked to understand the growth rates of different fungal strains and is also studying how a vaccine might be able to protect Cuban tree frogs from infection. She has presented her findings at the 2016 McMahon Lab Bi-annual Research Symposium, the 2017 Florida Undergraduate Research Conference, the 2017 College of Natural and Health Sciences Symposium, at the 2017 Ecological Society of America, and this past January at the 2019 Society for Integrative and Comparative Biology. Now, she is working with McMahon to publish their work in a scientific journal.



Jeanette Gore, laboratory coordinator and lecturer in biology, instructs students in DNA analysis in an introductory biology lab.

Undergraduate Research Gets Resource Boost from CUR

Published: Jan. 30, 2019

Students who participate in research and inquiry develop transferrable skills, such as critical thinking, communication and problem solving that are highly valued by employers and graduate programs.

It's one such reason the Office of Undergraduate Research and Inquiry (OURI) has been a member of the Council on Undergraduate Research (CUR) for several years and recently announced that membership benefits that support faculty-mentored student research will now extend to all part-time and full-time faculty, staff and students at no cost to the individual (usually \$80 a year for faculty).

Members have access to Scholarship and Practice of Undergraduate Research (SPUR) and access to the searchable archive featuring scholarly work that examines effective practices

and novel approaches, explores pedagogical models and highlights the results of assessment of undergraduate research. Members also have access to a variety of other resources such as webinars, message boards, and discounts on CUR workshops and national meetings.

"Students who participate in research learn their subject more deeply, are more likely to finish their degree, and they also develop strong relationships with their faculty mentors. Those relationships often persist long after the student graduates," said Eric Freundt, director of OURI. "Undergraduate research also helps students to clarify their career goals and interests and builds confidence in knowledge of their disciplines and ability to contribute as scholars."

Freundt said CUR offers awards to support students who are traveling to conferences to present their work, awards that recognize faculty mentors, workshops and conferences to support faculty who work with students, and an annual event on Capitol Hill where 60 students are given the opportunity to present their research to Congress.

He said they also offer a registry of undergraduate researchers; UT students interested in graduate school can enter their information in a database that is used by graduate schools for recruiting. CUR also has an annual conference for undergraduate researchers, called the National Conference on Undergraduate Research (NCUR), which is a prestigious conference that brings together student scholars from across the U.S. Next year, Freundt's office will be supporting 10 UT students to NCUR in Bozeman, MT.

"Students who do research learn to ask the right questions, gather evidence and critically assess that evidence before drawing a conclusion," Freundt said. "These skills are incredibly important regardless of the student's career goals."



Learning tools and techniques of their chosen major in introductory classes prepares students for independent research and creative inquiry.

O pportunities in U R I



Christa Edwards, a marine science/biology major, received an Undergraduate Research and Inquiry Grant to study the impacts that anthropogenic sound might be having on marine invertebrates. She is seen here recording boat sounds and working on her project with her mentor, Kristine White, assistant professor of biology.





BENEFITS OF JOINING CUR

- Network, Mentor, Leadership and Presentation Opportunities
- Member-Exclusive Content and Resources
- Webinar Archive
- Registry for Undergraduate Researchers
- Subscription to *Scholarship and Practice of Undergraduate Research (SPUR)*

As an Enhanced Institutional Member, all UT faculty, staff, and students can sign up for a free personal membership to CUR.

To join, email Janae Douglas (jdouglas@CUR.org) from your UT email address



Student Researchers See 2,000 Times Clearer

Published: Dec. 11, 2018

Red tide, an unusually persistent harmful algal bloom that impacted the Florida coastline this summer with waves of fish killed, was the subject of senior biology major Alexandra Sullivan's research this fall.

Sullivan researched organisms that were able to sustain life in red tide conditions in electron microscopy. As she collected, prepped and imaged water samples immediately before the organisms died, she said her project was extremely hands-on and engaging.

"I have gained a lot of critical thinking skills from this course and have been able to apply so much of this knowledge to other courses, too," said Sullivan. "I've also realized that many images in journals and articles are actually done on a scanning electron microscope, so it has been amazing to have the privilege to do the same."

In the inquiry course, Electron Microscopy, students research cells, bacteria, fungi and chemical processes while generating images with an electron microscope. Stan Rice, professor of biology (now retired), pioneered the course in the mid-1990s. He purchased the University's scanning electron microscope in 2011 using donor funds, which allows undergraduate students the rare opportunity of using this high-tech piece of equipment.

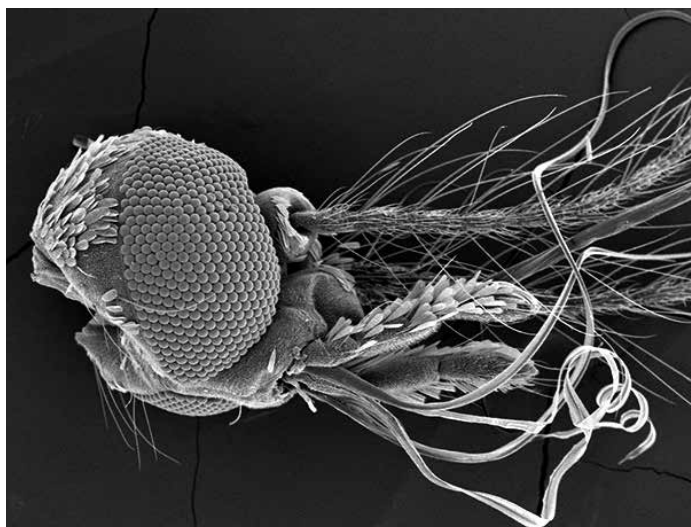
Kristine White, assistant professor of biology, who took the course with Rice in 2000, taught it for the first time this semester, giving it an inquiry spin. White said unlike a normal research course, she wanted the students in her class to choose their own project topics to research for the majority of the semester.

"Most of this course is focused on students doing independent projects," said White. "I teach the initial skills and allow them to apply them on their own, so that they are doing their own project. I've found that the students are more invested this way."

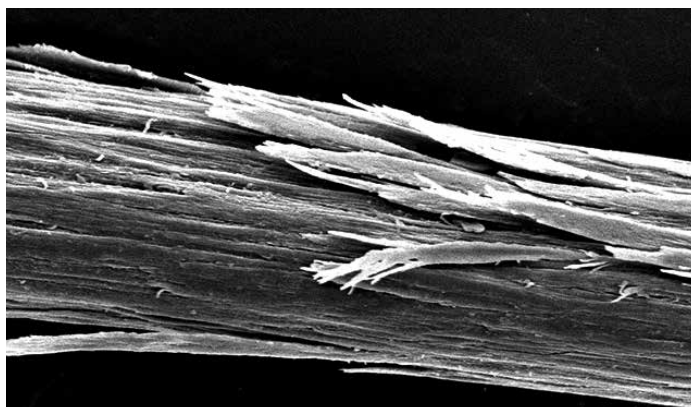
In Electron Microscopy, White said she initially begins teaching the history, theories and techniques behind the electron microscope so that her student's get a background first, which allows them to practice on their own and hopefully master the techniques. The end goal of the course is to develop these skills into something that will hopefully become employable.

By using critical thinking skills and elements of research, White said this course prepares students for the future in many ways.

continued on page 8



This photo of mosquito mouthparts was captured by Wyatt Larrinaga '20.



Jasmine Cherry '18 captured an image of a hair that has been damaged.

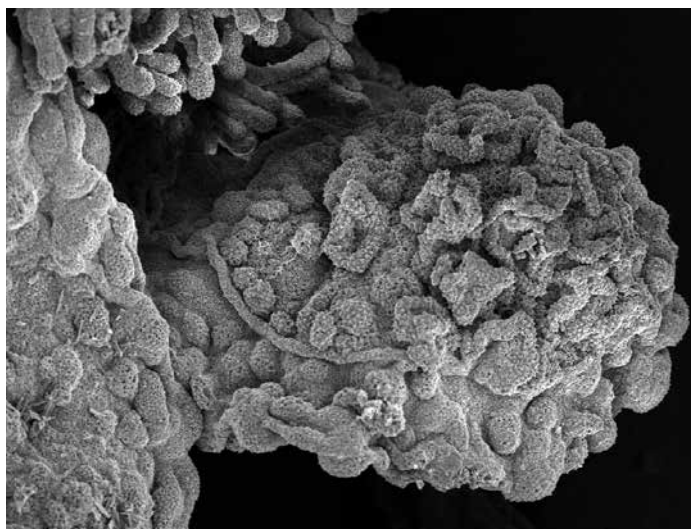


Image of a tentacle of a Cassiopea jellyfish taken by Alex Sullivan '19.



Student Researchers See 2,000 Times Clearer *(Continued)*

"In most science labs, the instructions are laid out for you. But in this course, I'm telling the students to write their own instructions. Doing these things independently is incredibly beneficial for the rest of their career as a student and as a researcher," said White.

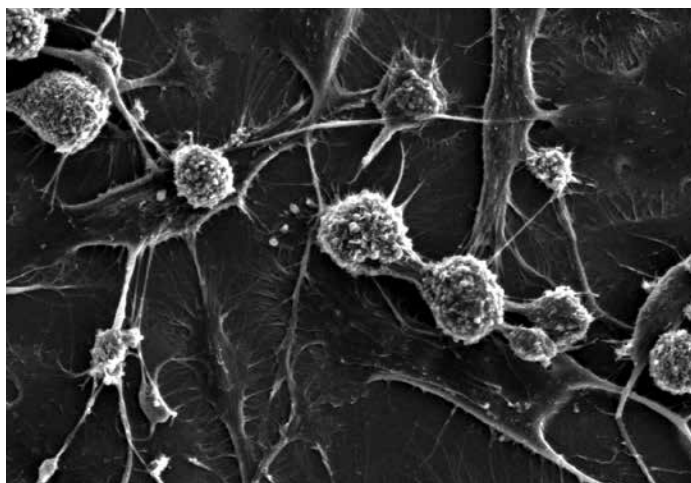
Angelo Nicolaci '19, a biochemistry major, examined different cancer cell lines throughout the semester and analyzed the characteristics and details in each that showed contrast from a normal cell.

"I've been working with cancer cells since I started my undergrad at UT, but this course really gave me an extra layer of insight," said Nicolaci. "Using the electron microscope has helped me see things 2,000 times their size, which completely changed the previous research I've done with cancer."

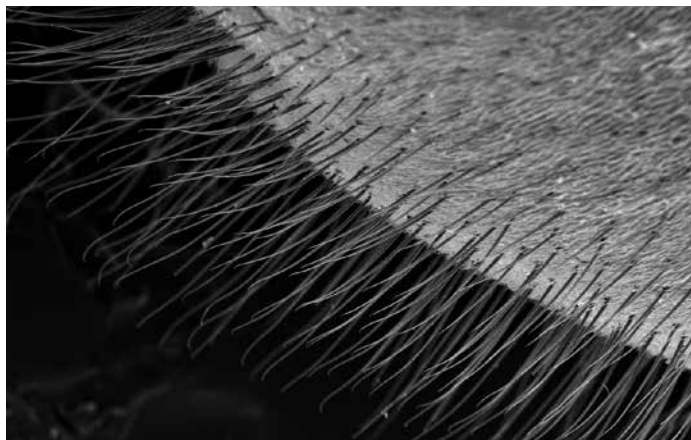
In addition, Nicolaci feels training in this area could create many opportunities for the future.

"I think this inquiry-based course really helps prepare you for the future, because you don't know what's going to happen in research," he said. "This is a really interesting way to see what went wrong and what to fix."

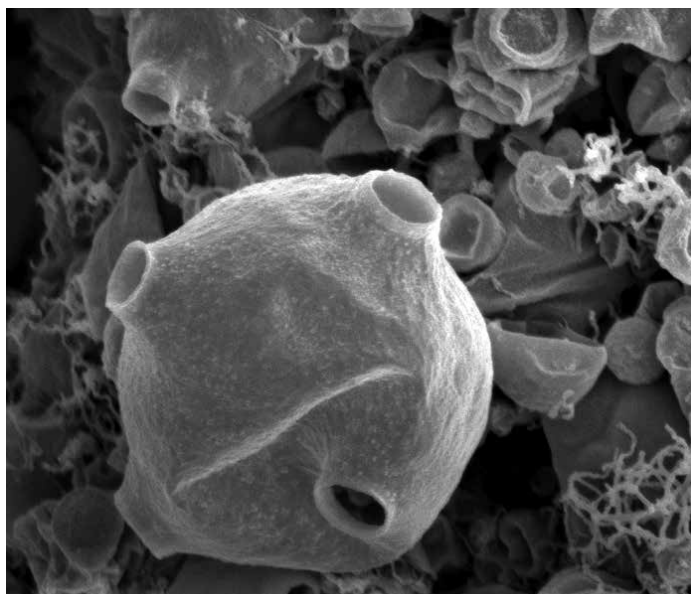
Story by Sydney Rhodes '21, journalism major.



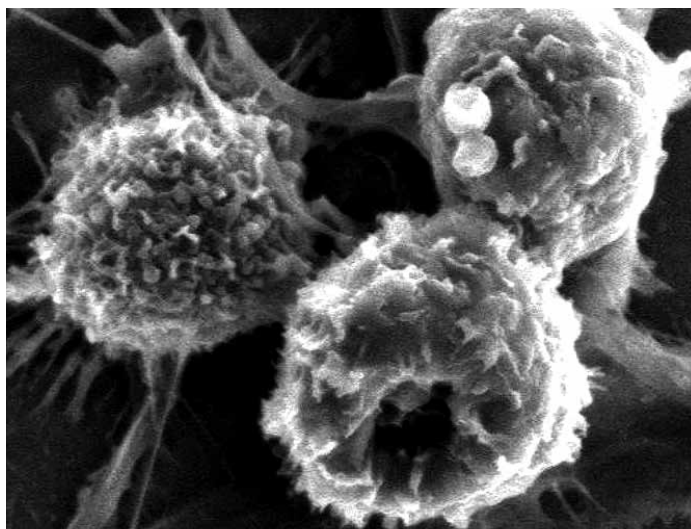
Angelo Nicolaci '19, a biochemistry major, examined different cancer cell lines throughout the semester, including these metastatic prostate cancer cells.



Lauren Twele '19, photo of flesh-eating fly chin hairs.



Batrachochytrium dendrobatidis (Bd) zoosporangium, a fungus affecting amphibians, taken by Samantha Byrne '19 This fungus causes chytridiomycosis in amphibian species across the globe leading to rapid population declines and even extinction.



Apoptosis in Pancreatic Cancer Cells taken by Nicolaci.



**9/10 successful
applicants to
Florida medical
schools have
significant
research
experience.***

**Average of all Florida
medical schools from 2016 and
2017 MSAR data.*



**OFFICE OF UNDERGRADUATE
RESEARCH AND INQUIRY**

**CONTACT THE OFFICE OF
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AND INQUIRY TO LEARN
ABOUT HOW TO GET
INVOLVED IN RESEARCH.**

The Office of Undergraduate Research and Inquiry connects students with research opportunities and provides grants to support student research.

OURI@ut.edu | UT.edu/Inquiry



What was your major and what year did you graduate from UT?

Biology, 2015.

What have you been doing since graduation?

I worked for the U.S. Department of Agriculture Animal Research Service for about a year, and then pursued my Masters of Public Health at Purdue University. During my master's program, I did research on Dengue, Zika and Chikungunya viruses.

Can you describe the research you did while at UT?

During my sophomore year, I worked with Steve Kucera on a genetics project, where I learned basic skills such as PCR and gel electrophoresis. During my junior and senior years, I worked with Eric Freundt on a project involving the phylogenetic analysis of chloroviruses.

"Undergraduate years are the best time to learn the fundamentals of research because it can help you discover what you like and dislike, or if research is the right track for you."

Do you think your research experience at UT benefited you after graduation? If so, can you tell us how?

I think my research experiences at UT helped me obtain my job at the USDA. It also helped me learn more about myself in terms of what I'm interested in. I found that I liked working with viruses and I was interested in infectious diseases (thanks to Prof. Freundt's microbiology and virology class). This inspired me to pursue an MPH and look for research opportunities in infectious disease.

What are your plans for the future?

I plan to look for careers in the fields of public health and microbiology. More specifically, I'd like to work in a hospital.

What advice would you give to students at UT who are considering getting started in research?

The best way to get started in research is to reach out to a professor in your field of interest. Many professors at UT are friendly and willing to accept students. Additionally, they take the time to teach students about their research. Undergraduate years are the best time to learn the fundamentals of research because it can help you discover what you like and dislike, or if research is the right track for you.



What was your major and what year did you graduate from UT?

In December 2012, I earned a Bachelor of Arts in Chemistry.

What have you been doing since graduation?

The fall following graduation, I began medical school at the University of Central Florida. From there, I moved to New York to complete a urology residency.

Can you describe the research you did while at UT?

While at UT, I had two research projects that I focused on. The first was developing a bio-assay that was sensitive to oxalate, with the hope that one day it would have clinical impact in testing patients' urine to determine the level of oxalate in their urine, which is a risk factor for kidney stone formation. The second project focused on creating a superior MRI contrast agent.

"My time in the lab at UT improved my ability to critically review scientific papers, to write journal articles. It also opened up doors such as acceptance into medical school."

Do you think your research experience at UT benefited you after graduation? If so, can you tell us how?

I definitely believe the skills I acquired from my time in the lab at UT helped me. Though my focus is no longer on bench research, I have continued to actively research, now with a focus on urologic advancements. My time in the lab at UT improved my ability to critically review scientific papers, to write journal articles. It also opened up doors such as acceptance into medical school.

What are your plans for the future?

I have three more years of residency to complete in New York. After that, I will likely do a fellowship before going into practice.

What advice would you give to students at UT who are considering getting started in research?

Start early!! Research opens up so many doors, and helps mold you into a better scientist. It teaches you to always be critical, to always push to deviate from the status quo, and also to be patient, thorough and diligent.



University of Tampa students and faculty on the bus after a successful conference experience.

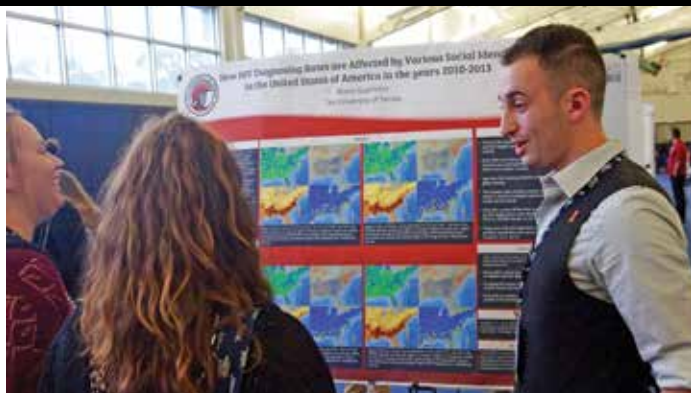
Florida Undergraduate Research Conference

Thirty-five UT students, representing all four UT colleges, were sponsored by OURI and presented their research at the 9th annual Florida Undergraduate Research Conference at the University of North Florida on Feb. 22-23. For many, this was their first academic conference, and it left a big impression.

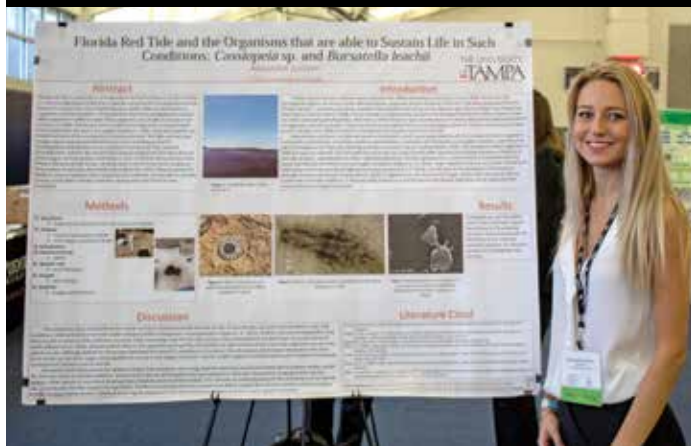
"Having the experience of networking and presenting my research has helped me in many ways. Although it was amazing to gain new presentation skills and add this experience to my resume, the most important takeaway for me was the confidence that I gained. Being able to present my work and network with other students helped me feel like a real scientist, and gave me confidence I could do this in my future career."

"Participating in the poster session was a great opportunity to develop my presentation skills and expanded my network of future collaborators. I also took advantage of the graduate school recruiters and workshops about applying to graduate school, which helped me prepare for the next step in my career."

OURI will again sponsor students to attend FURC in 2020 at Florida Gulf Coast University.



Blaise Guerriero '19 presented his work on HIV diagnosing rates and how they are affected by various social identities.



Alexandra Sullivan presents her research on organisms that persist during red tide.

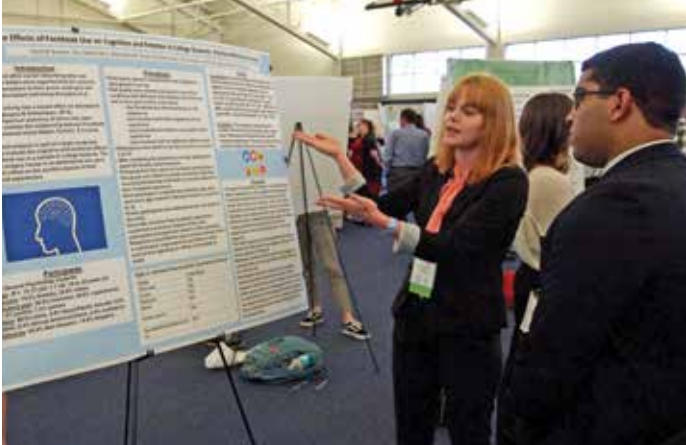
O pportunities in OURI



Abigail Nelson '20 used late 18th century novel Charlotte Temple as the basis for her inquiry into Sociopathy and Society, and presented her findings at FURC.



Students in Bridgette Nace Froeschke's Geographical Information Systems (GIS) class learned to apply GIS to their own research questions. Topics included a wide range of subjects including organ transplantation, spread of Lyme disease, crime, environmental quality and political outcomes, and water quality in Tampa Bay.



Hannah Buzbee '20 presenting at FURC.



The Florida Undergraduate Research Conference is one of the largest multidisciplinary undergraduate research events in the country and allows students to present their projects in a poster format.



FURC

FLORIDA UNDERGRADUATE RESEARCH
CONFERENCE

SAVE THE DATE

21-22

FEBRUARY
2020



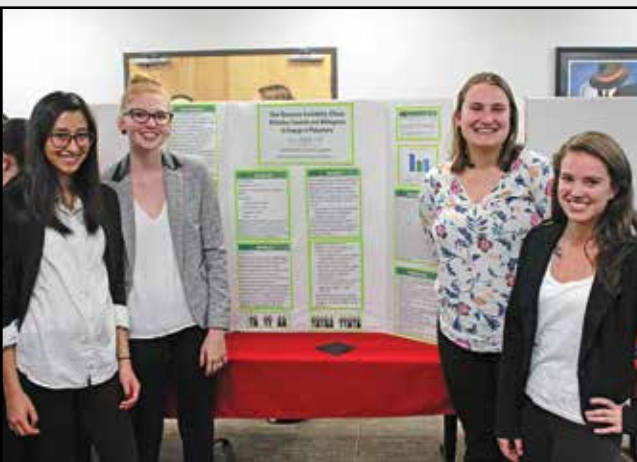
Hosted by **FLORIDA GULF COAST UNIVERSITY**



O pportunities in OURI



Students in Michael Stasio's Human Sexual Behavior and Scott Husband's Evolutionary Psychology classes presented their research projects on topics such as whether narcissists are attracted to narcissism and whether resource availability influences attitudes towards polyamory.



O pportunities in OURI



Students in the Applied Learning Experience program have been collaborating to create a historical documentary film for the Henry Plant Museum. Selena Martinez, a history major, worked with Prof. Charles McGraw Groh to research letters written by a nurse and soldier who were at the Tampa Bay Hotel and stationed in Tampa during the Spanish-American War. These letters were then used to create a script for the documentary. The documentary was filmed and directed by Rachel Parrella and Ashley Acevedo, both Film and Media Arts majors, under the mentorship of Prof. Aaron Walker, while Musical Theatre majors Michael Ramsey and Emma Beekman acted in the film under the mentorship of Prof. Paul Finocchiaro.



Why did you choose UT?

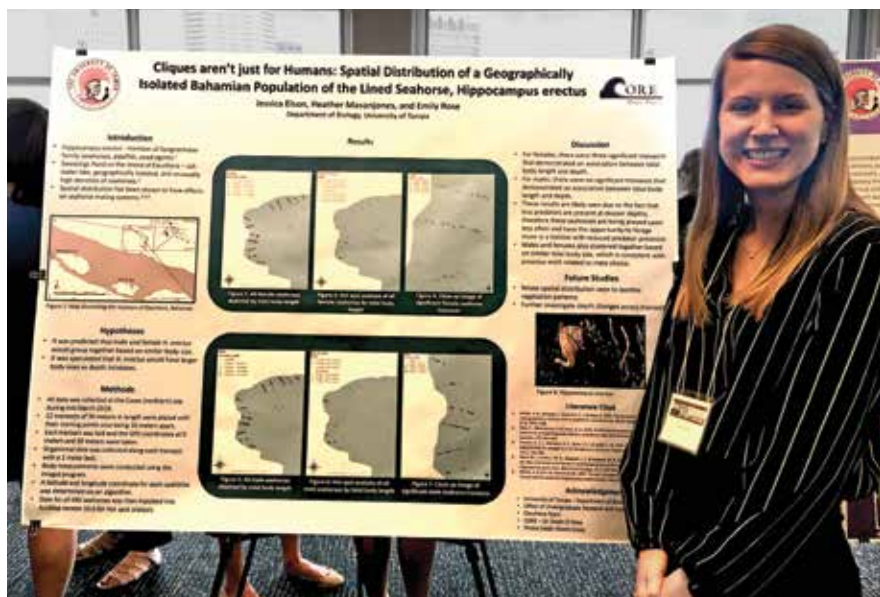
One of my criteria was that I had to go to a school with warm weather and palm trees. Growing up in the suburbs of Chicago really makes you appreciate the sun. I also really wanted to attend a medium-sized college. I graduated high school in a class of more than 1,000 students, and so I wanted a college larger than my high school but not insanely large. Most importantly, I wanted a marine science program that included a lot of hands on experience which was demonstrated by the UT marine lab and the upper level biology courses offered.

What is your major and when will you graduate?

I am majoring in Marine Science – Biology with a minor in Environmental Science and Leadership Studies. I will graduate in December 2019.

What made you interested in research?

When I first started at the University I wasn't sure what I wanted to do, but I did know that I wanted to get involved. First semester of my freshman year I was in my pathways to honors class and one of our assignments was to interview a UT professor about what research they were currently conducting. I searched UT's website and came across research Emily Rose was doing with seahorses and pipefish both in Tampa Bay and in the Bahamas. I was intrigued and emailed her to set up a meeting. When we met I asked questions about how she got started with this project and what she focuses on. I also asked if she had investigated this idea or that concept about the system, which really impressed her since I was asking inquiry-based questions and not just about the charisma of the animals she studies. By the end of that meeting I left with a USB drive full of data, and I was officially apart of the Syngnathid Squad. While I may not have been certain about getting involved in research it has truly made a huge positive impact on both my personal and professional life.



What is/was your research project?

I was fortunate enough to be funded by the Office of Undergraduate Research and Inquiry for both my second and third year here at UT. The first year I was funded, in the fall semester, I worked on sex ratio and density distribution across a unique system of seahorses (*Hippocampus erectus*) found in a Bahamian salt water lake. That spring semester I was able to use the results I concluded from my previous work to design a nocturnal study and then travel to the Bahamas to implement it. The second year I was funded I focused on analyzing the data collected from the previous spring along with conducting another nocturnal study on a different species of seahorse (*Hippocampus zosterae*) found in Tampa Bay. This current spring semester I am investigating the spatial distribution of the nocturnal seahorses from the Bahamas, writing up my findings to be published, and continuing to research the Tampa Bay seahorse species in relation to predator prey dynamics.

Can you tell us a little about your findings and/or results?

Through my sex ratio and density distribution analysis, I found that there was a significantly higher density of seahorses in the north end of the Bahamian lake. Along with this there was a significantly higher density of males and especially pregnant males also found in the



north end of the pond. From these conclusions I decided to implement my nocturnal study in this north site to increase our likelihood of finding the animals. From this study, I concluded there is a very significant difference between seahorse density during the night versus the day with the abundance of seahorses being almost three times higher during the night. These seahorses at night were also found to have a higher perch height demonstrating a more alert position in the water column at night. I also found that the abundance of predators, specifically crabs, were also more abundant at night.

What did you gain from the undergraduate research experience?

The experience provided me with an unmeasurable positive impact on my life. I have had the opportunity to interact and collaborate with people in my field of research from all over the globe. I have learned the skill of presenting my knowledge to a wide variety of audiences and in a multitude of venues. I have also learned the entire scientific process from idea forming, to method creation, implementation, data analysis and forming a publishable paper to share the influential findings. I have gained valuable mentors who not only



help me in my research process but also provide advice for my future career path and personal endeavors. Overall, my favorite part of undergraduate research has been the interaction between students, faculty, and other professionals who all collaborate towards the common purpose of adding valuable information to the scientific community.

What are your plans after UT?

I honestly do not know. While this answer would normally drive me crazy as I am a futuristic person, I enjoy the ability to be open to all the opportunities that present themselves after I graduate.

What advice would you give to students who are considering getting started in research?

My advice is to talk to people. Make connections and get to know what both students and faculty are researching on campus. My other piece of advice is when deciding what topic to study, think about what questions you want to answer, not what organism you want to study. You will find much more enjoyment out of investigating an interesting topic or set of questions you are passionate about rather than just studying a charismatic species.

2019 Summer Undergraduate Research Fellowship Recipients

Megan Ashworth

Exosome guided differentiation of umbilical cord stem cells to neuronal lineages for treating chronic traumatic encephalopathy
Faculty Advisor: Pavan Rajanhalli, Biology

Grace Poulos

An exploration of the feminism of Nigerian novelist Chimamanda Adichie
Faculty Advisor: Arthur Hollist, English and Writing

Sherrea Brown

Tissue specific compensatory regulation of gene expression associated with copy number variation
Faculty Advisor: Kimberly Dobrinski, Biology

Erin Hanson

How high school athlete student mentors impact elementary/middle school students: A case for positive coaching alliance
Faculty Advisor: Deirdre Dixon, Management

Coley Tosto

Investigating the impact of endocrine disrupting compounds on wild population of Gulf pipefish, *Syngnathus scovelli*, in Tampa Bay by combining genetic and physiological approaches
Faculty Advisor: Emily Rose, Biology

Daniela Gutierrez Andrade

Investigating the function of autotomy in the sea slug *Cyerce antillensis*
Faculty Advisor: Michael Middlebrooks, Biology

Stephanie Walker

Aspergillosis prevalence in sea fans, and pathogen presence in the adjacent water column
Faculty Advisor: Michael Slattery, Biology

Alexis Garcia

Acquired Resistance: what is the most effective amphibian vaccine for chytrid?
Faculty Advisor: Taegan McMahon, Biology

Tyler Weinhold

Constructing carbon-carbon bonds with carbazole photocatalysts
Faculty Advisor: Ashley Longstreet, Chemistry, Biochemistry, and Physics

Luis Llano

Modeling nucleation of grains in supernovae
Faculty Advisor: Ethan Deneault, Chemistry, Biochemistry, and Physics

Rachel Wall

Ovarian and uterine cancer patients' perceptions of self during chemotherapy
Faculty Advisor: Meredith Clements, Speech, Theatre and Dance

Alexandra Perez

Free-loading vs. free-living: morphological and molecular analysis of Tampa Bay copepods
Faculty Advisor: Kristine White, Biology

Amanda Barrie

Exploring machismo and marianismo and the effects on health in Tampa and the Dominican Republic
Faculty Advisor: Alyssia Miller, Languages and Linguistics

Sophia Gullo

Professors in the 21st century: first amendment rights in the age of social media
Faculty Advisor: Kristen Foltz, Speech, Theatre and Dance

Rachel Kozikowski

How does online second language teaching compare to a traditional classroom?
Faculty Advisor: Andrew DeMil, Languages and Linguistics



2019-2020 Undergraduate Research and Inquiry Grant Recipients

Arielle Pollock, Megan Osgood and Jachelle Araiza

The ecology physiology of algal turfs on soft sediments in Florida mangrove forests

Faculty Advisor: Kevin Beach, Biology

Ally Marter

The political economy of war and the environment

Faculty Advisor: Abby Blanco, Economics

Christina Pasca

Acceptance of advanced and future technology

Faculty Advisor: Ryan Cragun, Sociology

Byron Ward, Shivani Desai and Madeline Kaczmarek

Investigation of copy number changes caused by obesity in *Danio rerio*

Faculty Advisor: Kimberly Dobrinski, Biology

Katherine Serba

The visual pigments of filter-feeding Elasmobranchs and their role in foraging ecology

Faculty Advisor: Jeffrey Fasick, Biology

Bailey Joy

Pictures & memory: can students predict the picture superiority effect?

Faculty Advisor: Sara Festini, Psychology

Devon Grey

The role of the cytoskeleton in replication of Theiler's virus

Faculty Advisor: Eric Freundt, Biology

Ariana Ferraro, Julia Ingram and Cheyenne Lee

Local governance and mitigating support for Islamist insurgent groups in Burkina Faso

Faculty Advisor: Kevin Fridy, Political Science

Hayley Kudzmas, Shannon Twyman and Ella Hampson

How much does anthropogenic activity affect *Staphylococcus aureus* and MRSA levels in Tampa Bay

Faculty Advisors: Bridgette Froeschke and Michelle Osovitz, Biology

Gabrielle Cohen

An investigation into historical and contemporary fabrication methods

Faculty Advisor: Michael Ingold, Art and Design

Tyler Weinhold and Melissa Chin

Utilizing carbazole photocatalysts to derivatize pyridine molecules

Faculty Advisor: Ashely Longstreet, Chemistry, Biochemistry and Physics

Carley Reid and Miranda Conley

The potential impact of aquifer storage and recovery on the Everglades and the Floridan Aquifer: what could happen when Lake Okeechobee water is injected into the Floridan Aquifer and then subsequently pumped into the Everglades?

Faculty Advisor: Robert Masserini, Chemistry, Biochemistry and Physics

Taylor Brunson and Addison Donnell

Anatomy of an isolated population of Bahamian seahorses: how different are the Sweeting Pond seahorses?

Faculty Advisors: Mason Meers and Heather Masonjones, Biology

Jacob Jalloway, Brianna Rubenstein and Amanda Barrie

Hispanic perspectives on the intersection of acculturation, health, machismo, and marianismo

Faculty Advisor: Alyssia Miller, Languages and Linguistics

Jordan Huden

Edna O'Brien's Country Girls Trilogy and its place in the Irish feminist canon

Faculty Advisor: Kathleen Ochshorn, English and Writing

Olivia Parsley

The nets Stephen Dadaalus flies by: The mixed blessing of Joyce's Irishness

Faculty Advisor: Kathleen Ochshorn, English and Writing

Carmella Brazzale

The journey of human trafficking: where it starts, why it happens, and how it affects Tampa

Faculty Advisor: Miloslava Plachkinova, Information and Technology Management

Natalie Gebala

Faculty attitudes towards multimodal hybrid online teaching and learning

Faculty Advisor: Enilda Romero-Hall, Education

Vincent Clanzy and Mohammed Mourabit

Stellar astrophysics with open clusters

Faculty Advisor: Simon Schuler, Chemistry, Biochemistry and Physics

Abigail Nelson

Fake news and the rhetoric of disease in early America

Faculty Advisor: Kacy Tillman, English and Writing

Nicholas Greenberg and Lilli Sutherland

Identification and antibiotic susceptibility of bacteria found in the shark oral cavity for the successful treatment of shark bite victims in Tampa Bay.

Faculty Advisors: Ann Williams and Daniel Huber, Biology

Nicole Scotto

Best health and safety practices for university fabrication laboratories

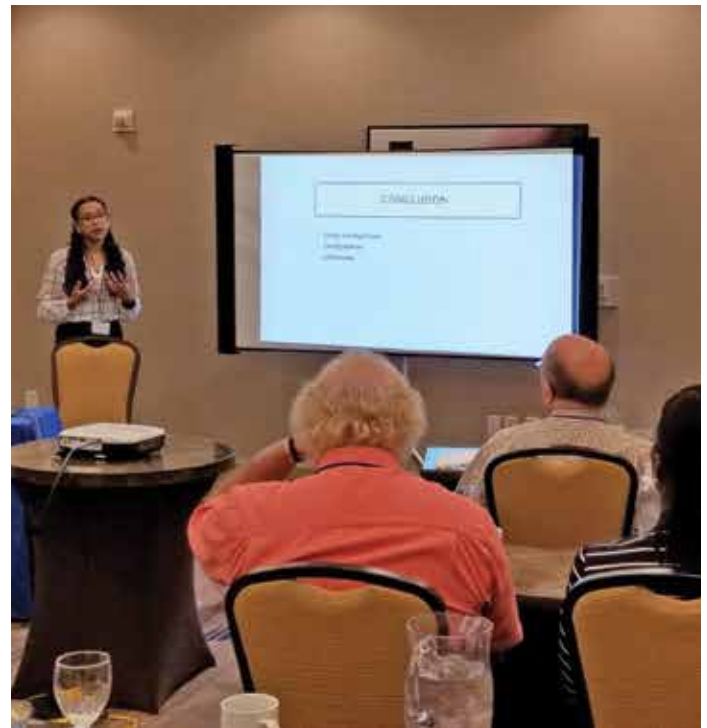
Faculty Advisor: Tracy Zontek, Health Science and Human Performance

Ashley Newsome presented her research at the Southern Association for Information Systems Research conference on her project "Botnets: Smart Home User Vulnerabilities and Prevention" and created the conference proceeding as a sole contribution. This is one of the first times undergraduate students presented at SAIS; she was one of only four undergraduates attending the conference.

According to her mentor, Deanna House, assistant professor of cybersecurity, Newsome "did an amazing job presenting, receiving feedback, and answering questions."



Mariah Solis presented her research on “Perception of Terrorism? Perspectives of U.S. Businesses” at the International Academic Conference on Business, Economics, Finance, and Accounting. She was mentored by Deirdre Dixon, assistant professor of management.



Adeline Davis, an English major from Oviedo, FL, was the only undergraduate to present research at the Irish Studies Conference in Jackson Hole, WY. Her essay, "The Birth of New Identities," analyzes Roddy Doyle's short story "Guess Who's Coming for the Dinner" through the lens of cultural theorist Stuart Hall. The paper started as an assignment in Irish Short Fiction and Film, a UT special topics course. Davis is also presenting at the Southern Modern Language Association in Birmingham, AL, this month on research that relates to a year-long Honors tutorial on the work of Jean Rhys.

"As an undergraduate, I didn't think the Ph.D.s and graduate students would be invested in what I had to say, but they were. Their enthusiasm gave me confidence while I was presenting. It was so encouraging to have them nod along, laugh with me, and take notes," Davis said. "The conference reminded me that we all have a voice, and that no matter how experienced you are, your voice can still make an impact."



Kaitlyn Toner presented her research on performance drivers of cross-sector collaboration at the United States Association of Small Business and Entrepreneurship (USASBE) conference. Kaitlyn was a recipient of a URI grant and was mentored by Thomas Pittz. Pittz, an assistant professor of management, remarked that “after her presentation folks were shocked to learn that she wasn’t a Ph.D. student (USASBE runs a doctoral consortium as well so Ph.D. students are well represented). Several experienced scholars suggested that she consider the academic path.”



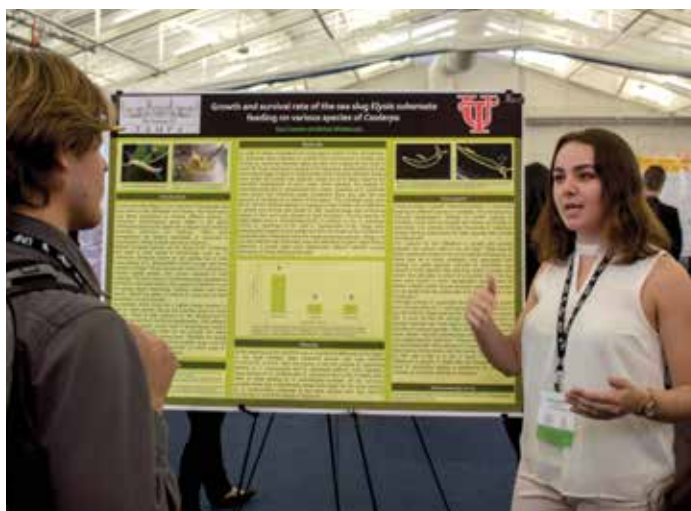
Spartans Present

Lauren Twele '19 and Sara Casareto '20

Congratulations to Lauren Twele and Sara Casareto, recipients of the Undergraduate Research and Inquiry Grant, who both presented their research at the Florida Association of Aquatic Biologists Meeting (FAB) in St. Augustine, FL. Lauren won the award for best student oral presentation and Sara won the award for best student poster presentation. Both students are supervised by Michael Middlebrooks. Twele studies the phototactic behavior, or reaction towards light, between photosynthetic and non-photosynthetic species of marine sea slugs. Casareto is researching the feeding ecology of the sea slug *Elysia subornata* in Florida.



Lauren Twele ('17-'18 URI Grant recipient) and
Sara Casareto ('18-'19 URI Grant recipient)



A poster from Sara Casareto '20, mentored by Michael Middlebrooks, on the growth and survival rate, and some feeding habits, of the sea slug *Elysia subornata*.



Lauren Twele '19 presents in her inquiry-based biology course.

Rahal Wijewardene, who graduated in 2018 in philosophy, was sponsored by OURI to present his research at the National Communication Association Annual Conference in Salt Lake City, Utah. Wijewardene was a presenter or co-author on five presentations at the meeting! Wijewardene said that “by having the opportunity to present I not only learned so much about myself as a speaker, researcher, and presenter but also learned so much from the other academics that attended the conference.”



