arete
EXCELLENCE IN GRADUATE EDUCATION
I am delighted to welcome you to the inaugural edition of arete, the magazine of the Graduate School at The University of Southern Mississippi. The name of this magazine is a tribute to a dear friend of mine, Dr. Robert Wolverton, Sr., an enduring professor of Classics whose courses in mythology and Latin are legendary, as is his genuine love for students. He explains the word emerged from ancient Greece where athletes pursued their sport with passion and enthusiasm and an eye toward excellence, with arete. The pursuit of their personal best resulted in the Olympic Games, which began in the eighth century B.C. and continue to showcase athletic distinction in the present day. To me that commitment is inspirational.

Like the ancient Greek philosophy toward sport, earning a graduate degree requires a commitment to hard work, enthusiasm for the discipline, and a will to accomplish one’s personal best. It requires arete. This magazine showcases excellence in graduate education at Southern Miss by highlighting exceptional accomplishments of our graduate students and their faculty mentors. These pages provide a glimpse of the high impact research that originates from Southern Miss, ranked a Higher Research Activity University by the Carnegie Foundation. Moreover, it informs about professional development programs and activities available to students to strengthen those transferable skills that transcend disciplines and help them compete for jobs and progress in careers.

At Southern Miss, the foundation of graduate education is our commitment to excellence, and we are proud to present evidence of that commitment within these pages. I hope you are inspired by what you read. When you reach the last page, I hope you agree this magazine is appropriately named. Enjoy.

Dr. Karen S. Coats, Dean
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Three-Minute Thesis: A Champion Embracing Challenges and Fulfilling Dreams</td>
</tr>
<tr>
<td>6</td>
<td>Faculty Mentor of the Year: Beyond the Classroom</td>
</tr>
<tr>
<td>8</td>
<td>Graduate Assistant of the Year</td>
</tr>
<tr>
<td>9</td>
<td>Celebrating Students’ Achievements</td>
</tr>
<tr>
<td></td>
<td>Graduate Student Hall of Fame</td>
</tr>
<tr>
<td></td>
<td>Susan A. Siltanen Graduate Student Research Symposium</td>
</tr>
<tr>
<td>12</td>
<td>Professionals in Preparation: Students Gain Skills to Compete in Today's Job Market</td>
</tr>
<tr>
<td>14</td>
<td>Faculty Research: Exploring the Deep-Sea Ecosystems</td>
</tr>
<tr>
<td>18</td>
<td>McNair Scholars: Creating a Bridge Between Undergraduate and Graduate Education</td>
</tr>
<tr>
<td>20</td>
<td>Alumni Spotlight: Where are they now?</td>
</tr>
</tbody>
</table>

## PUBLICATION TEAM

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Three-Minute Thesis: A Champion Embracing Challenges and Fulfilling Dreams

By Vanessa Molden

Conducting high-level research is challenging, but maybe even more challenging is simplifying that research – often times years’ worth of it – into an engaging and compelling three-minute presentation before people with limited knowledge of the subject.

"We all have challenges, inner fears, limits and dreams but how we approach them is different," said Ecaterina “Kate” Stepaniuc, mass communication doctoral student. For Stepaniuc, it is an enthusiasm to share her hopes and dreams without hesitation and an aspiration to achieve great things. It is that spirit that garnered her the title of Grand Champion in the 2016 Three-Minute Thesis competition. She won for her presentation titled, “Moldova’s Democracy: Between Opposing Ideologies.”

"Participating in the Three-Minute Thesis Competition was an amazing experience," said Stepaniuc. "Probably the greatest benefit would be that I managed to share the importance of my research in three minutes to an unknown audience. Overcoming the fear of public speaking was another benefit I gained by competing in the contest."

Stepaniuc now realizes it was this hardship that made her stronger and gave her a work ethic to achieve her dreams. She earned her bachelor's degree in journalism from the Free International University of Moldova and worked for years as a reporter, but because of her passion for communication research and a desire to improve mass communications in her country, she was motivated to continue her education.

Stepaniuc’s journey to Mississippi and later to USM began when she was a teenager. "When I was 13, a missionary group from Ellisville, Miss. came to Moldova and taught me English and invited me to Mississippi." Later, through an affiliation with a group of students from Jones County Junior College Baptist Student Union, Stepaniuc found out about Southern Miss. A strong faith led her to move to Mississippi to pursue a master’s degree in journalism. She completed her master’s degree in 2011 and enrolled in the doctoral program in mass communication.

Stepaniuc chose journalism because her father instilled in her the value of the principle to stand by the truth, and she believes journalism is a tool she can use to dig for the truth. "The principle I follow in my professional life is based on the Bible verse, John 8:32: 'For you will find the Truth and the Truth will set you free.'"

Upon completing her Ph.D., Stepaniuc plans to return to her home country, but states the United States, particularly Mississippi, will always be her second home. "When I am in Moldova, I miss my second family that lives in America, and when in America I miss my Moldovan family."

Stepaniuc's greatest aspiration is to become the president of Moldova. The 29-year-old says she has time to prepare. The age requirement for president of Moldova is 40.

"I realize hard work, discipline and a strong faith has brought me to this point in life and in my career; therefore I encourage all USM students to never give up on their dreams. Work hard, do your best and be disciplined in your studies. These principles will build you into a professional."
I enjoyed listening to the many interesting research topics at USM that I would not have otherwise heard about. The competition also gave me the opportunity to analyze the characteristics and behaviors of many different styles of other strong public speakers.

- Maria Zapetis

I learned how to make my research relatable and interesting to a wide audience. This exercise helped build my confidence as a researcher and a public speaker. I truly enjoyed introducing the world to Isolde Bisset. She deserves recognition for her achievements.

- Dawn Klos
Dr. Brad Dufrene, Faculty Mentor of the Year

The University of Southern Mississippi is home to many outstanding faculty members, but one in particular, Dr. Brad Dufrene, professor and director of the School of Psychology Service Center stands out among them. He has all the professional knowledge, skills and training to provide students with a top-notch education, but what stands out and makes him deserving of the 2017 Faculty Mentor of the Year recognition is the genuine concern and individual personal support he gives to his students which has significantly impacted their success.

The Graduate Mentor of the Year award recognizes a faculty member who has been at USM for at least five years who provides outstanding mentoring to graduate students by fostering their intellectual, scholarly, personal, and professional development.

Dufrene's nomination was supported by current and former students, as well as by respected colleagues. "Dr. Dufrene is one of the most sought after faculty mentors in the school psychology program," said Dr. Bonnie Nicholson, director of training in the counseling psychology program. "He prides himself on being the type of mentor who highly regards the contributions of graduate students and ensures their success by placing their needs ahead of his own."

"I am the only Hispanic/Latino student in my program. My first language is Spanish, and by the time I started in the program I was still in the process of adaptation," said Mariangely Melendez-Torres, current doctoral student. "Dr. Dufrene’s multicultural competence is outstanding as he acknowledges my cultural identity while also demonstrating empathy, respect, and sensitivity to the challenges of being the only minority student in the program."

"He made me aware of the benefits of being a bilingual school psychologist and has guided me to appreciate the contributions I can provide to the field," Torres said.

"Within my first year, it was abundantly clear that I wanted Dr. Dufrene to be my academic advisor and mentor," said Zachary LaBrot, former doctoral student. "He clearly demonstrated strong experience in the field of school psychology and knowledge of the scientific literature, but over time, it became clear he was a great mentor for reasons beyond being a skilled and successful academic."

LaBrot noted he went through some significant life stressors during his academic career. "Throughout every one of these experiences, Dr. Dufrene was there: to encourage me to push forward with my studies, to listen and to provide emotional support," LaBrot said. "He made sure I took time off to be with my family and was exceedingly understanding when the quality and timeliness of my academic work suffered."

"At the threat of losing my external assistantship, due to take-over of new contracting agency, Dr. Dufrene guided me through drafting a rationale for the defense of my position and took time out of his schedule to meet with the administrators of the new agency to advocate for the services I could provide," LaBrot recalled. "Because of his diligence, dedication and careful guidance, I was able to keep my position and continue to derive valuable applied practice experience."

Dufrene received his bachelor’s and master’s degree in psychology from Louisiana State University, and earned...
his doctorate in school psychology from Mississippi State University (MSU). He credits his mentor at MSU, Dr. Tony Doggett, for his mentoring style.

"Graduate school was a tough road. It was incredibly demanding. But the mentoring I received as a graduate student from him [Dr. Doggett], encouraged me to apply the same style of mentoring when I became a faculty," said Dufrene. "It was clear there was a genuine concern about me as a human being, and what was best for me in terms of my life goals and where I saw myself down the road.

"Even though the training was rigorous and the demands were intense, I always knew that he cared about me on a personal level."

Dr. Dufrene mentors approximately ten students per year: actively directing two to three theses or dissertations, supervising five students in their applied work in clinics in school districts and other agencies and working with one to two students not under his direct supervision that are interested in working with him on a project. These students are often involved in his research projects, as well as given coauthorship on many of his publications.

"Through my research lab, we identify projects that we are going to focus on during each academic year and I assign roles which allow them to actively participate in research and ultimately allow them to be coauthors when we submit manuscripts for publication."

"Under Dr. Dufrene's guidance, I successfully published eight manuscripts or book chapters (far more than average for a student in my field)," said LaBrot. "He is abundantly fair in the credit he gives to students in terms of research acknowledgment."

Dufrene said the majority of the students are getting a Ph.D. because they want a career in applied psychology working in a school district, hospital or clinic, while some want to go into private practice. A small minority are interested in academia.

"For those interested in applied psychology, I make sure students see the type of clients in our clinic that they want to work with, and I help them identify and apply for the best externship that is going to provide them with the best training that fits their career goals," said Dufrene.

"I regularly see clients with my students and visit the agencies they work in, so they can directly observe me delivering psychological services to children."

For the students who are interested in a career in academic research, Dr. Dufrene's approach is different. "Once I identify the line of research they are interested in, I help them tailor their thesis and dissertation projects focused on that line of research," Dufrene said. "And when I have my own research projects or when given opportunities to write book chapters or encyclopedia entries, I involve those students with those projects if it is consistent with what they want to do in terms of research."

Because Dr. Dufrene has a commitment to prioritize mentoring in his professional life, he continues to mentor after the student has graduated.

Former student, Matt LeGray said, "I have carried what I have learned from my training, and Dr. Dufrene's mentoring, into the creation of my own company. I currently serve individuals with disabilities and their families, through evidence-based efforts to reduce behavior problems."

"Every day I use what I have learned and experienced to make progress in the lives of the individuals I serve. I often find myself talking about things Brad taught me, citing the same examples and utilizing the same techniques," LeGray added.

Dufrene points out mentoring requires a tremendous amount of time: guiding students professionally and personally and maintaining good relationships with clinicians and researchers in a variety of hospitals, clinics and schools. But it is worth it.

"In terms of any award that I could possibly receive at this university, it’s the one most important to me," stated Dufrene. "The most professional satisfaction that I could get on the job is the satisfaction of seeing graduate students develop during their four years on campus with us, so it means a whole lot for me to see those students develop into quality professionals."

"We must provide our students with rigorous training and hold them to a high standard, but at the end of the day, we must genuinely care about them as a human. We need to make sure we are taking care of both the person and the student.”
Dhiraj Acharya, a native of Nepal, was selected as the 2017 Graduate Assistant of the Year.

Acharya, came to Southern Miss to earn a Ph.D. in microbiology after completing his bachelor's and master's degrees in microbiology from Tribhuvan University in Kathmandu, Nepal.

The award recognizes a particularly successful graduate student that also serves as a graduate assistant on campus. Students are chosen for their academic achievements, their contributions to the university through teaching, research, and service, and for outstanding character.

"Dhiraj is a very bright and hard working student with a pleasant personality. He has an outstanding ability to understand and interpret science and generate new ideas," said Dr. Fengwei Bai, associate professor of biological sciences and Dhiraj's major advisor.

Working alongside Dr. Bai, Acharya conducts research centered on mosquito-transmitted viruses, such as West Nile virus, Zika virus and dengue viruses. "We study how these viruses infect humans and animals and their disease-causing mechanisms, said Bai. "The goal of the research is to develop antiviral agents and vaccines against the viral infection."

"I began to appreciate scientific research in early childhood after I was cured from typhoid fever, and over the years I witnessed many friends and neighbors suffer from misdiagnosis," said Acharya.

These tough experiences prompted Acharya to ask the question, "How do infectious agents cause disease in humans?"

"My interest in research grew as I began high school, and I envisioned finding the cure for many of the infections that impacted my loved ones," he added.

Since beginning graduate studies at Southern Miss in 2012, Acharya has published three peer-reviewed journal articles as first author and coauthored eight additional peer-reviewed articles in some of the top journals in his field, including the high impact Journal of Virology, Journal of Immunology, Journal of Biological Chemistry, and others. He coauthored a book chapter with Dr. Bai and contributed a chapter to a general microbiology lab manual.

In addition, Acharya and Bai hold a patent for their identification of a novel immunological function that promotes clearance of West Nile virus.

Bai said besides Acharya's exceptional scientific and research skills, he is also a great teaching assistant. "During his three years teaching microbiology labs, he has received great student evaluations," said Bai.

Janet Donaldson, chair of the Department of Biological Sciences, said "He is destined to have an amazing career post-graduation."

Acharya received his Ph.D. in May and is currently serving in a postdoctoral position at the University of Chicago.
Students were applauded for their academic progress and scholarly achievements during Graduate Student Appreciation Week held April 3-7. During the week graduate students had the opportunity to engage in activities that showcased their scholarship, research and creativity, while enriching their education through professional development and fostering interdisciplinary networking. The week’s signature event, the Graduate Student Hall of Fame portrait unveiling kicked-off the week. It showcased outstanding graduate students selected by their academic dean or the graduate dean for their academic and scholarly accomplishments.

President Rodney Bennett was on hand to assist Dr. Karen Coats, dean of the Graduate School with the unveiling. During his remarks, Dr. Bennett noted that each student reached their level of success due, in part, to the excellent mentoring provided by major professors. He acknowledged that the honor belonged to the mentors as well as students.

Each of the canvas portraits of the students, photographed in their research environment, will be displayed in the Office of the Graduate School for one year.

HALL of FAME

Ruoyu (Mason) Zhao
Nurse Anesthesia DNP Student
College of Nursing

The purpose of Ruoyu’s capstone project was to determine the prevalence of smartphone usage among student registered nurse anesthetists. The intent of this pilot study was to inform the appropriateness of accepting and promoting smartphone usage in educational settings and to guide student registered nurse anesthetists in smartphone usage to better prepare themselves for their career.

Ashley Parker
Epidemiology and Biostatistics Master’s Student
College of Health

Ashley conducted a nutrition intervention project designed to aid in the prevention and management of obesity-related chronic diseases and other health disparities in underserved populations of South Mississippi. Her role in the project was data management and statistical analyses for dissemination of this research.

Andrew Dodgson
Sport Management Master’s Student
College of Business

Andrew is in a non-thesis degree program. He serves USM as a graduate assistant trainer for the Golden Eagles baseball team.
In recent years, millions of dollars of educational funds have been expended on technologies in classrooms. Educational technology implementations have been deemed successful yet have produced little measurable impact on student learning. Dane’s research seeks to better understand the relationship between educational technology adoption by instructional staff, their levels of technology integration into their curricula and pedagogy, and impact student achievement.

Dahlia recognizes the growing threat of antimicrobial resistance that has created “superbugs” from microorganisms that were once easily treated. Her research attempts to tackle this problem by designing novel antimicrobial materials. By synthesizing and encapsulating these antimicrobial molecules found in nature, she aims to limit antimicrobial resistance among a variety of pathogenic microbial populations.

The purpose of Tiffany’s study is to determine the effect of using varying ratios of simulation replacement to traditional clinical experiences in pre-licensure nursing education programs in the U.S. The results of this study will be important because they will provide evidence-based guidance to nurse educators, nurse administrators, and State Boards of Nursing as they form curricular guidelines and state policies regarding the use of simulation in pre-licensure nursing education.

Olivia studies the incidence of childhood obesity in Mississippi. She is evaluating longitudinal data on childhood obesity collected in repeated study designs for over a decade. The ultimate goal of her project is to guide public policies related to health and education of Mississippi’s children.
Carley Reynolds Young
Communication Studies Ph.D. Student
College of Arts and Letters

Carley’s research focuses on communication between students and their peers, family, and the education system and how communication influences their perceptions and decisions concerning higher education. Specifically, she is interested in students from lower socioeconomic backgrounds and/or first-generation college students. Her goal is to contribute to improving communication and understanding between these at-risk student populations and higher education institutions.

Frederick McFarland
Chemistry Ph.D. Student
College of Science and Technology

The goal of Frederick’s research was to gain new insights into how organic semiconductor molecules self-assemble to form nanoaggregates and how these processes affect their optoelectronic properties. To characterize these systems, he used atomic force microscopy to characterize their local morphologies and optical spectroscopy to track their aggregation kinetics. He hopes his research will help facilitate the future development of organic electronic devices such as organic solar cells and organic light emitting diodes (OLEDs).

Ecaterina Stepaniuc
Mass Communication Ph.D. Student
College of Arts and Letters

Kate is interested in understanding the impact that mass media messages have on their audience. She focuses on print and televised media messages on social, moral, and political issues that are popular in her native country, the Republic of Moldova. Her dissertation focuses on government and independently-owned media outlets in Moldova in an effort to identify vacillating and competing ideas of democracy that have been framed by the media in the past 24 years. She believes analyzing the media will allow her to affect the mindset and behavior of her native people, bringing about change.

Claire Houtsma
Clinical Psychology Ph.D. Student
College of Education and Psychology

The goal of Claire’s research is to identify mechanisms of suicide risk. Specifically, her research examines sociopolitical and contextual factors that contribute to increased suicide risk among at-risk groups, such as military personnel. Ultimately, she hopes to use this information to inform suicide prevention efforts at individual, community, and legislative levels.

Jeffrey R. George
Economic Development
Master’s Student
College of Business

Jeffrey’s research in economic development examines economic and workforce trends to identify potential opportunities for workforce development. He looks at high-demand industries to determine opportunities for education and training at the high school, technical college, community college, and university levels. His intent is to help the citizens in the state of Mississippi become better prepared for future workforce demands. In addition, Jeffrey studies the economic impact of various companies on the state and local economy in areas where these companies are located.
Innovation and Scholarship Showcased at Annual Symposium

Graduate student research excellence was showcased at the 2017 Dr. Susan A. Siltanen Graduate Student Research Symposium on April 4 on the Hattiesburg Campus. The symposium is designed to provide a competitive scholarly environment for graduate students to highlight their innovation and scholarship and to foster conversations across and within the array of disciplines at Southern Miss. Through oral and poster presentations, 120 graduate students presented their research to faculty, staff and students.

The event was co-hosted by the Southern Miss Graduate School and the Graduate Student Senate. Sponsors of the event were the Office of Vice President for Research, the Graduate School, Fisher Scientific and Mississippi INBRE.

Students Gain Skills to Compete in Today's Job Market

In today's job market, job seekers need an arsenal of expertise to be competitive. There was a time when having an in-demand functional or "hard skill" like computer engineering was enough to get you a job offer. That is no longer the case. In addition to functional skills, employers are looking for people who have "soft skills" or interpersonal skills.

"Providing professional development opportunities is a priority to me because I know its value for our students," said Karen Coats, dean of the Graduate School. "I wanted to provide an opportunity for students to engage with others outside their specific discipline and learn skills that would potentially give them an advantage in the job market."

My confidence improved after participating in PIP. The programs helped me to know my strengths and to introduce myself more professionally at job interviews.

- Somayyeh Sheikholeslami
The Professionals in Preparation program (PIP) is a two-semester professional development program designed to help students develop and sharpen their soft skills. Through bi-monthly seminars, a cohort of students have the opportunity to develop and hone skills such as leadership, communication, mentoring, and professional ethics and etiquette.

Somayyeh Sheikholeslami, a computational science doctoral student from Iran, said "My confidence improved after participating in PIP. The program helped me to know my strengths and how to introduce myself more professionally at job interviews."

Outside of what they learn, students have the opportunity to practice skills; they are required to participate in Three-Minute Thesis and the Susan A. Siltanen Graduate Student Research Symposium.

"The competition helped me understand the importance of being a good communicator while maintaining passion for my research," said Jackson Howard, a counseling psychology master’s student and three-minute thesis finalist.

In addition to enhancing their skill-set, students are reaping other rewards. “PIP was an opportunity to have a platform to network with other professionals and students,” said Brian Street. “It placed people in my life to help me to get to where I want to be, which is a future where I am able to serve a larger audience.” Street received a master's in social work in May and is currently enrolled in the social work doctoral program at Louisiana State University.
Leader in Coastal and Marine Science

Exploring the Deep-Sea Ecosystems to Protect Biological and Historical Resources

By: Karyn Lewis and Vanessa Molden

Following the 2010 Deepwater Horizon Oil Spill (DWH) spill, one of the largest environmental disasters in United States history, The University of Southern Mississippi led the way in mapping and analyzing the oil spill’s effects on the Gulf’s ecosystem. The outstanding research contributions of USM’s faculty garnered its reputation as a national leader in Coastal and Marine Science.

In August 2016, Patterson, N. J. native, Dr. Leila Hamdan, a top researcher in aquatic microbial ecology, joined Southern Miss as associate professor in the Division of Coastal Sciences to further the university’s reputation and equip the next generation of scholars and researchers.

As an aquatic microbial ecologist, Hamdan studies microorganisms in coastal life and oceans. “I study population dynamics and what types of microorganisms are out there. I’m interested in how they interact with each other and importantly, how they interact with the environment around them,” said Hamdan.

Prior to joining The University of Southern Mississippi, Hamdan was an assistant professor in the Environmental Science and Policy Department at George Mason University, a research microbiologist in the Marine Biogeochemistry Section at the U.S. Naval Research Laboratory in Washington, DC, and a National Research Council Postdoctoral Research Associate.

One of Hamdan’s favorite poems, The Sea by Pablo Neruda, inspires her work. The poem states, "I need the sea because it teaches me." She and her students are using lessons from the sea to explore the mysteries of deep-sea ecosystems.

"We're using our skills in microbial biology to understand how the deep sea is changing as a result of human impact. One of the impacts we are focusing on is the effect of the Deepwater Horizon Spill," Hamdan said. "Microorganisms know the ocean floor the best because they are the most abundant form of life in the ocean, and they are deeply connected to the life cycle of other organisms."

Through the Shipwreck Corrosion, Hydrocarbon Exposure, Microbiology, and Archaeology (SCHEMA) project, Hamdan is collaborating with other scientists to investigate the impacts of the Deepwater Horizon spill to the microbial communities of historic shipwrecks in the deep waters of the Gulf of Mexico.

According to the Bureau of Ocean Energy Management (BOEM) website, historical research indicates that over 2,000 shipwrecks are resting on the floor of the Gulf of Mexico.

Hamdan says "These shipwrecks host micro and macro-organisms and become artificial reefs, which are hotspots for biodiversity in the deep-sea."

Hamdan uses the University’s research vessel, R/V Point Sur, to conduct her research. The 135-foot, R/V Point Sur is the only oceanographic class research vessel home-ported in the northern Gulf of Mexico east of the Mississippi River.

The length of time Hamdan and her research team spends out to sea depends on the scientific goals of the cruise. Trips can range from three to 20 days.
she takes “the lab” out to sea, it generally consists of Hamdan, a full ship crew, researchers, and Southern Miss students.

"I bring as many students as I can. It is one of the most important, informative activities I think our students can be involved in," Hamdan said. "Students are at the heart of my research. They take on research projects that are connected to the central theme of how the Deepwater Horizon has effected microorganisms and the sea floor."

"Students will work on either field or lab experiments to answer specific questions related to oil metabolism or marine corrosion mediated by microorganisms, for example," Hamdan added.

Melissa Brock, an ocean sciences master’s student from Pensacola, Fla. and Rachel Mugge, an aquatic health master’s student from Columbus, Ohio are two students who have accompanied Hamdan during offshore studies.

"I met Dr. Hamdan when I was presenting my undergraduate research project at the Gulf Estuarine Research Society’s conference in 2016. We discussed our research interests, and she suggested that I look at her website and the Southern Miss website and consider it as an option for graduate school. I applied later that year and was accepted," Brock said.

Mugge joined Hamdan’s lab as a research technician and later became her student.

"I have been interested in the deep sea since I did a project on Antarctic ice fish in first grade. Throughout this process, I have gained both laboratory and field skills that I use to aid Dr. Hamdan in her research on the SCHEMA project."

"The Gulf feeds and fuels the nation, but it contains fragile ecosystems and diverse microbes that sustain those ecosystems in ways we are still grasping. Microbes hold the mysteries of the Gulf. I came here to help discover them."

- Leila Hamdan
Mugge’s thesis work is part of the SCHEMA project. “I am investigating the changes in microbial communities due to oil and dispersant exposure at impacted and unimpacted sites by studying the biofilm formation and metal corrosion of steel-hulled shipwrecks,” Mugge said.

The School of Ocean Science and Technology includes two divisions, the Division of Marine Science and the Division of Coastal Sciences in Ocean Springs, Miss. The divisions consist of multiple research labs with different research focuses such as toxicology, fisheries, oceanography, and microbiology. Together, the different labs contribute to a better understanding of the ocean.

"Our lab focuses on the microbial ecology of historic shipwrecks in the Gulf of Mexico. We are trying to understand how they corrode metal-hulled and wood-hulled shipwrecks as well as the biogeography surrounding the shipwrecks," Brock said.

“As artificial reefs in the deep sea, shipwrecks are particularly susceptible to oil and dispersant exposure.”

"In the aftermath of the Deepwater Horizon spill, this means there are potential threats to the microbial communities and macrofauna that live in and around these impacted shipwreck sites. Our research assesses the chemical, physical, and biological conditions at both spill-exposed and non-exposed sites to help understand how the biological communities change over time," Mugge explained.

"Understanding the microbial ecology of shipwrecks is important because microorganisms can form biofilms on the ship’s surfaces, which recruit other microscopic organisms, which eventually recruit macroorganisms, turning the shipwreck into an artificial reef. It is also beneficial to understand how shipwrecks affect the biogeography of microorganisms because microorganisms are important regulators of the biogeochemical cycles in the ocean.

Without them, key nutrients like nitrogen, sulfur, and carbon would not be available to larger organisms such as fish,” Brock added.

“Dr. Hamdan is really passionate about her work, and she has a particular knack for transferring her passion for science to her students,” said Mugge.

Although Hamdan and her students are usually busy studying the ocean floor, they still make time for fun.

"Our offshore schedules are usually very full, but as Dr. Hamdan says, 'If you’re not having fun with your science, you’re doing it wrong,' so we have fun too! We had some down time during our last cruise, and our chef on board hosted a 'chocolate class' during which we learned how to make and decorate various chocolate fondue creations,” said Mugge. "I also enjoy learning how things operate on the boat. The assistant engineer gave me a tour of the ship’s engine room, and the first mate taught me how to drive the boat and operate the winch," Mugge shared.

The crew and students also utilize the ocean to have fun while off shore. Decorated Styrofoam cups are sent down in a mesh bag attached to a piece of research equipment. Water pressure compresses the cups, so that they are shrunken in size when they return to the surface.

Hamdan has been on scientific expeditions in every ocean, but when asked why she is particularly interested in the Gulf of Mexico, she said, "I came to USM to be part of an incredible community of scientists, educators and students. But I also came here to be close to the Gulf. The Gulf feeds and fuels the nation, but it contains fragile ecosystems and diverse microbes that sustain those ecosystems in ways we are still grasping. Microbes hold the mysteries of the Gulf. I came here to help discover them."
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The Ronald E. McNair Post-Baccalaureate Achievement Program (McNair Scholars) serves as a bridge between undergraduate and graduate education. It is a federally-funded TRIO program supported by a grant from the U. S. Department of Education, named in honor of Dr. Ronald McNair, physicist and fallen astronaut of the Challenger space shuttle accident. The program is designed to prepare participants for doctoral studies. Immersing students in undergraduate research and preparing them to communicate their findings are core components of the program.

McNair Scholars Aaliyah Granger and Mary Travis had the opportunity to do both. Granger and Travis were selected to present their mentored research in Memphis, Tenn., April 6-8 at the National Conference of Undergraduate Research (NCUR), an annual conference that showcases the best in undergraduate research and the creative and performing arts.

Elizabeth Ambos, executive officer, Council of Undergraduate Research, notes NCUR serves as a “home” for all champions and practitioners of undergraduate research, scholarship, and creative inquiry.

McNair Scholars are undergraduate students with strong academic potential selected from among first-generation, economically disadvantaged or underrepresented groups.

Granger, a senior therapeutic recreation major with a minor in psychology from Meridian, Miss., presented a poster titled, "Positive Effects of Leisure on Adults with Schizophrenia: A Case Study." Her research seeks to understand if the amount of leisure activity an individual with schizophrenia consumes has an effect on improving the mental disorder.

"I've witnessed schizophrenia first hand because I have a family member who has the disorder. We deal with enhancing quality of life through leisure activities in my field, so I combined the two because mental health is my main career focus," explained Granger.

Participating in NCUR gave Granger exposure to new ideas and new networking opportunities. "I met a lot of people in my field at NCUR and we collaborated on a few ideas," Granger said.

Granger wants to broaden her research. “Individuals from low economic backgrounds may not have the resources such as a recreational center to participate in leisure activities, so I want to explore different races, economic backgrounds and regions to see if those different elements are a factor in how active the individual is," Granger added.

Travis, a Hattiesburg, Miss. native, presented her research titled, "Delta Hands for Hope: A Force for Reconciliation and Sustainable Development in the Delta.”

"The Delta in and of itself is a challenge to any kind of development or growth. There are issues with education, economic opportunity, employment opportunity; just the whole range," said Travis. “The racial division there affects everything including the educational system and who gets what services.”

Travis' research focuses on how to make sustainable improvements within communities in the Delta through racial reconciliation.

In addition to conducting and presenting their research, the McNair Scholars program provides students the opportunity to participate in an array of academic, leadership, cultural, and scholarly activities, such as GRE
preparation courses, visits to other graduate programs and research sites, and participation in field experiences.

“Being a McNair scholar has presented me with so many opportunities. It has changed my perspective on education,” said Granger. “Honestly, before I applied to the program, graduate school wasn't really on my mind. It was kind of like get the four years completed. You don't want to limit yourself to anything. It's hard work, but anything worth having is hard work. It's worth a shot.”

Travis had a different perspective, “I wanted to go on to graduate school and I felt the McNair program would help me to prepare and have a better chance of being accepted,” said Travis. "I've been out of school for a while and had questions about the GRE and applying to graduate school. “It seemed like a great program to help with preparation for those things and turned out to be a lot more than that," Travis added.

“I enjoyed the trips,” said Granger. “My favorite trip was when we went to Winterville Mounds in Greenville, Miss., where we got to be archaeologists for a day. That was really neat.”

"It was beneficial being with a group of other students from diverse backgrounds who also want to go to graduate school. It makes you to see your own strengths as well as learn from others,” said Travis.

"Visiting the different campuses and seeing the different focuses of research exposed me to a wider range of options. I think this will help me make better choices and possibly point me in directions I wasn’t sure I wanted to go,” Travis added.

Granger will complete her undergraduate career this December and Travis began her graduate studies in geography at USM in August where she plans to continue her research on the Delta.
Where are they now? Alumni Spotlight

Blake Pittman

How did your education at USM impact your life and prepare you for your current position?
Going through the MPA program was my favorite time at USM. The faculty makes that program amazing! Each of my teachers would allow me to work alongside them and coach us on career advice or technical advice. They create an environment where the class became close and allows us to develop the soft skills that are needed in the workforce in addition to the technical skills. I was involved with Beta Alpha Psi and I was able to serve the community and network with professionals in my field. I was blessed with a graduate assistantship position working in the Graduate School. Seeing the hard work behind the scenes of what all it takes to make my education happen really gave me a deeper appreciation for USM. I left the program with a job waiting on me after graduation and the faculty prepared and helped me to meet that goal (after all that is why I went to college).

What advice would you have for current or future graduate students?
Get involved within organizations as a graduate student. Do your research on how to be involved. Graduate school is what you make of it and being involved introduces you to others across campus in other departments. I still keep up with people I met through the Graduate Student Senate as they have become my “go-to” experts in their fields for things I didn’t realize may pop up later in life after graduate school.

What degree(s) did you earn at USM?
Master of Professional Accountancy and Bachelor of Science in Business Administration

What year did you graduate?
I completed the MPA program in 2015.

What is your current position and what do you do in your daily job functions?
I am an associate in Healthcare Reimbursement and Advisory at HORNE LLP. I serve clients by assisting with cost reports and consulting projects.

What is the most interesting aspect of your position?
What is the most challenging? The firm I work for allows me to really make the most of my position and never limits me in the opportunities I find interesting. I find myself enjoying the research and consulting projects that I am able to work on. The projects differ each time and it’s nice to be able to jump in and learn new things. The learning curve can create a challenge, but that enables me to grow in my knowledge that can be used to better serve clients.
Tell us about some of your favorite memories while at USM.
One of my favorite memories during graduate school was a group video project in Accounting Fraud class. My teammates and I decided we would make the video project like cheesy news anchors. We traveled around Hattiesburg filming and went to the gulf coast where effects from past hurricanes can still be seen. Using school as a reason to go to the beach was easily justified in our minds. Watching the blooper reel from that project still makes us laugh.

What year did you graduate?
May 2017

What is your current position and what do you do in your daily job functions?
NASA Postdoctoral Fellow, Research

What is the most interesting aspect of your position? What is the most challenging?
I study the immune response and inflammatory disease development in Astronauts following space-flight. Since it is a relatively new and exciting field of research, with many unanswered questions, this can be both challenging and motivating at the same time.

How did your education at USM impact your life and prepare you for your current position?
My time at USM has enabled me to expand my leadership skills, successfully preparing me for my current position.

What advice would you have for current or future graduate students?
You must love what you do to have a successful graduate student career. Maintain hard work, perseverance, and determination to get through your studies.

Tell us about some of your favorite memories while at USM.
Outside of the lab, working for the Women in Science and Engineering (WISE) program has helped me to expand my connections to other female scientists at USM. I also enjoyed watching football and basketball games. USM to the TOP!

Amber Paul

What degree(s) did you earn at USM?
Ph.D. Molecular Biology
What degree(s) did you earn at USM?  
I earned a Ph.D. in U.S. History with a specialization in U.S. diplomatic and military history.

What year did you graduate?  
I graduated in 2017.

What is your current position and what do you do in your daily job functions?  
I am currently teaching policy analysis at the U.S. Naval War College.

What is the most interesting aspect of your position?  What is the most challenging?  
The most interesting aspect of my position is that I get to help prepare American and foreign military officers for the next phase of their career.  The most challenging part is knowing that I am teaching military officers who will take the skills I am teaching them and use them in real world situations with real world consequences.

How did your education at USM impact your life and prepare you for your current position?  
My education and experiences at USM have prepared me for this job because the faculty in the History Department, especially my advisor Dr. Heather Stur, pushed me to take my analytical and critical thinking skills to the next level, and expanded my existing understanding of military and diplomatic history.  The U.S. History Ph.D. program and the professors in it are dedicated to making sure that future history professors and scholars understand what it means to be a historian and to practice and study history.

What advice would you have for current or future graduate students?  
I would tell any current or future graduate students that going to graduate school is one of those major life decisions that will take some sweat and sleepless nights (hopefully not too many tears or the need to shed any blood), but the journey and experiences are worth it in the end.  I would also say that students should not neglect their mental health and if they need to take a day, take the day.  Its better in the long run for your mental health and your ability to achieve your goals.  Remember its a marathon not a sprint.

Tell us about some of your favorite memories while at USM.  
My favorite memories at USM are tailgating during Homecoming, the friends I made and colleagues I met, working at T-Bones Cafe, and going to the Dale Center for the Study of War & Society special events and lectures.
What degree(s) did you earn at USM?
Ph.D. in Polymer Science and Engineering

What year did you graduate?
2016

What is your current position and what do you do in your daily job functions?
I am in the Ph.D. Leadership Development Program (LDP) at BASF. My current position is research scientist in our home care development group. I work specifically in enzyme applications in home care and detergents. We are trying to develop high performing, sustainable detergents capable of effectively cleaning clothes at low temperatures to conserve energy and water.

What is the most interesting aspect of your position? What is the most challenging?
The most interesting aspect of my position is also the most challenging. When I first started working for BASF I was given the opportunity to work on an enzymes project. My Ph.D. focused on synthetic polymers and I had never worked with biopolymers or proteins before. Within a few weeks I was completely fascinated with enzymes and I have chosen to continue to work in this field. However, this is also quite challenging as I do not have a biochemical background and some days it feels like I am learning a whole new science all over again!

How did your education at USM impact your life and prepare you for your current position?
I tell people all the time that getting my PhD didn’t just teach me to be a polymer scientist, but it also taught me how to think critically and learn quickly. Additionally, my advisor, Dr. Sarah Morgan, taught me to be professional, well spoken, and a better writer. She truly left a profound impact on my life. She played a significant role in helping me develop my professional career and she continues to be a role model and mentor to me.

What advice would you have for current or future graduate students?
It’s worth it.

Tell us about some of your favorite memories while at USM.
One year during graduate school, it “snowed” in Hattiesburg. Well, it wasn’t snow as much as small balls of ice. However, they closed the school for three days. We couldn’t even go to our labs because the pipes burst! So we had no guilt about not working. It was a true “snow day” and I felt like a little kid again. We took our snowboards and rode them on small hills on campus and on the parking garages... the police promptly showed up. But it was a blast!
Graduate Enrollment by Degree for Fall 2017

- Doctorate: 37%
- Master’s and other: 63%
- Part Time: 45%
- Full Time: 55%

Graduate Enrollment by Race/Ethnicity for Fall 2017

- Hispanic/Latino: 3.68%
- American Indian/Alaskan Native: 0.33%
- Asian: 6.04%
- Black/African American: 16.86%
- White: 70.56%
- Two or more races: 1.65%
- Unknown: 0.86%
International Graduate Enrollment by Country for Fall 2017

- Honduras
- China
- India
- Brazil
- Trinidad & Tobago
- Vietnam
- Italy
- Nepal
- Germany
- Columbia
- Nigeria
- Japan
- South Korea
- Spain
- Moldova
- Portugal
- Grenada
- United Kingdom
- Bangladesh
- Canada
- Taiwan
- Mexico
- Guyana
- Iran
- Uruguay
- Macedonia
- Montenegro
- Zimbabwe
- New Zealand
- Bahamas
- Cameroon
- Philippines
- Panama
- Sri Lanka
- Romania
- Peru
- Puerto Rico
- Uganda
- Russia
- Turkey
- Saudi Arabia
- Kuwait
- Thailand
- Venezuela

131 MASTERS PROGRAMS, 84 DOCTORAL PROGRAMS, 19 GRADUATE CERTIFICATES, AND 3 SPECIALIST PROGRAMS

FOR MORE INFORMATION AND TO ENROLL, VISIT
usm.edu/graduate-school

STEPS TO APPLY
- Submit application and $60 application fee
- Submit transcripts
- Submit proof of immunizations
- Submit graduate exam scores
- Submit three letters of recommendation
The Graduate Student Senate serves as the voice for all graduate students and as ambassadors for graduate education at USM. The Senate is composed of a representative from each department or school. Senators assist the Graduate School with recruiting, social and professional development events. Serving as a Senator provides graduate students with opportunities to build their leadership, communication and networking skills.

2017-18 Graduate Student Senate

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- Graduate fellowships to support our most outstanding students
- Student travel to professional conferences to showcase their work
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