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# Science **Wironmental**

#### Baylor Professor Patents Breakthrough Treatment for Traumatic Wounds

By Jasmin Caldwell

Baylor professor, Dr. Erica Bruce, patented a break-through treatment for traumatic wounds. The new drug will extend the "golden hour" to save lives impacted by traumatic injury.

Dr. Bruce said she has been busy in the lab. It took seven years for her and her team to come up with a way to extend "the golden hour."

"When we have trauma that occurs, the golden hour is that 60-minute post injury that's critical in getting folks to a medical facility to be treated," Bruce said. "If we can get them there with that 60-minute time limit our chances of them surviving increase dramatically."

Bruce is the Associate Professor and Graduate Program Director of Environmental Science. She says the new drug, which is a powder, will help extend the golden hour to possibly 72 hours .

Bruce said service members injured in combat, hemorrhage, or bleeding out, are the most common causes of preventable deaths. Getting patients to a hospital quickly is sometimes unlikely.

"When we have those injuries occur in a combat theater, you are not close to a medical facility," Bruce said. "Getting to a medical facility within that golden hour is extremely difficult. The drug we worked on is an oxygenating therapeutic. It will add oxygen to a system without having to have blood."

Bruce said the drug received attention from the Department of Defense. She said it can be deployed and can be taken out and given immediately in the field. A recipient can be any blood type to get it. Overall, she said she just wants to save lives.

"That's the goal, to get this in the hands of people as soon as we can."

Bruce said, right now, there's a \$2 million research proposal under review with the Department of Defense to help with funding and to extend her work.



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#### Student Spotlight

#### Baylor Doctoral Candidate Receives Colgate-Palmolive Award for Alternative Methods Research in Toxicology

Marco Franco, a doctoral candidate in environmental science at Baylor University, has been honored with the 2020 Colgate-Palmolive Award for Student Research Training in Alternative Methods from the Society of Toxicology.

The award is designed to enhance graduate student research training using in vitro methods or alternative techniques to replace the use of animals in toxicological research.

"Toxicology is one of the strongest multidisciplinary fields that allows researchers to tackle questions



from different approaches," Franco said. "As our world continues to experience unprecedented levels of contamination from the overproduction of chemicals, toxicology provides us with the tools to address and minimize threats to humans' and ecosystems' health."

Franco is a researcher in the environmental and molecular toxicology lab of Ramon Lavado, Ph.D., assistant professor of environmental science at Baylor, who conducts cutting-edge research with his students in aquatic toxicology, environmental health sciences and exposure and risk assessment.

"This student research award acknowledges Marco's contribution in linking responses measured in living organisms to responses in cell and tissue cultures," said George Cobb, Ph.D., professor and chair of environmental science at Baylor.

"These advances in the mechanistic understanding of toxicant behavior use techniques considered to be the next generation of approaches when it comes to evaluating pharmaceuticals and chemical additives to commercial products.

"My research uses cell-based methods in scenarios that range from understanding the estrogenicity of wastewater discharge in surface waters to investigating the biochemical mechanisms that allow organisms to adapt to heavily polluted environments," Franco said.

"The development and use of cell lines has been one of the major advances for in vitro toxicology," Franco said. "Leaders in the field have started to look into ways to evaluate the toxicity of chemical compounds in more-complex systems, such as microfluidic models (biochips)."

"I hope to contribute to the efforts that have highlighted the value of cell-based technology and provide further evidence showing that good in vitro data can be universalized to in vivo responses," Franco said. "In vitro systems are often less expensive and time consuming than traditional approaches in toxicology. Wellcharacterized models can be excellent tools for quick yet thorough evaluations of risks in threatened populations and ecosystems."

#### Global Horizon Scanning Project will help scientists address pressing environmental and health issues in the United States,

Canada and Mexico Baylor Media July 2019





As density in cities increase along with other global megatrends, researchers are working to address environment and health challenges in collaborative ways.

Using a recently pioneered process, a multidisciplinary team of North American researchers, government agencies and businesses leaders identified priority research questions for the United States, Canada and Mexico in an effort to tackle pressing environmental quality issues.

In an article published today in the journal of Environmental Toxicology and Chemistry, Bryan W. Brooks, Ph.D., Distinguished Professor of Environmental Science and Biomedical Studies and director of the environmental health science program at Baylor University, led the Global Horizon Scanning Project (GHSP), which focuses on identifying environmental and health issues internationally. Brooks also facilitated GHSP workshops in Africa, Australia, Central and Southeastern Asia, Europe and Latin America.

"We face palpable global environment and health challenges, which require innovative understanding, tools, products and systems to prevent, diagnose and manage adverse outcomes to public health and the environment," Brooks said. "The GHSP was initiated as part of a larger effort to identify important international research needs. It is

essentially a research roadmap towards achieving more sustainable environmental quality, which is necessary to protect human health, biodiversity and ecosystem services."

As part of the study, members of the Society of Environmental Toxicology and Chemistry's (SETAC) and the American Chemical Society's (ACS) Environmental Chemistry and Agrochemcials Divisions submitted questions that were then synthesized during a workshop by scientists and engineers from the academic, government and business sectors.

"This project is intentionally inclusive, bottom-up, multidisciplinary, multisector and transparent," Brooks said. "Answering these priority research questions will not be easy, but strategically doing so promises to accelerate progress to address grand challenges that matter to everyone."

"This report provides a comprehensive global perspective covering some of the world's most critical environmental challenges that will impact society for decades to come," said Sherine Obare, Ph.D., dean and professor of the Joint School of Nanoscience and Nanoengineering at UNC Greensboro and chair elect of the American Chemical Society's Environmental Chemistry Division. "SETAC's ability to engage scientists from around the globe has led to forums that identify urgent challenges including, next generation 21st century analytical chemistry methods, strategies to predict chemical exposure, understanding multiple stressors and new approaches in chemical risk assessment. This project will define the scientific directions needed to transform environmental science and engineering, globally."

"The GHSP reflected in this paper has harnessed the insights of scientists not only across North America but around the world," said Charles Menzie, Ph.D., Global Executive Director of SETAC. "Each brings tremendous experience and a strong sense of what is needed for future research. However, the distillation of these many into a set of consensus questions provides a much needed foundation for charting our direction for research to inform environmental policy. SETAC is proud to have supported this through our global meetings and now through our journal."

A related GHSP manuscript identifying priority environmental quality questions for the Australasia region of Oceania was also recently published in Integrated Environmental Assessment and Management. GHSP efforts from Africa and Asia are ongoing with plans to report priority research questions from these global regions in the next year .

#### At Home in Polluted Waters

Baylor Media August 2019

The waters in and along the Houston Ship Channel teem with evidence of human activity. Surrounded by miles of oil refineries and leading to the Port of Houston, one of the busiest seaports in the United States, the channel is highly polluted and inhospitable to aquatic life. Yet, the Gulf killifish thrives in that environment.

For Cole Matson, PhD, associate professor of environmental science and member of the Center for Reservoir and Aquatic Systems Research at Baylor, the Gulf killifish provided a fascinating case study, borne in part from the surprising speed at which they adapted to



challenging conditions. Species evolution is typically thought of as an excruciatingly long process. Populations have the potential to survive by slowly adapting to new environments. However, the new environments that populations are finding themselves in are not changing slowly. Human influence is causing rapid change in extreme ways. One of the looming questions of conservation is if species can adapt quickly enough to save them from dying out. Matson and his laboratory team were able to answer that question after studying Gulf killifish populations from throughout the Houston Ship Channel.

"My particular interest is rapid adaptation," said Matson. "We've known what role hybridization has played in evolution over extended amounts of geologic time, but we haven't studied much the mechanism for which hybridization can influence short-term evolution because of extreme changes."

In a paper recently published in *Science*, Matson and his team discovered that Gulf killifish populations expressed a gradient of resistance to toxicants, or toxic substances added to the environment, linked to



heart deformities that followed the gradient of pollution levels in the channel. Exposing spawned individuals from 12 sample sites in and along the channel to toxicants common in the channel revealed key distinctions between resistant, intermediate and sensitive populations. Killifish populations at sites with higher pollution levels exhibited greater resistance, while populations in the least polluted sites proved to be sensitive to pollution exposure.

Continued on next page

#### **Tides of Data**

So why are some Gulf killifish resistant and others are not? Matson and his team turned to genomic analysis of the populations to determine if genetic differences could explain the resistance. After sequencing the full genome of 288 individual Gulf killifish, the team had about 300 billion nucleotides of DNA. But the data wasn't in order; the team had a terabyte worth of small pieces of genetic information of about 100 chromosomes each. They pieced together the genomes of each fish like a puzzle, using the already-sequenced genome of a sister taxon, the Atlantic killifish, as a template. The high volume of data required efficient and robust analysis.

Patching together the full genomes allowed for comparison between each individual fish countless times. The team looked for regions of the genomes that showed distinct differences between the resistant, intermediate and sensitive populations. Then, they zoomed in on those regions to see what genes were there.

"The basic tools are not new, but the challenges are new and different," Matson says. "Advancements in bioinformatics and computing power allow us to ask simple questions a billion times."

Matson's lab realized that the areas of gene variation in the resistant populations were actually more closely related to the Atlantic killifish than to the sensitive populations. From the gene variation in the resistant Gulf killifish, it appears that Atlantic killifish were somehow introduced to the Gulf and were able to hybridize with the Gulf killifish in the Houston Ship Channel. The introduction of gene variation to the Gulf killifish population in highly polluted areas made way for rapid adaptation and rescued an otherwise pressured population.

#### Hybridization—a cautious good news story

Mapping the introduction of Atlantic killifish genes to the Gulf showed that it is likely the hybridization occurred relatively recently and the resistant genes spread throughout the population in about 20 years.

However, Matson emphasized that this event of rapid evolution is rare and only comes in the wake of massive mortality. Natural selection is driven by high selective pressure on species to survive; species will either evolve or they won't.

"I think this is a cautious good-news story," said Matson. "Not all species will pull a rabbit out of a hat."

While rapid adaptation through hybridization helped the Gulf killifish to survive, hybridization doesn't always benefit a species. Species melding together has the potential to decrease genetic diversity and could ill suit species for survival. Matson is currently at work asking follow up questions to the study published in *Science*. Knowing that the Gulf killifish is resistant to pollution because of hybridization with the Atlantic killifish doesn't explain how the species deals with pollution. Biological pathway and biotransformation study can answer some questions about the way resistant Gulf killifish deal with toxicants. Future goals for Matson and his team focus on comparing the Gulf killifish resistant populations to other species, specifically those at the same sites of high pollution, and to Gulf killifish populations at other polluted sites that may not have had gene introduction from the Atlantic killifish.

Such projects continue to require massive amounts of data and processing power, made possible through advancements in data sciences. Data science has made room for more collaboration in research, tying together multiple disciplines to answer the challenging questions of today's rapidly changing environment.

# Baylor Researchers Earn Department of Energy Grant to Study Impact of Urban Pollution on Thunderstorm Activity

Baylor Media Jan 2021



Baylor University researchers Rebecca Sheesley, Ph.D., and Sascha Usenko, Ph.D., associate professors of environmental science, have been awarded an \$890,000 grant by the Department of Energy Atmospheric System Research (ASR) to examine the impact of urban pollution on thunderstorm activity. The grant, *TRACER-MAP: Mapping Aerosol Processes across Houston during convective cell events*, enables researchers to conduct measurements in Houston in the summer of 2021 to tie into an overarching, multi-institution, multi-agency research project called Tracking Aerosol Convection Interactions Experiment (TRACER).

"We are excited that TRACER will bring together scientists from Department of Energy, NASA and numerous academic institutions to work together on atmospheric science and chemistry in Houston," Sheesley said.

"Some of our questions focus on how these big thunderstorms develop and how do we improve models of these large thunderstorms, called convective cells," Sheesley said. "Our big addition to the larger TRACER project is that we will be mapping the atmospheric composition, or urban pollution, around the city so that we can connect the chemistry and air pollution to the convective cell studies."

The Houston metropolitan area was selected for the 2021 TRACER project due to its high convective storm activity and broad range of polluted aerosol conditions. Greater Houston is large in both land area and population, and has a wide range of atmospheric conditions. The project will map the air chemistry conditions across the region while atmospheric scientists working with TRACER will monitor convective storm activity.

Sheesley and Usenko's team will conduct a series of aerosol, gas and meteorological measurements during the summer of 2021 that will be matched to measurements from the DOE's Atmospheric Radiation Measurement Mobile Facilities. Further, they will deploy mobile air quality laboratories across the research area to collect detailed atmospheric chemistry measurements.

Sheesley and Usenko are working with federal agencies, TCEQ and Texas and California colleagues to understand the complex dynamics of urban air quality in southern and coastal Texas. This suite of projects in 2021 will give the Baylor researchers the opportunity to improve

understanding of the sources and chemistry of urban air quality to improve quality of life for the millions living in Texas cities.

"There's a lot of relevance to what we're doing. It doesn't take people very long to see where our research is interacting with them and their lives," Usenko said. "We think the ramifications of such a study could have far reaching implications on our understanding of how we as humans are interacting with the environment."



# Baylor researcher is principal investigator of UNCOVER EH, a groundbreaking initiative to strengthen the practice of environmental health

Baylor Media May 2019

The National Environmental Health Association's (NEHA) Journal of Environmental Health recently published the article "Uncovering Environmental Health: An Initial Assessment of the Profession's Health Department Workforce and Practice."

This groundbreaking article is the first of its kind to present the demographics, characteristics, education and training, practice areas, and aspects of leadership and satisfaction among the environmental health workforce.

The Centers for Disease Control and Prevention (CDC), National Environmental Health Association and Baylor University partnered on the Understanding the Needs,



Challenges, Opportunities, Vision, and Emerging Roles in Environmental Health (UNCOVER EH) initiative. UNCOVER EH collected information from more than 1,700 environmental health professionals in health departments across the nation. UNCOVER EH seeks to assess and improve the profession and practice of environmental health.

"The UNCOVER EH initiative allows us to hear directly from environmental health professionals about their practice, work, and challenges," said Erik R. Svendsen, Ph.D., Director of the CDC Division of Environmental Health Science and Practice. "We hope this information is used to strengthen environmental health programs in health departments and enhance their efforts to prevent exposures to environmental health hazards and improve the health of all people in the communities they serve."

"Environmental health practitioners work tirelessly, often under-supported, to protect the health of local communities, yet their efforts have remained poorly understood until now," said Distinguished Professor and Director of Environmental Health Science at Baylor University Bryan W. Brooks, Ph.D., who serves as principal investigator of UNCOVER EH. "The UNCOVER EH Initiative is providing critical information on the public health programs these professionals are managing, the strategic threats we are facing, and timely opportunities emerging to transform delivery of essential environmental public health services that matter to all of us."

"NEHA is proud to partner with CDC and Baylor University on the UNCOVER EH study. The environmental health workforce is often overlooked and this revolutionary article provides valuable insight into the profession. We are pleased to work on this important initiative and lead the mission to improve the practice of environmental health," said NEHA Executive Director David Dyjack, DrPH, CIH.

Accompanying the release of this article are two fact sheets that provide insight on salary and credential information collected from the UNCOVER EH research study. Uncovering Earnings and Education in Environmental Health examines salary differences in the environmental health workforce among degree types, position levels, and by jurisdiction. Environmental health professionals that hold a Registered Environmental Health Specialist/Registered Sanitarian (REHS/RS) credential are compared by position type and jurisdiction population size in Uncovering Environmental Health Credentials.

Given the importance of the environmental health workforce to ensure healthy communities, it is critical to understand the environmental health workforce and the challenges it faces to provide solutions to meet these needs. Information from the UNCOVER EH study can inform workforce development activities and support the advancement of the environmental health profession. Together, these new resources provide an initial attempt to describe and understand environmental health practice in the U.S.

Sic'Em Environmental Science!

# Environmental Health

See the key findings uncovered by our landmark assessment of the environmental health workforce. For the more than 1,700 environmental health professionals we surveyed...

#### Food safety is the most common program area EH professionals work in, and many work in more than one.

Food Safety & Protection: 76%

Public Swimming Pools:47%

Emergency Preparedness & Response: 46%

Schools: 46%

Onsite Wastewater (Septic Systems): 44%

Private or Onsite Drinking Water: 43%

Hotels/Motels: 39%

Vector Control: 38%

Body Art (Tattoo): 36%

Daycare/Early Child Development Facilities: 34%

#### While balanced between men and women, the EH workforce has opportunities to become more racially and ethnically diverse.

About half of the EH workforce is women: 49%. More than 8 in 10 EH professionals are white.

6% of the EH workforce is Hispanic. Native Hawaiian or Other Pacific Islander 1%, American Indian 3%, Asian 4%, Black or African American 7%, White 85%.

#### The EH workforce is aging, presenting recruitment needs.

1 in 4 EH professionals is over 55 years of age.1 in 4 EH professionals plans to retire within 5 years.

#### The EH workforce is well educated, but degrees are not always in EH.

Doctoral 3%, Master's 30%, Bachelor's 62%, Associate 2%, None 3%. Only 1 in 5 bachelor's degrees is in EH.2 in 5 EH bachelor degrees are from academic programs accredited by the National Environmental Health Science & Protection Accreditation Council, considered the gold standard.

#### REHS/RS is a common credential, and position titles vary.

64% have the Registered Environmental Health Specialist/Registered Sanitarian (REHS/RS) credential. 1 out of 2 EH professionals has the title Environmental Health Specialist. EH Specialist 50%, Sanitarian 20%, Other, varying titles30%

#### LEARN MORE

Understanding the Needs, Challenges, Opportunities, Vision and Emerging Roles in Environmental Health (UNCOVER EH) collected information from more than 1,700 EH professionals in health departments across the nation, the first such assessment of the EH workforce. UNCOVER EH seeks to assess and improve the profession and practice of environmental health. The Centers for Disease Control and Prevention, National Environmental Health Association, and Baylor University partnered on this initiative. www.cdc.gov/nceh/ehs/uncover-eh

Web Accessible Version: https://www.cdc.gov/nceh/ehs/uncover-eh/infographic-key-findings.html

#### Prof. Susan Bratton Publishes a New Book on Religion and the Environment

In December 2020, Professor Susan P. Bratton published a new book, *Religion and the Environment: An Introduction*. The book is available from distributors, such as Amazon or the publisher Routledge, in e-book, paperback, and hardcover formats. Written for undergraduates and graduate students, without advanced backgrounds in environmental science or religion, the volume provides an accessible overview of the interface between the world's faiths and environmental care. General readers interested in environment and society will find the case histories easy to engage outside a course context.

Organized by scientific or policy issue, rather than by faith tradition, the text presents diverse examples of effective religious engagement including a LEED certified synagogue, solar mosques, and an historic Christian cathedral with a photo-voltaic arrays on its roof. Beginning at the standoff between the Sioux and the Dakota Access Pipeline, the narrative covers multiple conflicts over environmental policy, including houses of worship campaigning against lead contamination, transnational encounters over water access, and mines disturbing sacred sites.

The volume describes Christian strategies such the growth of the stewardship and creation care movements, the publication of *Laudato Si'*, and the establishment of intentional communities practicing permaculture. The chapter on

atmospheric and sea change presents recent research on the roots of climate skepticism among Evangelicals. A review of religious approaches to sustainable energy presents Baylor's dedication to community service as a motivation for constructing LEED-certified buildings and purchasing of wind-generated electricity. The volume, however, leaves multiple current issues unresolved, encouraging the reader to tackle "wicked problems" personally or through a home congregation.



During the Fall 2019 semester, the Dean's office in A&S received the results of the New 2BU survey administered to all new students to Baylor with majors in the College of Arts & Sciences. Between 5 and 10 students identified Dr. Larry Lehr, in response to the question: "Please let us know which faculty or staff member(s) has/ have taken an interest in your success."

Relating with students is number one in transformational education and Dr. Lehr is making a huge difference in the lives of A&S students. Sic 'em Dr. Lehr!



ENGAGING WITH



### Students Implements Recycling Programs in Local Apartment Complexes

Two Baylor students are partnering with local apartment complexes to bring recycling services to student housing.

Danville, Calif., Senior Madi Jeha and Houston senior Catherine Szuhay helped the Ursa apartment complex implement a recycling program as part of an environmental science research project, and are in talks with other complexes near Baylor to do the same.

Jeha conceived the program last semester after observing the lack of recycling at Waco apartments, and said the research component was an extra benefit.

"I came up with the idea for [environmental science professor] Dr. [Melinda] Coogan, and then we ended up making it part of my research that I needed for my major," Jeha said. "It didn't start out as a class; it just started out as something I wanted to do for the community."

Szuhay teamed up with Jeha later into the project. Szuhay said the recycling project is about affecting change now and setting an example for others.

The pair's research data is gathered through surveys, one before and one after implementation of the recycling program. The follow-up survey of Ursa residents showed that over 70% of respondents reported using the new recycling service. With more than 700 residents living at Ursa, this indicates a significant reduction in waste, and Jeha said that estimates show a large portion of everyday waste can be reduced this way.

Jeha and Szuhay are working to bring recycling to other complexes. Complexes with outdoor waste collection are the priority, as Jeha said some apartments are not well-suited to adapt to a recycling program. Jeha says, "Our only issue that we run into is some people can't put their recycling down the trash chute because it won't go into a recycling bin. Right now, we are focusing on outdoor ones."

While a priority for the project is still collecting data, Jeha and Szuhay have focused more on getting apartment complexes to adopt recycling programs. Szuhay said Jeha helped one apartment complex set up a recycling service despite not participating in the study.

Jeha said complexes are generally willing to participate in the surveys and reap the benefits that come with it. Implementing the recycling program at Ursa involved inspections, certifying research, ordering materials and lots of time. Both students are seniors, and Szuhay said they are keen to future-proof the project. "We're looking for students to potentially take on what we're doing now after we graduate," Szuhay said.





ongratulations are in order for Master's of Public Health student Andrea Santa Cruz for her article, "The Effects of Zero-Valent Zinc Nanoparticles (Zn NP) on Zebrafish Embryonic and Larval Development" being accepted for publication in *Scientia 2021*! *Scientia* is very excited to show-case Andrea's research in their journal and cannot wait to begin the editorial process.

*Scientia* is the Baylor Undergraduate Research Journal of Science and Technology. First published in the spring of 2014, Scientia is a yearly publication produced by the student organization BURST and supported by the Baylor College of Arts and Sciences.

The mission of *Scientia* is to provide a professional platform upon which undergraduates of Baylor University are able to publish personally conducted and outstanding research in the biological sciences, physical sciences, social sciences, mathematics, and technology.

As advocates of maximizing our education, we believe that the promotion of research here at Baylor provides students with quintessential and formative experiences that develop valuable characteristics such as intellectual curiosity, resilience, and a strong interest in the pursuit of knowledge. To us, research is a hallmark of education, because it involves applying the information learned in classes to unanswered questions in hopes of advancing our knowledge of the world around us. For these reasons, we commit ourselves to reviewing, editing, and publishing the work initiated and collaborated on by Baylor undergraduates.

Sic'em Andrea!



#### A "Win-Win" Situation in 2021 for Environmental Science Major, Joshua Bell

Congratulations to Environmental Science major Joshua Bell on his acceptance to the Texas A&M



University Water Management and Hydrological Science master's program! Although Joshua has not yet confirmed his upcoming research placement at A&M, he was invited to tour Dr. Virender Sharma's lab to consider working on ferrates and their use in removal of emerging contaminants.

Additionally, Joshua was the only Baylor Environmental Science major to complete this year's extensive five-month process of applying for the Fulbright Study/ Research Award. He initiated the application process in May 2020, even as COVID infection numbers continued to increase. His proposal includes 8-10 months of funding to pursue a master's degree in Environmental Management at the University of Queensland, Australia. Part of the application requirement included requesting letters of affiliation from people in the host country, which led Joshua to connect with Dr. Philip Stewart and Dr. Jake O'Brien at the University of Queensland. If Joshua receives the Fulbright Award, he would look forward to working with Dr. O'Brien in wastewater-based epidemiology. Joshua will not know his status as a Fulbright finalist until spring semester, 2021, and if accepted would transfer from A&M to University of Queensland.

#### **BU SETAC 2020 Officers**

Kendall ScarlettPresidentKevin Stroski - SecretaryMegan Solan - Vice-PresidentAshley Ball - Recruitment and Outreach OfficerJaylen Sims - TreasurerDrs. Ramon Lavado and George Cobb - Faculty Advisors



#### **BU SETAC**

On February 26, 2019, 10 SETAC members and environmental science students volunteered to be a judge at the 2019 Central Texas Science and Engineering Fair. Members evaluated projects and provided feedback to young scientist in the Waco community ranging from middle school to high school.



The Graduate School is so pleased to announce our Outstanding Graduate Student Awards for Fall 2019. Each Fall, graduate students may compete for recognition in the GSA Research Showcase, for the <u>Outstanding Graduate Student Research Award</u>, for the <u>Outstanding Graduate Student Instructor</u> <u>Award</u>, and (for participants in the STEM Grant Writing Course) the Outstanding Graduate Student Grant Proposal Award.

#### **Research Showcase:**

Marina M. George—STEM Marco Franco—Audience Choice Award

Outstanding Research:

Sarah R. (Bekah) Burket—STEM

**Outstanding Proposal:** 

Meghan Guagenti

#### Glasscock Award Winners

Kayla Garrett Lydia Roush Jill Sturtevant

#### 2020 AMEQA

Marco Franco— Best Doctoral Presentation

#### 2019 HESI

Marco Franco— Travel Award

#### **YES Meeting**

Marina George— 1st place Sarah R. (Bekah) Burket— 3rd place

Members of the "Advanced Materials and Environmental Safety" Laboratory at Baylor University have been recognized for their hard-work, publications, and presentations in professional societies. <u>Here is a list of 2019 Awards</u>:

**Thelma Ameh** - Student Merit Award; Society for Risk Analysis (SRA) - Advanced Materials and Technologies Specialty Group (AMTSG); Arlington, VA

RECOGNIZ

**Thelma Ameh** - Travel Award for Outstanding Research; Society for Risk Analysis (SRA); Arlington, VA

**Thelma Ameh** - 1st Place; Poster presentation at Texas Society of Microscopy (TSM) Annual Meeting, Material Science Division; San Antonio, TX

Matthew Gibb - Best Poster Award; Third Aerosol Dosimetry Conference & Workshop, Inhaled Aerosol Dosimetry: Models, Applications and Impact; Irvine, CA

Marina George - Best Poster Award; Society of Environmental Toxicology & Chemistry (SETAC), South Central Regional Chapter; Waco, TX

Marina George - 1st Place; Platform presentation at Texas Society of Microscopy (TSM) Annual Meeting, Overall; San Antonio, TX

Henry Lujan - Outstanding Student Travel Award; Hispanics of Toxicology (HOT) - Society of Toxicology (SOT); Baltimore, MD

**Henry Lujan** - 1st Place; Poster presentation at Texas Society of Microscopy (TSM) Annual Meeting, Biology Division; San Antonio, TX

**Congratulations!** Graduates

Environmental Health Science	Environmental Science	Environmental Studies (B.A.)		
August 2019				
Laila Ruth McCutcheon, B.S. Vivian Thai Tran, B.S. Jahsarah Iman Williamson, B.S.	Grace Elizabeth Sutherland, M.S.	Kaitlyn Mattie Garrett		
December 2019				
Kyle Bradley Wolfe, B.S.	Tara Gilbert, B.S.	Codie Alan Belt Terrany Lize Binford-Swanson Jackson Malone Bollinger Clinton Dollahon Emily Nicole Guerrero Jonathan William Ross Donato Vincenzo Catrina		
May 2020				
Lauren Elizabeth Fricke, B.S.	Pablo A. Barahona, B.S Haley Addison Davis, B.S. Ashleigh Ferrill Haddock, B.S. Zhengxin Huang, B.S. John Andrew McDonald, Jr., B.S. Katelyn Alise Reyes, B.S. Zachary Carter Rundell, B.S. Lauren Savior, B.S. Tyler A. Varzeas, B.S. Regan Kressley White, B.S.	Alexsis J. Amrhein Yanira Margarita Baldovinos Lauren Elizabeth Buntin Anthony Chassen Vynna Jewel Chitolie Mariah Rose Henley Christopher A. Herrera Madison Trust Jeha Levi Brentley Lashley Mallory Jules McElvain Davis Lee Misloski Lauren Ashley Patterson Helen Margaret Powley Shannon Michelle Smith Ocoee Emily Wilson		
August 2020				
Reiley Layne Jones, B.S. Megan E. O'Brien, B.S.	Dane Bradley Rinehart, B.S. <i>Amjad Dabi, M.S.</i>	Caden Davis Hershey Avani Priya Verma Alexsis J. Amrhein Yanira Margarita Baldovinos Lauren Elizabeth Buntin Anthony Chassen Vynna Jewel Chitolie Mariah Rose Henley		
December 2020	Henry Lujan	PhD. Environmental Science		

Glasscock Energy: Jonathan Norton, Bailey Sharp, & Grace Vollmers Clara Wieland: Jonathan Norton Elizabeth & Russell Hallberg: Bailey Sharp Galen Green: Benjamin Adeeso, Connor Crowe, & Bailey Sharp Diedra & Ward Flora: Benjamin Adeeso Tony & Donna Robert: Fallon Bain Doris Kayser Stark Graduate Scholarship: Marco Franco, Henry Lujan, Claire Moffett, Sujan Shrestha, & Sarah VerPloeg



2020 - 2021

#### The Environmental Science

Department produces a newsletter each semester.

If you are an Environmental Science student, working on a project, serving an internship, studying abroad, graduating or have some exciting news and want to share an article or picture, send an email to:

Erica \_C\_Johnson@baylor.edu

# Baylor University<sup>®</sup>

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**Bratton, S**. (2020). Spiritual encounters with nature: Day hiker perceptions of trail experiences in three settings -urban, suburban natural area, and wildland; representing three modes of hiking - goal-directed, nature observation, and meditative. *Worldviews: global religions, culture, and ecology, 2019*(Vol 24: 1-23), 1-23.

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**Brooks, B.**, Kelly, K. (2019). Uncovering Environmental Health: An Initial Assessment of the Profession's Health Department Workforce and Practice. *Journal of Environmental Health*.

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#### Grants Awarded To Environmental Science Faculty

#### External Grants

Dr. Erica Bruce (2020) \$1.5M; Validating a Novel Oxygenating Therapeutic to Treat Acute Respiratory Distress Syndrome (ARDS) in COVID-19 Patients; Diana Davis Spencer Foundation

Dr. Ramon Lavado (As co-PI) (2020) \$458,568.00; Colon cancer longitudinal study of the microbial and dietary factors that predict chemotherapy-induced diarrhea; U.S. Department of Defense

Dr. Ryan McManamay (2019) \$75,000; Urban Dynamics for Integrated Multi-Sector Multi-Scale Modeling; Pacific Northwest National Laboratory

Dr. Ryan McManamay (2020) \$43,000; Literature Review of Flow-ecology relationships for SGCN Fishes in Texas; Texas Parks and Wildlife Department

Dr. Ryan McManamay (2020) \$69,000; Advancing optical imaging and classification to enhance biodiversity monitoring; Ocean Space LLC/Department of Energy

Dr. Ryan McManamay (2020) \$300,000; Integrated Multisector, Multiscale Modeling (IM3) Science Focus Area, Phase 2; Pacific Northwest National Laboratory

Dr. Benjamin Ryan (Co-PI is Bryan Brooks) (2020) \$272,412; Examining Disaster Planning and Public Health Interfaces with Emergency Meals-to-You; USDA (project managed by Baylor University Collaborative on Hunger and Poverty)

#### Internal Grant

Dr. Ramon Lavado (2020) \$7,500; Dysregulation of lipid metabolism in human models from exposure to environmental contaminants: contributing factors influencing the onset of obesity; Office of the Vice Provost for Research University Research Committee (URC)