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URECA GRANTS AWARDED for FALL 2020

To support its vision of nurturing a culture of research and creative activity at MTSU through support for undergraduate students and their faculty mentors, the URC offers Undergraduate Research Experience and Creative Activity (URECA) grants to students three times a year.

The URC's commitment to excellence in research, scholarship, and creative projects is exemplified through the URECA program, which presents an opportunity for undergraduate students to work alongside distinguished faculty mentors through a structured mentored program. The application process is competitive, but the benefits are rewarding. URECA grants would not be possible without our outstanding faculty committee. A special thanks to the 2020-21 URECA committee for their time and commitment to reviewing the proposals and making funding determinations.

The Fall 2020 application cycle included 7 team applications and 36 individual proposals. The Committee funded 19 individual awards and 3 team awards totaling \$38,890.59. Congratulations to our Fall 2020 URECA recipients! Please see pages 6 & 7 to view the individual and team awards.

URC'S MISSION

The Undergraduate Research Center's (URC) mission is to be the central hub for communication about undergraduate research grant programs and other related opportunities on and off campus, to distribute university funds for undergraduate research and creative projects, and to promote dissemination of results through travel grants and by offering opportunities for students to present their research findings.

SAVE THE DATE!

Fall Research Open House

November 10, 2020

Science Building Atrium | 11-1pm

The Undergraduate Research Center presents our 3rd Annual Open House on November 10 from 11-1pm in the Science Building atrium, 2nd floor. This event is an informal poster session that showcases a sampling of current undergraduate research and creative projects at MTSU. All students, particularly new students and transfer students, are invited to attend.

This event presents the following opportunities for students:

- Introduction to undergraduate research and the importance of dissemination;
- Experience a variety of academic poster presentations representing an array of majors and disciplines;
- Present questions to current researchers about how they became involved in undergraduate research, how they balance coursework and research, and how they selected a faculty mentor;
- Find out more about our spring & summer URECA grants; and
- Learn about SOAR from current members.

FACULTY: We invite you to feature this event as an extra credit opportunity for your students. They will be required to talk with a minimum of 5 student presenters, which will be verified by the presenter initialing their program. I will sign off on the program once all requirements are met. Students can then submit the program to you for extra credit.



Added bonus: FREE boxed lunch for all pre-registered attendees! Due to COVID-19, we are limiting the number of attendees to the first 25 students who sign-up by clicking on the "Sign Up Today" image.

Scholars Week Winners Showcased at MTSU Board of Trustees Meeting

The winning posters from MTSU's 2020 Scholars Week Poster Exposition were on display for review by President McPhee (pictured below) and the Board of Trustees during the Trustees' September 15 meeting in the Miller Education Center.

Congratulations to the spring 2020 Scholars Week winners, which can be viewed [here](#).

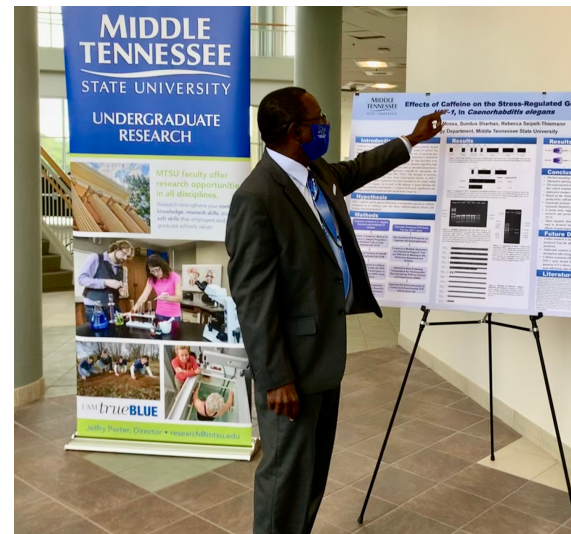


Photo Credit: Casey Penston



DID YOU KNOW?

The URC has a facebook page!
Follow us :
Undergraduate Research Center
at MTSU or click the facebook icon
for updates and stories.

STUDENT SPOTLIGHT

➔ Research



Dara Zwemer, a spring URECA Silver Scholar grant recipient and Psychology major, focused her research on examining officer workload. This project required creating a measure of officer workload in the U.S. across several years and determining whether this measure predicts the occurrence of lethal, officer-involved shootings of unarmed individuals. By comparing the rate of unarmed shootings between states and between different cities in a single state, places that may be more at risk for unarmed shootings based on the workload of their police force could be identified.

Faculty Mentor:
John Pennington, Psychology

Javier Hernandez, applied for a spring 2020 URECA Assistant grant, but it was cancelled due to COVID-19. As his first creative project endeavor, Javier proposed to film a documentary of MTSU student researchers and their experience at the National Conference of Undergraduate Research in Bozeman, Montana. The film's purpose was to explore the inner workings of an academic undergraduate conference including the research dissemination process and networking of students. The end goal of this project is to produce a documentary highlighting pre-trip expectations of the attendees, student presentations, interactions with other students, and reflections as to what the MTSU cohort gained from the experience.

While this project was not able to come to fruition, Javier is now focused on another film related project with the Charlie and Hazel Daniels Veterans and Military Family Center.

Faculty Mentor:
Todd O'Neill, Media Arts; Jamie Burriss, ORSP

➔ Creative Activity



UPCOMING WORKSHOPS

Library Research for the Undergraduate Researcher: A Two Part Series

Part 1: Library Research and the Literature Review

Tuesday, October 13th
2:40 - 4:05pm

Part 2: Completing the Research Proposal

Thursday, October 15th
2:40 - 4:05pm

See flyer for more details.

Register for Part 1 [HERE](#).
Register for Part 2 [HERE](#).



SAGE Research Methods (SMR) for Students

was a great success! Patrick Cox, Field Editor for SAGE, hosted 49 participants during our September workshops.

Missed the workshop? Here are some links to reading lists from SRM that may be useful:

[Defining a Topic](#)

[Ethnography](#)

[Introductory Statistics Using SPSS](#)

[Sociology methods](#)

[Resources for grad students](#) including *How to Design, Write, and Present a Successful Dissertation Proposal*

The URC is excited to collaborate with the Walker Library for our upcoming workshop.



LIBRARY RESEARCH FOR THE UNDERGRADUATE RESEARCHER: A TWO-PART WORKSHOP SERIES

LIBRARY RESEARCH AND THE LITERATURE REVIEW

AND

COMPLETING THE RESEARCH PROPOSAL



Part 1: Library Research and the Literature Review

Librarians will introduce a research proposal template, demonstrate how to conduct library research about your area of interest, and discuss how to complete a literature review.

Tuesday,
October 13
2:40 - 4:05pm



Part 2: Completing the Research Proposal

Librarians will expand on the components of the research proposal template and discuss steps for completing the proposal, including the introduction, methodology, research design, and ethical considerations.

Thursday,
October 15
2:40 - 4:05pm

FEATURED SOAR STUDENT

NATHAN SMITH SENIOR

Major: Biochemistry

Faculty Mentor: Drs. Mary and Anthony Farone

Current Research Focus: Survey of Mosquito Predatory Ciliate *Lambornella* for Potential Biological Control, Survey of Protozoa Interaction with Pathogens for Food Safety

Additional Interests: Horseback riding, hiking, and domestic/international travel

Project Description: I am currently working on two research projects under the guidance of Drs. Mary and Tony Farone. On my first project, I am a part of a fantastic team of student researchers working on identifying a unicellular ciliated protozoan (*Lambornella*). This project consists of finding, identifying, and culturing *Lambornella* utilizing many techniques such as DNA Extraction and Polymerase Chain Reaction (PCR). Once identified and cultured, we are exploring the parasite-like predatory behavior of *Lambornella* to utilize the protozoan as a natural mosquito control. This is a significant project because utilization of *Lambornella* as a biological mosquito control would be a natural and organic method of mosquito control which could potentially replace current pesticides. The second research project I am working on is a food safety project in which we are analyzing protozoa, such as amoebae, on produce items. We are looking to see how amoebae feed on the bacteria to determine how the bacteria thrives in the environment. The study involves isolating protozoa from common produce items from both grocery stores and directly from produce farms.



The goal is to study the protozoa isolates to determine whether or not they are capable of protecting food-borne pathogens such as *E. coli*, *Salmonella*, and *Listeria*. If successful, this project could have a significant affect on future of produce items.

Why does this topic interest you?

I am continually intrigued by science, and the opportunity to discover new things. These research topics interest me because I believe they have the potential to lead to significant breakthroughs that will benefit people beyond the classroom and laboratory. These *Lambornella* and Food Safety studies could potentially lead to significant drops in mosquito borne diseases and sickness from food-borne pathogens.

Do you have any advice for future researchers?

Research is fun! Research opens up so many opportunities for students, and I believe if given the opportunity every student should check it out. Researching gives you time with your research mentor to gain a great deal of knowledge as well as the essential skill of working productively with other people. The skills gained from research are not only beneficial for the classroom but useful for wherever life may take you.

UNDERGRADUATE RESEARCH AND CREATIVE ACTIVITY AWARDS FALL 2020

Team Awards

High Performing Scientific Computing as a Service in the Cloud

Faculty Mentor: Joshua Phillips, Computer Science

Team Members: Daniel Cox, Terryn Seaton, Jessica Wijaya, Hannah Williams

Investigating Classroom Discourse in Active Learning Environment for Large Enrollment Chemistry Courses

Faculty Mentor: Gregory Rushton, Tennessee Stem Education Center

Team Members: Anika Chowdury, Marzea Akter

Blue Mars Initiative

Faculty Mentor: David Butler, Vice Provost of Research

Team Members: Jared Frazier, Luke Gormsen, Katelin MacVey, Winton Cooper

Assistant Awards

Meredeth Bryson - Accuracy Assessment of Digital Geologic Maps of Part of the Nashville Dome, Central Tennessee

Faculty Mentor: Mark Abolins, Geosciences

Christopher Hedden - Using Embryos from industrial hemp tissue callus to form hemp plantlets

Faculty Mentor: John DuBois, Biology

Jiwon Kim - Drone and Computer Vision Based Smart Parking System

Faculty Mentor: Lei Miao, Engineering Technology

Marie McCord - Debugging SharP: SHARed data-structure centric Programming

Faculty Mentor: Ferrol Aderholdt, Computer Science

Elina Nguyen - The Relationships Among Mindfulness, Sense of Self, and Self-Talk

Faculty Mentor: Thomas Brinthaupt, Psychology

Esmeralda Ramirez - A Systematic Review of the Comorbidity of ADHD and Dyslexia

Faculty Mentors: Timothy Odegard & Emily Farris, Tennessee Center for Study and Treatment of Dyslexia

Kennedy Wallace - Comparison of folds exposed at the surface with subsurface folds at a hazardous waste disposal site, Williamson County, TN

Faculty Mentor: Mark Abolins, Geosciences

Amanda Washington - Why They Died: An expanded analytical examination of details surrounding officer-involved shooting deaths in the United States

Faculty Mentor: Ben Stickle, Criminal Justice

UNDERGRADUATE RESEARCH AND CREATIVE ACTIVITY AWARDS FALL 2020

Scholar Awards

Omar Ali - Preliminary study to develop a method to pair-match the lower limb bones using Korean CT data

Faculty Mentor: Yangseung Jeong, Biology

Stephanie Bottum - A Collection of Short Stories about Coming Out

Faculty Mentor: Jennifer Kates, English

Jack Crowley - Classical Guitar Transcriptions of Popular Songs & Soundtracks

Faculty Mentor: William Yelverton, Music

Koda Hengstenberg - Further Exploration of Aurone System in Mercury Sensing

Faculty Mentor: Scott Handy, Chemistry

Jiwoo Park - Investigating the role of phospho-polyubiquitin in the recruitment of Parkin at the mitochondria

Faculty Mentor: David Nelson, Biology

Ryan Schmidt - Classical Guitar Audio/Video Recording of Roland Dyens "Trios Saudades"

Faculty Mentor: William Yelverton, Music

Meghan Wassom - Synthesis and evaluation of antifungal peptoid derivatives against *Cryptococcus neoformans*

Faculty Mentor: Kevin Bicker, Chemistry

Jewel Galloway - Evaluation of Physiological Traits Expressed In vitro and Effects on Plant Growth by *Bacillus Endophytes*

Faculty Mentor: Stephen Wright, Biology

Roger Giuntini - Acoustic Demultiplexing in Waveguide

Faculty Mentor: William Robertson, Physics

Saman Kittani - Teacher causal reasoning types and its connection to a positive and negative focus

Faculty Mentor: Elizabeth Dyer, Tennessee STEM Education Center

Georgia Latta - How Standardized and AP Testing Effects Productive and Unproductive Reasoning in Teachers

Faculty Mentor: Elizabeth Dyer, Tennessee STEM Education Center

questions or comments?
We welcome them!

