Kevin Bicker (Chemistry) has received a $130,000 grant from the National Institutes of Health, specifically the Institute for Allergy and Infectious Disease, to support his research titled “Identification and development of antimicrobial peptoids effective against cross-kingdom biofilms,” which proposes to identify “antimicrobial compounds targeting cross-kingdom biofilms generated by Candida albicans and bacteria. . . . C. albicans is the third-most common source of hospital-acquired infections and the primary source of hospital-acquired infections. See FACULTY continued on page 4
UPCOMING FUNDING OPPORTUNITIES

**NSF-Simons Research Collaborations on the Mathematical and Scientific Foundations of Deep Learning (MoDL)**
Deadline: March 20 for letter of intent (required)
April 30 for full proposal

The National Science Foundation directorates for Mathematical and Physical Sciences (MPS), Computer and Information Science and Engineering (CISE), and Engineering (ENG) and the Simons Foundation Division of Mathematics and Physical Sciences will jointly sponsor up to two new research collaborations consisting of mathematicians, statisticians, electrical engineers, and theoretical computer scientists. Research activities will be in the general area of Mathematical and Scientific Foundations of Deep Learning. Each collaboration will involve recent doctoral degree recipients, graduate students, and/or undergraduate students. Annual meetings of the principal investigators (PIs) will be held at the Simons Foundation in New York City. This program complements the NSF’s National Artificial Intelligence Research Institutes program.

**National Endowment for the Humanities (NEH) Fellowships**
Deadline: April 8
neh.gov/grants/research/fellowships

NEH Fellowships are competitive awards granted to individual scholars pursuing projects that embody exceptional research, rigorous analysis, and clear writing. Applications must clearly articulate a project’s value to humanities scholars, general audiences, or both. Fellowships provide recipients time to conduct research or to produce books, monographs, peer-reviewed articles, e-books, digital materials, translations with annotations or a critical apparatus, or critical editions resulting from previous research. Projects may be at any stage of development. Applicants interested in research projects that are either born digital or require mainly digital expression and digital publication are encouraged to apply instead for NEH-Mellon Fellowships for Digital Publication.

**Administration (HRSA): Opioid-Impacted Family Support Program, HRSA-20-014**
Deadline: April 13
grants.gov/custom/viewOppDetails.jsp?opplid=319617

This program supports training programs that enhance and expand paraprofessionals’ knowledge, skills, and expertise and increase the number of peer support specialists and other behavioral health-related paraprofessionals who work on integrated, interprofessional teams in providing services to children whose parents are impacted by opioid use disorders (OUD) and other substance use disorders (SUD) and their family members who are in guardianship roles. Additionally, a special focus is on demonstrating knowledge and understanding of the specific concerns for children, adolescents, and transitional aged youth in high-need and high-demand areas who are at risk for mental health disorders and SUDs.

Award limit: $600,000

**NIH Small Research Grant Program–R03**
Deadline: June 16
The National Institutes of Health (NIH) Small Research Grant Program supports discrete, well-defined projects that realistically can be completed in two years and that require limited levels of funding. This program supports different types of projects including, but not limited to:
- Pilot or feasibility studies
- Secondary analysis of existing data
- Small, self-contained research projects
- Development of research methodology
- Development of new research technology

**NIH Exploratory/Developmental Grant–R21**
Deadline: June 16
The NIH Exploratory/Developmental Grant supports exploratory and developmental research projects by providing support for the early and conceptual stages of these projects. These studies may involve considerable risk but may lead to a breakthrough in a particular area or to the development of novel techniques, agents, methodologies, models, or applications that could have a major impact on a field of biomedical, behavioral, or clinical research.

**Academic Research Enhancement Award (AREA)–R15**
Deadline: June 25
nigms.nih.gov/research/mechanisms/pages/area.aspx

The purpose of this Academic Research Enhancement Award (AREA) for Undergraduate-Focused Institutions is to support small-scale research grants at institutions that do not receive substantial funding from the NIH, with an emphasis on providing biomedical research experiences primarily for undergraduate students and enhancing the research environment at these applicant institutions.
All of us at the University consume and/or create scholarly works. The way we create and share new knowledge is changing rapidly due to many factors. This series briefly profiles current initiatives and issues that impact research and the dissemination of research.

**Sustainable and FAIR Data Sharing in the Humanities**


I was hoping to profile ways that scholarly communication in the humanities is changing and the perfect opportunity presented itself with the recent publication of the report *Sustainable and Fair Data Sharing in the Humanities*. It was created by a working group at ALLEA—All European Academies, which represents 50 scholarly academies from over 40 countries.

This report provides a useful crosswalk between FAIR data principles and humanities research methodologies. FAIR data principles mean that research data is created, managed, and shared so that it is Findable, Accessible, Interoperable, and Reusable. The report has a section for all phases of the research and data lifecycle, and in that way, may be useful as supplementary reading in applicable graduate courses. Each section also includes recommendations and further reading, so readers can investigate issues of interest further.

There is so much to unpack in this very thorough analysis, but one area to highlight is the section on metadata on the report’s page 17. It is common for researchers to develop their own metadata that is unique to the area and scope of the project. When considering FAIR data principles, researchers should identify and employ a standardized metadata schema, like Dublin Core or EAD, from the initial planning of the project. Doing so will ensure that the standard is applied appropriately and consistently, ultimately leading to better curated data that will be discoverable by other researchers and increase the impact of the project. Find the full report at: allea.org/portfolio-item/sustainable-and-fair-data-sharing-in-the-humanities.

You may share your comments with me at maryellen.sloane@mtsu.edu.

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**MTSU SCHOLARS WEEK**

**POSTER AND CREATIVE ACTIVITY EXPOSITION**

Friday, April 3, 2020, 12:40–3:00 p.m. • Student Union Ballroom

Looking for events related to your college?
Check our website at mtsu.edu/scholarsweek/ScholarsWeekScheduleofEvents.php
fungal infections, with high rates of morbidity and mortality. C. albicans often forms cross-kingdom polymicrobial biofilms with other infectious microbes." Readers are invited to explore Bicker's website (bickerlab.weebly.com) featuring this introduction, “Welcome to the Bicker Lab.

We are a drug lead discovery lab focused on using high-throughput methods to identify peptoids with potential therapeutic properties. Feel free to explore and learn about the research we’re doing and the talented people doing it.”

Scholarship and Cybersecurity Workshop

Friday, March 20, 2:00–3:00 p.m.
Wiser-Patton Science Hall, Room 102

Please Register Here

Presented by: FBI Special Agent Nathan Opie and FBI Special Agent Regis Billings

The FBI will be presenting on cyber threats to middle Tennessee. The briefing will cover the cyber-criminal profile, tools, and tradecraft. The special agents also will provide recommendations for how to be safe online in your personal and professional lives.

Expert Panel:

Special Agent Nathan Opie, FBI—Nashville

Opie has over 13 years of investigative experience with the Federal Bureau of Investigation (FBI). He entered the FBI in 2006 and was assigned to a violent crime/drug squad in Nashville for 11 years. In 2018, Opie began working on national security investigations,

Continued on page 5
Continued from page 4

utilizing a wide variety of investigative techniques and intelligence capabilities to identify and neutralize ongoing national security threats. He currently serves as the private sector coordinator for the FBI in Nashville and facilitates interaction, cooperation, and the sharing of information between the FBI and the private sector.

Opie also has served on the Memphis Division FBI SWAT team since 2007 and is an assistant team leader. He obtained a Juris Doctor from the University of Missouri School of Law and subsequently served four years in the U.S. Marine Corps.

**Special Agent Regis Billings, FBI—Nashville**

Billings currently works criminal cyber intrusions at the Nashville office of the FBI. He has been employed by the FBI for five years and worked national security cyber matters in the New York Field Office prior to being relocated to Nashville. Before entering the FBI, Billings served as a cyber warfare officer in the U.S. Air Force for nine years. He has an undergraduate degree in Computer Engineering and a master's degree in Cyber Security and is a Certified Ethical Hacker.

*In case you missed our January workshop, Working with Federal Sponsors, it is accessible here.*

*In case you missed our February workshop, U.S. Fulbright Scholar Program, it is accessible here.*

The Office of Research and Sponsored Programs (ORSP) plans to offer the following campus training workshops for the remainder of the 2019–20 academic year.

**March:** Entrepreneurship; Scholarship and Cybersecurity

**April:** Intellectual Property, Technology Transfer, and Commercialization

**Summer 2020:** Working with Foundations

For details and to RSVP, visit: [mtsu.edu/ors/workshops.php](http://mtsu.edu/ors/workshops.php)
Seven undergraduate students from MTSU presented their research to state legislators at the Tennessee State Capitol on Feb. 26, alongside undergraduate representatives from other participating Tennessee universities. These students were selected by a committee of faculty and administrators to represent MTSU in this prestigious annual event.

Clockwise from top left: Aric Moilanen (l) and Greg Rushton; Jared Frazier (l) and state Rep. Sam Whitson; Tia Shutes (l–r), state Sen. Jeff Yarbro, and Dirhat Mohammad; and Lily Medley and state Rep. Rush Bricken

Above (l–r): Greg Rushton (Chemistry/Tennessee STEM Education Center), Lily Medley, Kayley Stallings, Jamie Burriss (ORSP), Aric Moilanen, Tia Shutes, Dirhat Mohammed, Jared Frazier, Lillian Beck, and Casey Penston.
Understanding Informed Consent

The informed consent script must begin with a concise and focused presentation of the key information that is most likely to assist participants in understanding the reasons why one might or might not want to participate in the research. This part of the informed consent must be organized and presented in a way that facilitates comprehension.

Secondly, the informed consent as a whole must present the research-related information in sufficient detail and must be organized and presented in a way that does not merely provide lists of isolated facts, but rather facilitates the prospective subject’s understanding. Proper disclosure of how the data collected will be used after the research is completed must be clearly stated so the subjects can make an informed decision.

STEM Education Research Conference

Jennifer Lovett’s URECA team presented at the 14th annual Tennessee STEM Education Research Conference on Jan. 16–17 at Tennessee Tech. The project, “Middle School Students’ Reasoning with Technological Mathematical Tasks,” helped the team better understand the way students learn a key part of the middle school math curriculum, rate of change and functions. The team examined video and written artifacts of middle school students working on technological mathematical tasks to construct themes about the reasoning middle school students are using and what knowledge they are developing through engagement with the tasks.

STUDENT RESEARCH SPOTLIGHT

Jared Frazier and Virginia Benefield, both URECA Scholars, were recently published in the Journal of Analytical Chemistry:


To view their publication, as well as other undergraduate research publications and creative projects, please visit our newly created website: mtsu.edu/urc/publications-projects.php.
**URECA grants awarded for spring semester**

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 Undergraduate Research Center (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.

**Congratulations to our Spring 2020 URECA recipients!**

<table>
<thead>
<tr>
<th>Student</th>
<th>Project</th>
<th>Level</th>
<th>Mentor</th>
<th>Department</th>
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<td>Holly Aslinger</td>
<td>Dental Enamel Hypoplasia at Black Cat Cave, Site 40RD299</td>
<td>Assistant</td>
<td>Shannon Hodge</td>
<td>University Studies</td>
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<td>Gracyn Blake</td>
<td>Lethal Shootings of Unarmed Persons in 2016</td>
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<td>John Pennington</td>
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<td>Samuel Blumer</td>
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<td>Catheryn Bolick</td>
<td>Examining the Role of Parkin as a Regulator of Gene Expression During Periods of Induced Mitochondrial Depolarization Using BAM15</td>
<td>Silver</td>
<td>David Nelson</td>
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<tr>
<td>Miquellie Bonner</td>
<td>Novel Method for the Forensic Dye Analysis by Direct Analysis in Real Time Mass Spectrometry</td>
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<td>Stephanie Bottum</td>
<td>Practice, Drill, Perform: The Development of a Play about Competition</td>
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<td>Cole Buffalini</td>
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<td>Aubrey Campbell</td>
<td>The Impact of Media Ecologies in Brazil—ASSISTANT</td>
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<td>Gabrielle Chesak</td>
<td>The Importance of Studying Mental Health Within a Community That Has Experienced an Anthropogenic Disaster</td>
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<td>Molly Taylor-Polesky</td>
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<td>Name</td>
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<tr>
<td>Robert Conner</td>
<td>HARUNA GROUP—Effects of Aerated Irrigation Through Subsurface Drip Irrigation on Soil Thermal and Physical Properties</td>
<td>Assistant Samuel Haruna</td>
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<tr>
<td>Naiya Drayton</td>
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<td>Olivia Goodgame</td>
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<td>Luke Gormsen</td>
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<td>Laurel O’Neill</td>
<td>From Script to Stage: The Development of a New Play</td>
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<td>Katelin MacVey</td>
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<td>Jake Maisano</td>
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<tr>
<td>Cody Maness</td>
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<td>Assistant Rafet Al-Tobasei</td>
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<tr>
<td>Emily McTyre</td>
<td>Vanderbilt: An Honors Creative Thesis Project</td>
<td>Assistant Leland Gregory</td>
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<td>Lina Mistron</td>
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<td>Brendan Mitchell-Fostyk</td>
<td>Effects of Landscape Position on Soil Hydraulic and Thermal Properties</td>
<td>Assistant Samuel Haruna</td>
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<tr>
<td>Gabrielle Mould</td>
<td>A bi-seasonal evaluation of the relationship between bedding bacterial levels and somatic cell counts of milk on cows housed in a compost bedded pack barn</td>
<td>Silver Jessica Carter</td>
<td>Agriculture</td>
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</table>
### Comparisons of Species Composition of Forensically Important Flies Between the Anthropological Research Facility and the MTSU Outdoor Forensic Facility

**Simon Pergande**  
**Assistant Yangseung Jeong**  
**Biology**

### Changing the Rules: Dungeons and Dragons in Theatre

**Laura Pickard**  
**Silver Claudia Barnett**  
**Theatre and Dance**

### Genetic improvement of Angus cows through genomic testing and EPDs

**Emily Richards**  
**Assistant Jessica Carter**  
**Agriculture**

### Eldercare Workforce Crisis Phase 2

**Zachary Sanchez**  
**Gold Shelley Caswell Moore**  
**Nursing**

### A Creative Exploration of the History of Women’s Anger

**Katrina Scott**  
**Assistant Erin Anfinson**  
**Art and Design**

### The effect of fermentation conditions on the sugar and organic acids profiles of coffee

**Cameron Stacey**  
**Assistant Keely O’Brien**  
**Agriculture**

### Story Bandits International

**Cassidy Woodall**  
**Gold Jette Halladay**  
**Theatre and Dance**

### Officer Workload and Lethal Officer-Involved Shootings of Unarmed Citizens

**Dara Zwemer**  
**Silver John Pennington**  
**Psychology**

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### TRAVEL SUPPORT FOR UNDERGRADUATE RESEARCH

The Undergraduate Research Center strives to support students in dissemination of their research. Undergraduates who are accepted to present their research at a regional, state, national, or international conference are eligible to receive travel funding. Support includes:

- $400 yearly maximum for domestic travel and $500 yearly maximum for international travel
- Awarded travel funds payable on a **reimbursable basis only**

Check out our website for more information: [mtsu.edu/urc/travel.php](http://mtsu.edu/urc/travel.php)

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### FULBRIGHT UPDATES

**What’s New for 2021–22**

This year the application will only require **two letters of recommendation**. There are also more awards that have “professional project” as a possible award activity, as well as more than 20 new awards added to the catalogue. To learn more, [click here](http://mtsu.edu/fulbright) to view the What’s New for 2021–22 Webinar or visit the Catalog of Awards.