

# BULLETIN

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Hallmarks of excellence in higher education. Keys to success in life. Be a part of it. Ask how.

## Chemistry associate professor lands NIH grant

Kevin Bicker (Chemistry) has received a \$130,000 grant from the National Institutes of Health,



Kevin L. Bicker

specifically the Institute for Allergy and Infectious Disease, to support his research titled "Identification and development of anti-microbial 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

See FACULTY continued on page 4

## VOLUME 2, NUMBER 6

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## UPCOMING FUNDING OPPORTUNITIES

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### **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

[nsf.gov/pubs/2020/nsf20540/nsf20540.pdf](https://www.nsf.gov/pubs/2020/nsf20540/nsf20540.pdf)

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.

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### **National Endowment for the Humanities (NEH) Fellowships**

Deadline: April 8

[neh.gov/grants/research/fellowships](https://www.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.

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### **Administration (HRSA): Opioid-Impacted Family Support Program, HRSA-20-014**

Deadline: April 13

[grants.gov/custom/viewOppDetails.jsp?oppld=319617](https://www.grants.gov/custom/viewOppDetails.jsp?oppld=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

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### **NIH Small Research Grant Program—R03**

Deadline: June 16

[grants.nih.gov/grants/guide/pa-files/PA-19-052.html](https://www.grants.nih.gov/grants/guide/pa-files/PA-19-052.html)

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

[grants.nih.gov/grants/guide/pa-files/PA-19-053.html](https://www.grants.nih.gov/grants/guide/pa-files/PA-19-053.html)

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.

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### **Academic Research Enhancement Award (AREA)—R15**

Deadline: June 25

[nigms.nih.gov/research/mechanisms/pages/area.aspx](https://www.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.

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## FROM THE BIBLIOGRAPHER'S DESK

By Mary Ellen Sloane, Science Librarian

This is part 3 of 3

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

Harrower, N., Maryl, M., Biro, T., Immenhauser, B., Lauer, G., Orlandi, T., Rentier, B., & Wandt-Vogt, E. (2020). *Sustainable and FAIR Data Sharing in the Humanities: Recommendations of the ALLEA Working Group E-Humanities*. ALLEA—All European Academies, Berlin.

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](https://allea.org/portfolio-item/sustainable-and-fair-data-sharing-in-the-humanities).

You may share your comments with me at [maryellen.sloane@mtsu.edu](mailto:maryellen.sloane@mtsu.edu).

# 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](https://mtsu.edu/scholarsweek/ScholarsWeekScheduleofEvents.php)



## FACULTY HIGHLIGHTS (continued)

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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](http://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.”

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### 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,

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## MARK YOUR CALENDARS!

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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](https://mtsu.edu/ors/workshops.php)



## Upcoming Events and Opportunities

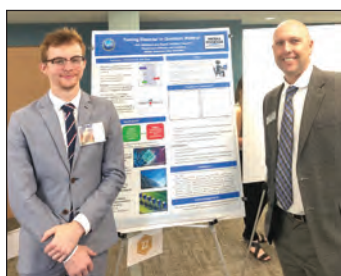
Scholars Week 2020, March 29–April 3

MTSU Scholars Week is an annual, week-long celebration of research, scholarship, and creative projects. The week features guest speakers, a speech contest, and other events hosted by each college. It culminates in a University-wide poster exposition featuring student research posters and creative performances on Friday, April 3. Food will be served.

More details: [mtsu.edu/scholarsweek](https://mtsu.edu/scholarsweek)

### ..... ★★ ★ Posters at the Capitol ★★ ★ .....

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 Yarbrow, 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.





**Moses Prabu, Ph.D.**  
Compliance Officer

## 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.

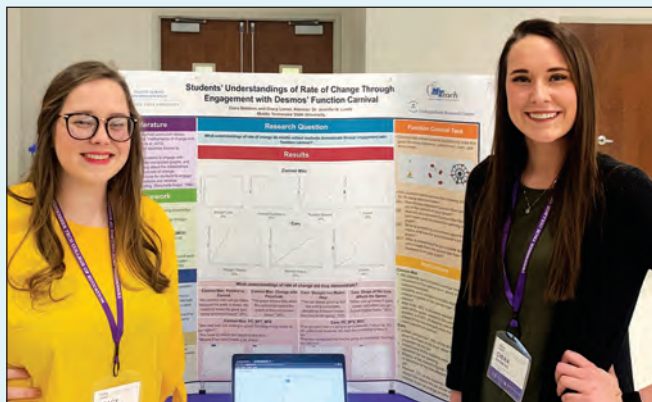
## UNDERGRADUATE RESEARCH CENTER (continued)

### 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.



Hannah Belcher (l-r), Magen Williams, and Emma Bowmer



Gracy Lanier and Ciera Dobbins

### STUDENT RESEARCH SPOTLIGHT



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

"Forensic Fiber Analysis by Thermal Desorption/Pyrolysis-Direct Analysis in Real Time-Mass Spectrometry." Jian Liang, Jared Frazier, Virginia Benefield, Ngee Sing Chong, and Mengliang Zhang. *Analytical Chemistry* DOI: 10.1021/acs.analchem.9b04167

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](https://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!

Student	Project	Level	Mentor	Department
Holly Aslinger	Dental Enamel Hypoplasia at Black Cat Cave, Site 40RD299	Assistant	Shannon Hodge	University Studies
Gracy Blake	Lethal Shootings of Unarmed Persons in 2016	Assistant	John Pennington	Psychology
Samuel Blumer	The Roll of Turnitin in Academic Integrity at MTSU	Assistant	Ryan Korstange	Computer Science
Catheryn Bolick	Examining the Role of Parkin as a Regulator of Gene Expression During Periods of Induced Mitochondrial Depolarization Using BAM15	Silver	David Nelson	Biology
Miquellie Bonner	Novel Method for the Forensic Dye Analysis by Direct Analysis in Real Time Mass Spectrometry	Gold	Mengliang Zhang	Forensic Science
Stephanie Bottum	Practice, Drill, Perform: The Development of a Play about Competition	Silver	Claudia Barnett	Theatre and Dance
Cole Buffalini	Determining the Potential of Gunshot Primer Residue as a Predictor of Shooter to Target Distance	Assistant	Hugh Berryman	Biology
Aubrey Campbell	The Impact of Media Ecologies in Brazil—ASSISTANT	Assistant	Richard Pace	Anthropology
Gabrielle Chesak	The Importance of Studying Mental Health Within a Community That Has Experienced an Anthropogenic Disaster	Assistant	Kahler Stone	Heath and Human Performance
Audrey Creel	Bygone Nashville: Public and Digital History	Assistant	Molly Taylor-Polesky	History

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<b>Robert Conner</b>	HARUNA GROUP—Effects of Aerated Irrigation Through Subsurface Drip Irrigation on Soil Thermal and Physical Properties	Assistant	Samuel Haruna	Agriculture
<b>Naiya Drayton</b>	The Effects an Anthropogenic Disaster Has on Post-Traumatic Stress Disorder	Assistant	Bethany Wrye	Health and Human Performance
<b>Olivia Goodgame</b>	The Morphosemantics of Noldorin Elvish	Assistant	Amanda Swenson	English
<b>Luke Gormsen</b>	Modifying the Hydraulic System of a CAT 303.5E2 for Conditions on Mars	Assistant	David Butler	Aerospace
<b>Christopher Hall</b>	HARUNA GROUP—Effect of Aerated Irrigation Through Subsurface Drip Irrigation on Soil Thermal and Physical Properties	Assistant	Samuel Haruna	Agriculture
<b>Amber Hayden</b>	The Effect of Language Sample Length as a Function of Varying Age Groups	Assistant	Kathryn Blankenship	Health and Human Performance
<b>Nikolas Hellervik</b>	Isolation and Characterization of Plant-Based Nucleoside Hydrolases	Silver	Paul Kline	Chemistry
<b>Erin Lancaster</b>	Factors Affecting Older Adults' Fruit and Vegetable Consumption	Assistant	Elizabeth Smith	Nutrition
<b>Laurel O'Neill</b>	From Script to Stage: The Development of a New Play	Silver	Claudia Barnett	English
<b>Katelin MacVey</b>	Empty Spaces: A Photographic Memoir on Postmemorial and Transgenerational Effects of Grief and Loss	Silver	Jacqueline Heigle	English
<b>Jake Maisano</b>	Using fermentation to create environmentally friendly food packaging: Optimizing the extraction and purification of kefiran for use in plastic-free films	Assistant	Keely O'Brien	Agriculture
<b>Cody Maness</b>	MTConnect: A Mobile Application to View Campus Events	Assistant	Rafet Al-Tobasei	Computer Science
<b>Emily McTyre</b>	Vanderbilt: An Honors Creative Thesis Project	Assistant	Leland Gregory	Media Arts
<b>Lina Mistrion</b>	Social Media Content Analysis and the Impact of Media Ecologies in Brazil	Assistant	Richard Pace	Anthropology
<b>Brendan Mitchell-Fostyk</b>	Effects of Landscape Position on Soil Hydraulic and Thermal Properties	Assistant	Samuel Haruna	Agriculture
<b>Gabrielle Mould</b>	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	Silver	Jessica Carter	Agriculture

Simon Pergande	Comparisons of Species Composition of Forensically Important Flies Between the Anthropological Research Facility and the MTSU Outdoor Forensic Facility	Assistant	Yangseung Jeong	Biology
Laura Pickard	Changing the Rules: Dungeons and Dragons in Theatre	Silver	Claudia Barnett	Theatre and Dance
Emily Richards	Genetic improvement of Angus cows through genomic testing and EPDs	Assistant	Jessica Carter	Agriculture
Zachary Sanchez	Eldercare Workforce Crisis Phase 2	Gold	Shelley Caswell Moore	Nursing
Katrina Scott	A Creative Exploration of the History of Women's Anger	Assistant	Erin Anfinson	Art and Design
Cameron Stacey	The effect of fermentation conditions on the sugar and organic acids profiles of coffee	Assistant	Keely O'Brien	Agriculture
Cassidy Woodall	Story Bandits International	Gold	Jette Halladay	Theatre and Dance
Dara Zwemer	Officer Workload and Lethal Officer-Involved Shootings of Unarmed Citizens	Silver	John Pennington	Psychology

## 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](https://mtsu.edu/urc/travel.php)

## 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](#) to view the **What's New for 2021–22 Webinar** or visit the **Catalog of Awards**.

0220-8841 / Middle Tennessee State University does not discriminate against students, employees, or applicants for admission or employment on the basis of race, color, religion, creed, national origin, sex, sexual orientation, gender identity/expression, disability, age, status as a protected veteran, genetic information, or any other legally protected class with respect to all employment, programs, and activities sponsored by MTSU. The Assistant to the President for Institutional Equity and Compliance has been designated to handle inquiries regarding the non-discrimination policies and can be reached at Cope Administration Building 116, 1301 East Main Street, Murfreesboro, TN 37132; Marian.Wilson@mtsu.edu; or 615-898-2185. The MTSU policy on non-discrimination can be found at [mtsu.edu/iec](https://mtsu.edu/iec).

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