

INQUIRIES

NEWSLETTER FROM THE UMKC OFFICE OF UNDERGRADUATE RESEARCH AND CREATIVE SCHOLARSHIP

Annual Symposium Showcases Students

The 23rd Annual Symposium of Undergraduate Research and Creative Scholarship featured 240 undergraduate students presenting research, scholarly, and artistic projects. In-person presentations were held in Pierson Auditorium and online presentations were open for discussion in Canvas.

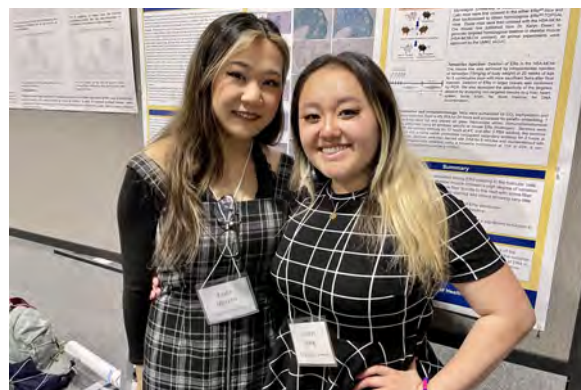
This year's symposium featured student projects developed in each of UMKC's schools, showcasing a wide range of work from genetics to economics, civic engagement to civil engineering, music therapy to public health interventions. Students' projects were supported by EUREKA courses, the Undergraduate Research Associates work-study program, SEARCH grants, and the Multicultural Student Affairs Office's Emerging Research Scholars Program, as well as internally and externally funded faculty grants.

Circulating research findings to a broad audience is a significant opportunity for undergraduate students to build confidence, develop communication skills, and receive feedback on their work. The dialogue between the students presenting at the symposium and the attendees provides an enriching experience for both, according to UMKC's Director of Undergraduate Research, Dr. Jane Greer.

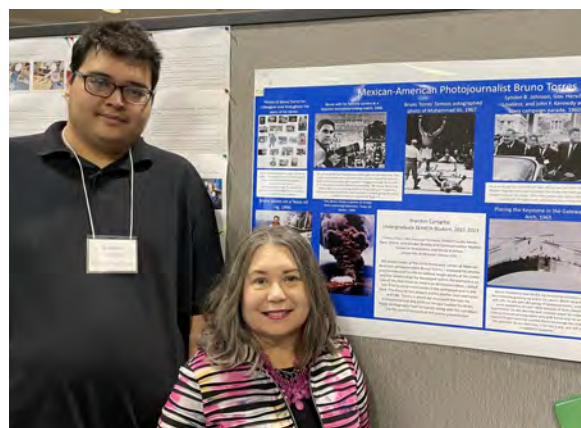
"The symposium offers students the opportunity to share the culmination of their work, and offers the UMKC community the opportunity to witness the power of an urban research university at work," Said Dr. Greer.

The symposium offers students the opportunity to develop communication skills, increase confidence, and receive important feedback on their work. To enhance those opportunities and to recognize excellence, faculty judges visit each student and select Presentations of Distinction in six categories. **Recipients of these awards are listed on page 4.**

The contributions that undergraduate students make to their field of research, scholarly, and artistic work are made possible by the support of faculty mentors. **Honorees for Awards for Excellence in Mentoring are listed on page 5.**



Undergraduate Research Associates from the School of Dentistry: Kayla Nguyen and Jocelyn Vang



SEARCH grant recipient Brandon Camacho with faculty mentor Theresa Torres



Students from a EUREKA class present projects developed in the State Historical Society of Missouri



OFFICE OF
**Undergraduate Research
and Creative Scholarship**
www.umkc.edu/undergraduate-research

The Office of Undergraduate Research and Creative Scholarship supports high-impact learning opportunities by funding the work of undergraduate researchers, scholars, and artists; linking students with research opportunities; providing opportunities to enhance intellectual and career-building skills; and supporting quality faculty mentorship.

Staff

Jane Greer, PhD, Director
greerj@umkc.edu

Audrey Lester, Assistant Director
lesterak@umkc.edu

Faculty Advisory Board

Majid Bani-Yaghoub, Mathematics
Travis Fields, Mechanical Engineering
Alison Graettinger, Earth & Environmental Science
Jane Greer, English
Amanda Grimes, Health Sciences
R. Scott Hawley, Stowers Institute
Saul Honigberg, Biological Sciences
Kimberly Johnson, Multicultural Student Affairs
School of Education, Social Work, & Psychological Sciences
Seung Lark Lim, Psychology
Debra Leiter, Political Science
Paul Rulis, Physics
Jeff Rydberg-Cox, Classical Studies

Student Ambassadors

Asayiel Alhajeri, Biology, Junior
Zalyia Carr, Psychology, Senior
Luke Romang, Earth & Environmental Sciences, Senior

Plan Ahead for Fall

Work-Study Research Associates

The Office of Undergraduate Research and Creative Scholarship matches students who have Federal Work-Study awards as part of their financial aid packages with opportunities to provide research assistance to faculty. Faculty interested in adding an Undergraduate Research Associate to their project should contact Audrey Lester at lesterak@umkc.edu.

SUROP Symposium

Students with Summer Undergraduate Research Opportunity (SUROP) Grants will present posters in Miller Nichols Learning Center Lobby.

10:00 a.m.-3:00 p.m., August 31, 2023

SEARCH Grant Funding

Now is the time for undergraduates to begin planning a SEARCH grant application by partnering with a faculty mentor and focusing their research, scholarly, or creative project. Awarded each fall, SEARCH grants provide funding for approved project expenses through the end of the academic year.

Application Deadline: September 15, 2023

Undergraduate Research Fellows

Students with deep involvement in research or original scholarship can apply for the Undergraduate Research Fellow transcript designation. Students must meet all criteria by the deadline, including development of a project, execution of the project, and circulation of results to a wide audience.

Application Deadline: October 1, 2023

URD@C Nominations

Faculty may nominate students to present at Undergraduate Research Day at the Capitol. This annual event highlights the unique opportunities available to students at a public research university. Students nominated to represent UMKC at this event should be significantly involved in research, scholarship, or creative activity.

Nomination Deadline: November 1, 2023

Undergraduate Researchers at Work

As students seek to discover new knowledge and develop original work through research, scholarship, and creative activity, they also discover and develop new skills and confidence.

Emerging Research Scholars Share Research Experiences at Student Showcase



In March, a panel of six students shared their experience in the Emerging Research Scholars program through the Office of Multicultural Student Affairs. With support from Dr. Kimberly Johnson, the program manager, these students successfully navigated the process of defining their research interests, connecting with a research mentor, developing a research project, and preparing to present at UMKC's Annual Symposium of Undergraduate Research & Creative Scholarship. The panel provided an important opportunity for faculty and staff across campus to learn about how they can partner with the Emerging Research Scholars program to support students of color in pursuing undergraduate research opportunities.

If you are interested in being matched as a research mentor with students in the Emerging Research Scholars program for the 2023-2024 academic year, contact Dr. Johnson: johnsonkimd@umkc.edu, (816) 235-6609.

UMKC Student Receives Award at Regional Conference



Jessica Kim works as an Undergraduate Research Associate in Dr. Ryan Mohan's lab. In March, she presented at the Great Plains Honors Conference in Wichita Falls, Texas, and received the conference's Britt Poster Award in STEM for her poster, "SAGA is a dynamic circadian complex involved in Spinocerebellar ataxia type 7."

Students Contribute Data to Publication

Undergraduate students working in Dr. Jeff Price's lab contributed significant data to a recent publication with co-authors Richard Brent Nolan and Jin-Yuan Fan. The article, "Visual and circadian regulation of *Drosophila* BDBT and BDBT effects on DBT and PER localization," in the journal *iScience* includes three undergraduate student co-authors recently funded by SEARCH: Tinh Nim, Christopher Viermann, and Adam Waldren.

We want to celebrate your students' accomplishments!

Please share news of your students' projects, presentations, publications, performances, or off-campus research experiences. Email details to Audrey Lester, lesterak@umkc.edu.

Presentations of Distinction

23rd Annual Symposium of Undergraduate Research & Creative Scholarship

Behavioral & Social Sciences

Maha Mateen

Accounting

“Regulation in Cryptocurrency”

Mentor: Julie Kline

Zack Smith & Alyssa Squires

Psychology

“Mental Health Among the Religious and the ‘Nones’: Examining Attitudes toward Conventional and Alternative Approaches to Mental Health Care”

Mentor: Melisa Rempfer

Arts & Humanities

Park Zebley

Media, Art, & Design

“*Happy Milk*: A Narrative Short Film & Creative Exploration”

Mentor: Caitlin Horsman

Computing & Engineering

Grace Dang

Biology

“Reconfigurable Biomaterials Containing Magnetic Nanoparticles”

Mentor: Zahra Niroobakhsh

Biological & Life Sciences

Logan Baerman & Kylie Cushing

Biology

“Examining regulation of the SAGA-DUBm complex during sleep deprivation in *Drosophila melanogaster*”

Mentor: Ryan Mohan

EunBee Lee

Biology

“Genome-wide DNA Methylation in Granulosa Cells is Crucial for Gonadotropin-Induced Ovarian Follicle Maturation”

Mentor: James Benevides & M.A. Karim Rumi

Lindsay Todd

Biology

“A New Regulator of Ataxin-7 Cleavage in Spinocerebellar ataxia type 7”

Mentor: Ryan Mohan

Physical & Natural Sciences

Liz Langford

Earth & Environmental Sciences

“Assessing the Johnson-Su Composting Bioreactor for Midwest Urban Soil Regeneration”

Mentor: Caroline Davies

KC Works

Liz Langford

Earth & Environmental Sciences

“Assessing the Johnson-Su Composting Bioreactor for Midwest Urban Soil Regeneration”

Mentor: Caroline Davies

Three Faculty Recognized for Excellence in Mentoring

This year we honored three faculty members for Excellence in Mentoring Undergraduate Researchers, Scholars, and Artists.



Dr. Alison Graettinger, Associate Professor of Earth & Environmental Sciences, is a volcanologist whose research focuses on maar craters and eruptions involving water and ice. Since she arrived at UMKC in 2016, she has been conducting her research through field work, remote sensing, and experiments. Dr. Graettinger's enthusiasm for her work has inspired students near and far to pursue this area of research. Through her teaching of course-based experiences in undergraduate research, Dr. Graettinger has helped students understand how the research process can be used to answer questions about their world. Through her mentoring of more than 30 undergraduate student research projects, she has helped students explore their curiosity, expand their skillsets, and engage with a larger community of researchers. Not only has Dr. Graettinger contributed to these students' academic and professional success, but she is helping to shape the next generation of researchers in earth and environmental science.



Dr. Paul Rulis, Associate Professor of Physics, devotes his research to the development of computational methods to address problems in materials science. Since he joined UMKC's faculty in 2011, he has played an instrumental role in engaging undergraduate students in physics research. With generosity and patience, he helps students adjust their approaches and methodologies so that they can resolve problems and make progress in their research. Through individual coaching and group collaboration, students acquire technical skills, develop communication skills, and gain confidence. He sets high expectations, but partners with students to make even the most ambitious goals attainable. His students have been successful in being awarded UMKC's SEARCH and SUROP grants, as well as being selected for competitive internships and research experiences funded by the National Science Foundation. As students work toward the next steps in their careers, they draw on the skills they've gained from Dr. Rulis.



Dr. Jeffrey Rydberg-Cox, Curators' Distinguished Professor of Classical & Ancient Studies, researches methodologies for digitizing and analyzing ancient Greek texts, literary texts, manuscripts, and other materials in the humanities. Whether students are enrolled in a course-based experience in undergraduate research with him, or working on one of his interdisciplinary project teams, they learn to use emergent technologies to develop new strategies to analyze texts. Dr. Rydberg-Cox acts as a project manager, building rapport with the team and welcoming ideas from all members. Undergraduate students learn to understand the end-to-end research process and how they contribute to the projects' goals. They learn to articulate the value of their work to other scholars and professionals. Just as students have made significant contributions to deliverables for Dr. Rydberg-Cox's National Endowment for the Humanities-funded projects, Dr. Rydberg-Cox has helped students develop into well-rounded researchers who are prepared to work in a wide variety of settings.

Students Represent UMKC in Jefferson City

UMKC students presented their research in Jefferson City at UM System's Undergraduate Research Day at the Capitol. State senators, representatives, legislative staff, and members of the public who attended this poster session learned how participating in research contributes to students' academic success as well as to positive outcomes for the state's economy, technological advancement, public health outcomes, and cultural opportunities.



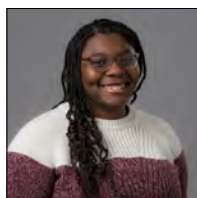
Logan Baerman

Biology
Modifying Fruit Fly Protein Expression Through Sleep Deprivation
Faculty Mentor: **Dr. Ryan Mohan**



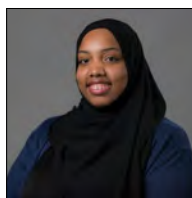
Nusaybah Ibrahim

Biology, emphasis Clinical Lab Sciences
Foxg1a Regulates Craniofacial Development in the Zebrafish
Faculty Mentor: **Dr. Hillary McGraw**



Zalyia Carr

Psychology
Diagnosis Differences in Childhood Mental Disorders
Faculty Mentor: **Dr. Erin Hambrick**



Laylah Liwaru

Biology
Foxg1a Regulates Craniofacial Development in the Zebrafish
Faculty Mentor: **Dr. Hillary McGraw**



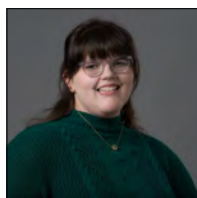
Suha Cho

Information Technology
Development of Weed Detection Robot Using Deep Learning
Faculty Mentor: **Dr. Jejung Lee**



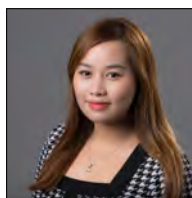
Lindsay Todd

Biology, emphasis Biomedical Sciences
A New Regulator of Ataxin-7 Cleavage in Spinocerebellar Ataxia Type 7
Faculty Mentor: **Dr. Ryan Mohan**



Hannah Edwards

Music Therapy
Music Therapy as Nonpharmacological Treatment for Post-Stroke Depression: A Scoping Review
Faculty Mentor: **Dr. Dawn Iwamasa**



Tinh Nim

Biology
The Effects of Visual and Circadian Proteins on BDBT and of BDBT on Visual Proteins
Faculty Mentor: **Dr. Jeffrey Price**



Sarah Herndon

History
The Clio: Your Guide to the History and Culture around You
Faculty Mentor: **Dr. David Trowbridge**



Chris Viermann

Biology
The Effects of Visual and Circadian Proteins on BDBT and of BDBT on Visual Proteins
Faculty Mentor: **Dr. Jeffrey Price**



MaAh Kyi

History & English
Developing Skills with Big Data: Colonel Greene's Antiphonal Collection as a Resource
Faculty Mentor: **Dr. Virginia Blanton**



Judy Vun

Nursing
A Secondary Data Analysis of the Child Obesity and Health Messaging Preferences among Missouri Policymakers (CHAMP) Study
Faculty Mentor: **Dr. Anita Skarbek**

SUROP Grants Awarded to 21 Projects

Summer Undergraduate Research Opportunity (SUROP) grants were awarded to 21 student-led, faculty-mentored research projects. Students receive a \$2,000 tuition grant and up to \$1,250 in research expenses. Students will present their work at the SUROP Poster Symposium on Thursday, August 31, in the first-floor lobby of Miller Nichols Learning Center.

Sophia Baugher

Earth & Environmental Sciences, '24
"Observational Studies on the Urban Heat Island Effect in the Kansas City Metropolitan Area"
Mentor: Fengpeng Sun

Juan Camilo Calderon

Mechanical Engineering, '24
"Heat Transfer Enhancement of Solar Thermal Collectors through Implementation of Innovative Nanofluid Mixture: Experimental Study"
Mentor: Sarvenaz Sobhansarbandi

Grace Dang

Biology, '24
"Investigating the Effect of Surfactants on the Self-assembly Behavior of Nanoparticles at the Liquid-liquid Interface"
Mentor: Zahra Niroobakhsh

Sheyda Dehghani

Biology, '24
"Fabrication of Stimuli-Responsive Materials Using Liquid-in-Liquid 3D Printing"
Mentor: Zahra Niroobakhsh

Aleigha Dollens

Earth & Environmental Sciences, '24
"Evidence of Earthquakes Buried at the Mayan Site of Quirigua in Guatemala: An Evaluation of Archaeological Excavation Archives"
Mentor: Tina Niemi

Seth Dunfield

Studio Art, '23
"Rebuilding the Block: From Kansas City to the Metaverse"
Mentor: Barry Anderson

Mary Gipson

Chemistry and Spanish, '24
"Visualization of Catalytic Oxygen Reduction Reaction Under Microscope"
Mentor: Mohammad Rafiee

Ali Lollas

Chemistry, '24
"Electrochemical Detection of Volatile Organic Compounds using Flavin Derivatives, Mimicking Enzymes for Breath Analysis"
Mentor: Mohammad Rafiee

Chance McGuire

Media, Art, & Design, '23
"From the Ashes: A Queer Guide to Kansas City"
Mentor: Zach Frazier

Madegan Morrison

Earth & Environmental Sciences, '24
"A Comparison of Plant Communities and Site Conditions of a Rooftop Tallgrass Prairie and a Prairie Remnant in Kansas City, Missouri"
Mentor: Aaron Reed

Xander Mosley

Mechanical Engineering, '25
"Strain Measurement Using Digital Image Correlation: Resolution for Biomechanical Applications"
Mentor: Antonis Stylianou

Elena Payne

Earth & Environmental Sciences, '24
"Using Longshore Drift Patterns to Analyze Change in Storm Wave Direction at Sandy Point Beach on San Salvador Island in The Bahamas"
Mentor: Tina Niemi

Maximus Reeds

History, '24
"Contested Visions of the Mapuche Struggle through Ethnic and National Lenses in Argentina"
Mentor: Viviana Grieco

Alijah Smith

English, '24
"Uncovering the Rhetorical Life of Mary Ann Shadd Cary"
Mentor: Jane Greer

Danei Smith

Biology, '23
"Investigation of Bruno1 isoform-specific localization and function in muscle development"
Mentor: Maria Spletter

Sienna Snead

Health Sciences, '24
"Many Crowns of Violets': The Queer Influences of Sappho on 1950s-1970s Lesbian Literature"
Mentor: Jenni Frangos

Emma M Stauffer

English, '24
"Diving Deeper into the Humorous 'Tourrhetic' of Jess Thom"
Mentor: Jane Greer

Mya Thomas

Earth & Environmental Sciences, '25
"Testing a technique to remotely deploy scale objects for cave exploration and digital modeling"
Mentor: Alison Graettinger

Benjamin Vandenburg, Biology, '24

Michelle Tran, Biology, '24
"The Effect of Genetic Diversity and Eusocial Behavior on the Partitioning of Yeast Populations"
Mentor: Saul Honigberg

The Dar Win

Earth & Environmental Sciences, '24
"Textile Waste Management in Kansas City, Missouri"
Mentor: Syed Hasan

Isaac Woodward

Mechanical Engineering, '25
"Finite Element Models of Pediatric Knees And ACL Injury Risk in Males versus Females"
Mentor: Antonis Stylianou

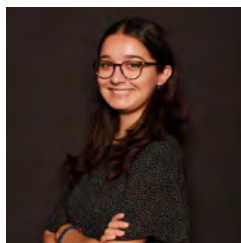
Undergraduate Research Fellows

By demonstrating significant involvement in the development, execution, and circulation of original research, eight students have earned the Undergraduate Research Fellow designation in Spring 2023. This honor is recorded on students' official transcripts and is listed in the commencement program. Undergraduate research fellows wear a commemorative medal at commencement.



Hannah Briggs

Chemistry
Class of 2023



Hannah Leyva

Sociology and Spanish
Class of 2024



Adriana Feener

Physics with an Emphasis
in Astronomy
Class of 2023



Britton Needham

Biology and Chemistry
Class of 2023



Nicholas Frede

Biology
Class of 2023



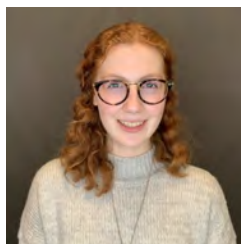
**Truong (Tommy)
Nguyen**

Biology
Class of 2023



MaAh Kyi

History and English
Class of 2023



Lauren Textor

English
Class of 2023

In addition to the students who were named Undergraduate Research Fellows this semester, the following students have earned this designation and are graduating in Spring 2023:

Polina Krasnopolskya, Music Education

Laura Munoz-Baroja, Electrical & Computer Engineering

Elisa Rouse, Biology and Chemistry

Sam Sisk, Mechanical Engineering

Students may apply for the transcript designation at any point in their undergraduate career, as long as they have met the criteria prior to the application deadline for the semester. To receive the Undergraduate Research Fellow transcript designation in Fall 2023, students must meet the criteria and submit their applications by October 1, 2023.