

INQUIRIES

NEWSLETTER FROM THE UMKC OFFICE OF UNDERGRADUATE RESEARCH AND CREATIVE SCHOLARSHIP

First Hybrid Symposium Boasts Record Participation



The 22nd Annual Symposium of Undergraduate Research and Creative Scholarship featured more than 220 undergraduate students presenting research, scholarly, and artistic projects.

Students' projects were supported by EUREka! courses, SEARCH grants, and the Multicultural Student Affairs Office's Emerging Research Scholars Program, as well as internally and externally funded faculty grants. Presentations ranged from art history to political science, from molecular biology to civil engineering, from mathematical modeling to chemistry.

For many students, this year's symposium was their first opportunity to present in person after two years of remote learning and virtual events. For UMKC, this year marked the beginning of a new era with our first ever hybrid symposium. We returned to Pierson Auditorium for in-person presentations, and we maintained a virtual element that allowed students enrolled in online asynchronous EUREka! courses to present in Canvas.

Circulating research findings to a broad audience is significant to both the students presenting at the symposium and to attendees, 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 3.***

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 4.***



OFFICE OF
**Undergraduate Research
and Creative Scholarship**
www.umkc.edu/searchsite

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

Sherry Neuerburg, Office Support Assistant
neuerburgs@umkc.edu

Faculty Advisory Board

Majid Bani-Yaghoub, Mathematics
Leonard Dobens, Biological Sciences
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
Seung Lark Lim, Psychology
Debra Leiter, Political Science
Paul Rulis, Physics
Jeff Rydberg-Cox, Classical Studies

Student Ambassadors

Victor Arellano, Public Health, Junior
Maya Baughn, Health Sciences, Junior
Kyle Broley, Earth & Environmental Sciences, Senior
Polina Krasnopolskya, Music Education, Junior
Trenton McEnaney, Earth & Environmental Sciences, Senior

Plan Ahead for Fall Opportunities

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 Jane Greer at greerj@umkc.edu.

Undergraduate Research Fellows

Students with deep involvement in research or original scholarship can apply for the Undergraduate Research Fellow transcript designation.

Application Deadline: October 1, 2022

SEARCH Grant Funding

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

Application Deadline: September 16, 2022

Coming Soon!

Our website is undergoing major renovations! A move to UMKC's new content management system will bring our website in line with the university's brand standards, and will make it easier for you to locate the information you need. You'll be able to find 2022-2023 dates and deadlines on the redesigned site by July 1.

Presentations of Distinction

22nd Annual Symposium of Undergraduate Research and Creative Scholarship

Arts & Humanities

Emma Leonard

History Major, Honors Program, Senior

“Sports and Gender: A Comparative
Historical Analysis of Men’s and
Women’s Sports in the United States”

Mentor: Diane Mutti-Burke

Computing & Engineering

Dan Caron

Civil Engineering Major, Senior

“Augmenting BIM with Real Time 3D and
Damage Analytics”

Mentor: ZhiQiang Chen

Biological & Life Sciences

Shea O'Connor

Biology Major, Senior

“AI and The Fly”

Mentor: Zachary Fischer

Physical & Natural Sciences

Amanda Pierce

Earth & Environmental Sci Major, Senior

“The Effectiveness of *Sphagnum
subsecundum* Moss Removal of Dissolved
Carbon Dioxide and pH Balancing of
Missouri Freshwater”

Mentor: Molly Davies

Behavioral & Social Sciences

Karah Chappel

Music Therapy Major, Senior

“Exploration of the Education and
Experiences of Music Therapists in
Trauma Care”

Mentor: Dawn Iwamasa

KC Works

Alejandra Frias Fraire

Earth & Environmental Sciences, Junior

“Armourdale's Correlation Between
Industry Pollution and Health Inequity”

Three Faculty Recognized for Excellence in Mentoring

Dedicated faculty make it possible for undergraduate students to participate in research, scholarship, and creative activity. This year we honored three faculty members for Excellence in Mentoring Undergraduate Researchers, Scholars, and Artists.



Dr. Majid Bani-Yaghoub's interdisciplinary research employs mathematical and statistical modeling to investigate questions in ecology, health, and biomedicine. Since he joined UMKC's Department of Mathematics and Statistics in 2012, Dr. Bani has taken an innovative approach to involving undergraduate students in research through student clubs, EUREKA! courses, and interdisciplinary collaborations. Dr. Bani's students note that circulating their research findings has been significant to their learning, which they have done through presentations at UMKC's symposia and at Mathematical Association of America conferences. Students have also co-authored articles that have appeared in undergraduate research journals as well as the *Journal of Agricultural and Biological Sciences*.



For 20 years, **Dr. Virginia Blanton** has been helping UMKC students turn their curiosity into scholarly inquiry. As a Curators' Distinguished Professor in the Department of English Language and Literature, Dr. Blanton has an active research agenda that focuses on medieval women and their relationship with books as writers, readers, patrons, and book owners. Most students first encounter Dr. Blanton's research in the classroom, and their interest morphs into collaborative research projects. Her students have conducted research in the Nelson-Atkins Museum's Spencer Art Reference Library and UMKC's LaBudde Special Collections, completing projects that led to campus and regional presentations as well as co-authored publications.



Dr. Amanda Grimes began teaching at UMKC in 2013 and became an assistant professor in UMKC's School of Nursing and Health Studies in 2018. Her community-based health research, which focuses on active transportation and the health and social influences associated with physical activity across demographic groups, offers her students the opportunity to conduct research on health behaviors and populations that interest them. By developing EUREKA! courses for the health studies program's curriculum, Dr. Grimes offers research opportunities to large groups of students each year, and many of those students are inspired to continue their work with student-led research projects. Dr. Grimes's students have been very successful in procuring funding for their projects and publishing their work.

Students Return to Jefferson City for URD@C

Ten of UMKC's most accomplished undergraduate researchers, scholars, and artists represented our campus at UM System's Undergraduate Research Day at the Capitol, which returned to Jefferson City after a two-year hiatus related to the COVID-19 pandemic. In the Capitol Rotunda, students presented posters to state legislators and other government officials. Students were able to describe the ways in which participating in research contributes not only to students' academic success, but also to positive outcomes for the state's economy, health care system, educational system, and cultural opportunities. At this event, students got to meet representatives from their home districts, as well as the legislators who represent UMKC's House and Senatorial Districts, Representative Ashley Bland Manlove and Senator Greg Razor.



Victor Arellano

Public Health

Falls in Older Adults: Reducing Risks with Physical Activity and Cycling

Faculty Mentor: **Dr. Joey Lightner**



Jordy Hernandez

Biology and Chemistry

The Importance of Yeast in Cancer Research

Faculty Mentor: **Dr. Saul Honigberg**

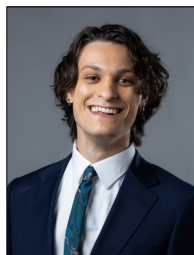


Maya Baughn

Health Sciences

Impact of COVID-19 Pandemic on Middle Aged and Older Adults' Physical Activity Levels

Faculty Mentor: **Dr. Amanda Grimes**



Michael Kuehn

Biology and Chemistry

Hair Cell Regeneration in Zebrafish

Faculty Mentor: **Dr. Hillary McGraw**



Kyle Broley

Earth & Environmental Sciences

Xenolith Structures in Welded Basalt Agglutinate Associated with Dotsero Crater, Colorado

Faculty Mentor: **Dr. Alison Graettinger**



Hannah Levya

Sociology

Understanding Latinx Students at an Urban Research University

Faculty Mentor: **Dr. Stephen Christ**



Nina Cherry

Music Theory

Reframing the Narrative: Investigating Kansas City Women in Jazz

Faculty Mentor: **Dr. Alison DeSimone**



Trenton McEnaney

Earth & Environmental Sciences

Building a Georeferenced Database for the 1976 Guatemalan Earthquake Rupture of the Motagua Fault System along the North American-Caribbean Plate Boundary

Faculty Mentor: **Dr. Tina Niemi**



Victoria Dominguez

Spanish and Sociology

Student Life Through the Art of Luis Quintanilla: A Study of the Murals in Haag Hall

Faculty Mentor: **Dr. Viviana Grieco**



Grace Nanney

Psychology

How Stress Levels and Coping Styles Impact Eating Decisions

Faculty Mentor: **Dr. Oh-Ryeong Ha**

Undergraduate Research Fellows

By demonstrating significant involvement in planning, carrying out and sharing the results of original research, three students have earned designation as Undergraduate Research Fellows in Spring 2022. This honor is recorded on students' official transcripts and is listed in the commencement program. Undergraduate research fellows wear a commemorative medal at commencement.



After becoming interested in trauma care related to criminal justice, **Karah Chappel** reviewed related literature, met with experts in the field, and discussed her ideas with her faculty mentors to narrow the focus of her research question. She designed a phenomenological study and obtained the required approvals before conducting interviews. Karah presented her paper “Exploration of the Referral Process of Social Work within a Policing Structure” at UMKC’s Annual Symposium in Spring 2021, and has plans to publish and present this paper again before graduation.

Nikita Joshi's research projects explored the Indian subcontinent and the larger geopolitical region of South Asia. She completed literature reviews, identified gaps in existing scholarship, and analyzed source material to gain a better understanding of the region’s social and political landscape of the time. She presented her paper “Public Discourse and India’s Green Revolution: Defining Approaches to Relief Efforts and Policymaking During the Bihar Famine” at the History Department’s Symposium in December 2021.



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 2022:

Kyle Broley, Earth & Environmental Sciences Major

Jared Gutzmer, Music Studies Major

Jade Robichaud, Psychology Major

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 2022, students must meet the criteria and submit their applications by October 1, 2022.

SUROP Grants Awarded to 19 Students

Nineteen students were awarded Summer Undergraduate Research Opportunity (SUROP) grants for student-led, faculty-mentored research projects. Students receive a \$2,000 tuition grant and up to \$1,250 in research expenses. In September, students will present at the SUROP Poster Symposium.

Amanda Pierce

Earth & Environmental Sciences Major, Senior
 “Growing Duckweed with Sphagnum Moss: Effectiveness of Carbon Sequestration”
 Mentor: Lee Likins

Austin Cass

Mechanical Engineering Major, Sophomore
 “Creating Micro-Scaffolds for Tissue Engineering with Liquid-in-Liquid 3D Printing”
 Mentor: Zara Niroobakhsh

Britton Needham

Biology and Chemistry Major, Junior
 “Probing Biological Redox Chemistry with Microelectrodes”
 Mentor: Mohammad Rafiee

Charlotte Rooney

Earth & Environmental Sciences Major, Senior
 “Assessing Urban Prairie as a Means to Regenerate Urban Soil Health”
 Mentor: Molly Davies

Christian Dang

Biology Major, Senior
 “Analysis of the Drosophila Tribbles Recognition Degron in the C/EBP Transcription Factor Slbo”
 Mentor: Len Dobens

Drew Nelson

Mechanical Engineering Major, Junior
 “Primer Characterization”
 Mentor: Travis Fields

Hannah Briggs

Biology Major, Senior
 “Formation of Multi-Catalytic Resin through Self-Assembly”
 Mentor: Shin Moteki

India Fernandez

Biology Major, Senior
 “Creation of Educational Anatomy Models Representing Variations and Pathologies”
 Mentor: Rachel Allen

Jennifer Vanderslice

Physics Major, Junior
 “Universal Band Structure Path”
 Mentor: Paul Rulis

Judy Vun

Nursing Major, Senior
 “A Secondary Data Analysis of the Child Obesity and Health Messaging Preferences among Missouri Policymakers (CHAMP) Study”
 Mentor: Anita Sharbek

Kaitie Butler

Mechanical Engineering Major, Sophomore
 “Mimicking Cell Communication in 3D Printed Constructs”
 Mentor: Zara Niroobakhsh

Kate Larberg

Earth & Environmental Sciences Major, Senior
 “Urban Heat Island Effect in Kansas City: From Observations to Modeling”
 Mentor: Fengpeng Sun

Laura Munoz-Baroja

Liberal Arts Major, Junior
 “Performance Enhancement of PV/T Systems Integrated with Nanofluids”
 Mentor: Sarvenaz Sobhansarbandi

Luke Romang

Earth & Environmental Sciences Major, Junior
 “Depositional Setting and Tectonic History of the Tirabuzon Formation on San Marcos Island, Baja California Sur, México”
 Mentor: Tina Niemi

MaAh Kyi

English and History Major, Junior
 “The Missouri Bicentennial Research Project”
 Mentor: Diane Mutti Burke

Michael Englert

Mechanical Engineering Major, Junior
 “Development a High Thermal Conductive Nanofluid for the Application in Solar Thermal Technologies”
 Mentor: Sarvenaz Sobhansarbandi

Saivagmita Kantheti

Six-Year Med Major, Freshman
 “A Text Mining Approach to Determine Correlations between the Spanish Flu and COVID-19”
 Mentor: Billie Anderson

Sam Sisk

Mechanical Engineering Major, Junior
 “In-Chip Cooling Technology within Semiconductor Switches”
 Mentor: Sarvenaz Sobhansarbandi

Shuyuan Tian

Chemistry Major, Sophomore
 “Chirality-Driven Self-Assembly: In Situ Preparation of Structurally Distinct Janus Dendrimers”
 Mentor: Shin Moteki

Undergraduate Researchers at Work

2022 Missouri Section Meeting of the Mathematical Association of America

UMKC hosted the Missouri Section Meeting of the Mathematical Association of America. Not only did UMKC's Mathematics and Statistics faculty organize the meeting, but they also coached two UMKC Math Competition teams that competed with teams from different colleges and universities in Missouri. Team A took fifth place in the state of Missouri.

Team A

- Chandler Tarrant, Physics Major, Senior
- Allyson Jenkins, Mathematics & Statistics Major, Senior
- Michael Bai, Computer Science Major, Sophomore

Team B

- Seth Kacich, Mathematics & Statistics and Accounting Major, Senior
- Aubry Kleinsorge, Physics and Business Major, Junior
- Laura Behm, Mathematics & Statistics and Dance Major, Senior

Recent Graduates from UMKC's Bachelor of Science in Public Health Program Publish Co-Authored Articles

The lengthy process of submitting and editing manuscripts makes it difficult for undergraduate researchers to publish in peer-reviewed journals. Two co-authored publications from recent graduates of UMKC's Bachelor of Science in Public Health Program are a testament to the power of ongoing support from faculty mentors.

Katlyn Eighmy, SEARCH Grant 2019-2020 and BS Public Health 2020, co-authored an article with Joey Lightner, Assistant Professor of Public Health, Amanda Grimes, Assistant Professor of Health Sciences, and Teesha Miller, community

partner. The article, "Physical Literacy of Marginalized Middle School Adolescents in Kansas City Missouri Public Schools," appeared in *Pediatric Exercise Science*.

Conner Berens, SEARCH Grant 2019-2020 and BS Public Health 2021, co-authored an article with Joey Lightner, Assistant Professor of Public Health, and Sharon White-Lewis. The article, "The Effect of Immersive Training on Emergency Preparedness for Interdisciplinary College Students: A single Group Pretest, Posttest," appeared in *Disaster Medicine and Public Health Preparedness*.

Digital Humanities Projects Lead to Publications for Former Students

With the opening of the Digital Collaboration Studio in Miller Nichols Library and the introduction of a new Minor in Digital and Public Humanities, students will have new and exciting opportunities to do scholarship in this field. However, these new opportunities arise from a long tradition of faculty mentoring undergraduate students on digital humanities projects.

Two students recently published work that they began as Undergraduate Research Associates at UMKC. Jack Walton, English BA 2021, and Virginia Blanton, Curators' Distinguished Professor of English, co-authored the article, "St. Didier's Flowering Verge and the Rhetoric of Chaste Virility in a Modern Devotional: Joseph Royer's Homage to Medieval Langres," which was published in *Different Visions*, an open-access journal devoted to progressive scholarship on medieval art. Johnathan Curtman is listed as a contributor for the index of the plainchant in a medieval Spanish choirbook from UMKC's LaBudde Special Collections. The index appears in *CANTUS: A Database for Latin Ecclesiastical Chant*, which is the premiere resource that musicologists use to research medieval chant.

We want to celebrate your students' accomplishments! Please share news of your students' grant-funded projects, presentations, publications, performances, or off-campus research experiences.

Email details to Audrey Lester, lesterak@umkc.edu.