AUTUMN UNDERGRADUATE RESEARCH FESTIVAL

NOVEMBER 2, 2023

POMERENE HALL
TDAI IDEATION ZONE

POSTER PRESENTATIONS
10:00am-11:00am
12:00pm-1:00pm
1:30pm-2:30pm
3:00pm-4:00pm
Message from the Office of Undergraduate Research & Creative Inquiry

Dear students and colleagues,

It is our great pleasure to welcome you to the Autumn Undergraduate Research Festival. 117 undergraduates are presenting their research and creative endeavors throughout the day. Under the direction of their research mentors, students carried out collaborative research projects to solve pressing local, statewide, national and global issues. We would like to extend a special thank you to our research mentors, volunteers and visitors.

Congratulations to our students on their research accomplishments. Have a wonderful day.

Sincerely,
The Undergraduate Research & Creative Inquiry Team
Session 1
10:00 am - 11:00 am

**Poster 1: Abby Bush - Psychology**
Project Mentor: Vanessa Ivy
"The Future of Women’s Reproductive Rights and the Importance of Collective Action"

**Poster 2: Julia Frost - Anthropology**
Project Mentor: Grant Coffey
"Survey of Hawkins Preserve (Cortez, CO)"

**Poster 3: Jake Schmitt - Pharmaceutical Sciences and German**
Project Mentor: Mark Mitton-Fry
"The Synthesis of Novel Agents Targeting Salmonella enterica Typhimurium by Jake Schmitt and Dr. Mark Mitton-Fry"

**Poster 4: Anna Beck - Biochemistry**
Project Mentor: Ryan Hooper
"The CEVIC Device: Mixing Up New Visions of Vasculature"

**Poster 5: Aarti Patel - Biomedical Engineering**
Project Mentor: Natalia Higuita-Castro
"Treating Neurofibromatosis Type 1 with Engineered Extracellular Vesicles"
Session 1
10:00 am - 11:00 am

**Poster 6: Rileigh Dunn - Zoology**
Project Mentor: Rachelle Adams
"Population Dynamics of a Farmer Ant Host"

**Poster 7: Nicole Pickard - Animal Sciences**
Project Mentor: Jeffrey Firkins
"Effects of Branch-Chain Volatile Fatty Acid Supplementation on Intermeal Intervals in Dairy Cattle"

**Poster 8: Caitlin Chien - Environmental Engineering**
Project Mentor: Daniel Gingerich
"Multicriteria Analysis of Water System Capacity in Ohio"

**Poster 9: Betsy Cunningham - Sustainable Plant Systems: Horticulture**
Project Mentor: Alyssa Essman
"Screening for Herbicide-Resistance in Ohio Waterhemp Populations"

**Poster 10: Enrique Ruiz - Microbiology**
Project Mentor: Carlos Castro
"Rapid in Vitro Release of ssDNA from Complex Templates"
Session 1
10:00 am - 11:00 am

**Poster 11: Hank Kern and Suchir Movaa**
Biochemistry | Biomedical Science
Project Mentor: Noah Weisleder
"MG53 AAV Constructs as a Gene Therapy for Dysferlinopathies"

**Poster 12: Khushi Gupta - Chemistry**
Project Mentor: Maria Mihaylova
"Diet Dependent Effects on Wnt Signaling in the Intestinal Niche"

**Poster 13: Yusuf Rasheed - Biology**
Project Mentor: Junran Zhang
"Characterization of POLR3D Gene Has Pointed to a Role in the DNA Damage Response Pathway, Thus Inhibition of POLR3D Reveals a Novel Target for Breast Cancer Therapy"

**Poster 14: Ariana Sanabria - Neuroscience and Spanish**
Project Mentor: Erika Kemp
"Investigating the Effectiveness of Goal Attainment Scaling in Measuring Progression in Aquatic Therapy for Children with ASD."

**Poster 15: Aadil Umerani - Neuroscience**
Project Mentor: Jonathon Butchar
"Screening the Efficacy of Novel Small Molecule Inhibitors of GSTP1 in Pancreatic Cancer"
Session 1
10:00 am - 11:00 am

**Poster 16: Josh Alvarez - Microbiology**
Project Mentor: Lorena Rosas
"Upregulation of MOXD1 is Associated with Impaired Copper Transport in Idiopathic Pulmonary Fibrosis"

**Poster 17: Blake Chapman and Maggie Chafin - Landscape Architecture**
Project Mentors: Tameka Baba and Halina Steiner
"Pipe Up!"

**Poster 18: Shivani Dhekne - Neuroscience**
Project Mentor: Eswar Shankar
"Investigating EZH2 Inhibition as a Therapeutic Target in Triple Negative Breast Cancer"

**Poster 19: Kavya Alagappan - Biology**
Project Mentor: Dharini Bhammar
"Postural Respiratory Mechanics In Children With Obesity"

**Poster 20: Anvitha Gogineni - Neuroscience**
Project Mentor: Maryanna Klatt
"Mindfulness in Motion Targeted to Sustaining the Mental and Physical Resilience of First Responders"
Session 1
10:00 am - 11:00 am

**Poster 21: Emily Vais - Molecular Genetics**
Project Mentor: Jian-Qiu Wu
"Roles of Septins in Exocytosis through Physical Interactions with the Exocyst Complex During Fission Yeast Cytokinesis"

**Poster 22: Chandni Patel - Biomedical Science**
Project Mentor: Latha Ganesan
"The Role of B Cells and TCRβ+CD138+ T Cells in the Pathogenesis of Kidney Injury in Lupus Nephritis"

**Poster 23: Samiksha Prasanna - Public Health**
Project Mentor: Nandini Acharya
"Deciphering the Neuro-Immune Crosstalk in Glioblastoma"

**Poster 24: Alyssa Kadlubowski - Chemical Engineering**
Project Mentor: Martina Leveni
"The Use of Underground Hydrogen Storage (UHS) in Decarbonizing Domestic Heating"

**Poster 25: Chase Majkowski - Sociology**
Project Mentor: Candice Crutchfield
"Shining the Rust Belt With (In)equality: A Longitudinal Look at Environmental Racism in Ohio"
Session 1
10:00 am - 11:00 am

**Poster 26: Kathryn Turner - Mathematics and Biology**
Project Mentor: Lorena Rosas
"Single Cell Fixed RNA Profiling: A Novel Approach to Elucidate the Diversity of Human Lung Tissue"

**Poster 27: Irene Rozenberg - Molecular Genetics**
Project Mentor: Hiroki Taniguchi
"Searching for Transcription Factors that Dictate Terminal Differentiation of Cortical Chandelier Cells"

**Poster 28: Kerianne Bowyer - Environmental Science**
Project Mentor: Karen Goodell
"Comparing Richness and Abundance of Beneficial Insect Taxa Across Two Sites and Trapping Methods in Allen County, Ohio"

**Poster 29: Madison Frankhauser - Neuroscience**
Project Mentor: Kathryn Lenz
"Peripartum Opioid Exposure Impairs Maternal Behavior and Increases Inflammatory Gene Expression"

**Poster 30: Richard Phan - Health Sciences**
Project Mentor: Michele Basso
"Can Eccentric Rehabilitation Induce Myelin Plasticity Below Spinal Cord Injury in Mice?"
Session 1
10:00 am - 11:00 am

Poster 31: Zain Piracha - Neuroscience
Project Mentor: Shahid Nimjee
"Prophylactic Von Willebrand Factor Inhibition Prevents Murine Venous Thrombosis"

Poster 32: Emma Wang - Biomedical Engineering
Project Mentor: Jie Gao
"Profiling Changes of TREM2 Interactome Caused by Alzheimer’s Disease Associated Variations"
Session 2
12:00 pm-1:00 pm

Poster 1: Kezia Duah - Biology
Project Mentor: Heather Allen
"Quantification of Oceanic Organic Composition through Vibrational Spectroscopy"

Poster 2: Monica Paredes - Biomedical Science
Project Mentor: Amanda Toland
"The impact of Estrogen Signaling on Proliferation of TP53 Mutant and Wildtype Isogenic Cell Lines"

Poster 3: Mia Eleid - Neuroscience
Project Mentor: Jenna McCloskey

Poster 4: Celeste Miller - Food Science and Technology
Project Mentor: Rafael Jimenez-Flores
"Positive Impact of Milk Fat Globule Membrane on Mucosal Proteins Produced by DSS-insulted Intestinal Cells"

Poster 5: Christopher Johnson - Aviation Engineering; Computer Science and Engineering
Project Mentor: Amber Woodburn McNair
"Key Factors in Vertiport Site Selection for Megapolitan Regions"
Session 2
12:00 pm -1:00 pm

Poster 6: Tiffany Nguyen - Health Sciences
    Project Mentor: Tasha Posid
    "Barriers to Navigating the Medical Path: A Qualitative Focus Group Study of First-Generation Medical Students and Residents"

Poster 7: Meera Rajeev - Biomedical Science
    Project Mentor: Sarah MacEwan
    "Patient and Provider Perspectives About the Use of a Patient Portal to Identify and Address Social Needs During Prenatal Care"

Poster 8: Francesca Dishueme - World Politics
    Project Mentor: Hilary Bussell
    "Navigating Representative Bureaucracy: Benefits, Barriers, and Vulnerabilities of Ohio Advisory Diversity Commissions"

Poster 9: James Carpenter - Biomedical Science
    Project Mentor: Gina Sizemore
    "PDGFB Signaling as a Driver of Brain Metastasis in Solid Tumors"

Poster 10: Simon Lococo - Biomedical Engineering
    Project Mentor: Drew Nassal
    "Mechanism for Cardiomyopathy and Cardiac Arrhythmia Associated with a Novel Human Titin Variant"
Session 2
12:00 pm - 1:00 pm

**Poster 11: Alexa Furukawa - Medical Anthropology and Biology**
Project Mentor: Priya Dedhia
"GammaH2AX and Homologous Recombination Overexpression Correlate with DNA Repair Deficiencies in Adrenocortical Carcinoma"

**Poster 12: Aidan Johantges - Neuroscience**
Project Mentor: Jason Wester
"Superficial Pyramidal Cells Preferentially Target Oriens-Lacunosum Moleculare Interneurons in CA1 Hippocampus"

**Poster 13: Anvitha Gogineni - Neuroscience**
Project Mentor: Tasha Posid
"A Qualitative Review of Patient-Perceived Barriers to Seeking and Accessing Healthcare in a Local Underserved Patient Population"

**Poster 14: Jake Maziarz - Neuroscience**
Project Mentor: John Gunn
"The Role of Extracellular Matrix Components in Invasive Non-Typhoidal Salmonella Lineage Biofilm Formation"

**Poster 15: Jack Scott - Microbiology**
Project Mentor: Paula Agudelo Garcia
"Deficient Fatty Acid Oxidation Impairs Lamina B1 Dynamics"
Session 2
12:00 pm - 1:00 pm

**Poster 16: Leena Eltilib - Health Sciences**
Project Mentor: Brian Foster
"Enamel and Dentin Defects from Dentinogenesis Imperfecta in Secondary Dentition"

**Poster 17: Monica Pannett - Pharmaceutical Sciences**
Project Mentor: Jason Coronel
"Sexism and Romantic Relationships"

**Poster 18: Anitvir Taunque - Biomedical Science**
Project Mentor: Lluis Samaranch
"Anti-capsid Immune Response after AAV2-hAADC Repeated Brain Administration into Nonhuman Primate”

**Poster 19: Sara Abul-Khoudoud - Biomedical Science**
Project Mentor: Thalia Pacheco-Fernandez
"Targeting Factor H to Prevent L. mexicana Evasion of the Complement Immune System”

**Poster 20: Hasan Abaza and Adrienne Heyrosa - Medical Laboratory Sciences**
Project Mentor: Ann-Kathrin Eisfeld
"Differences in Transcription Factor Binding in Inflammation-Related Genes between Black and White Acute Myeloid Leukemia Patients"
Session 2
12:00 pm - 1:00 pm

**Poster 21: Katie Shuster - Biology**
Project Mentor: Antoinette Marsh
"Evaluating the Gastrointestinal Trichostrongyle Parasite Field Challenge in an Alpaca Barbervax® Vaccine Trial"

**Poster 22: Pranali Mistry - Neuroscience**
Project Mentor: Scott Harper
"Optimization of AAV Vector Design to Reduce Cross-Packaging”

**Poster 23: Lawrence Mazzoni - Biology**
Project Mentor: Darryl Wesener
"Designing an Ideal Media to Study Bacterial Polysaccharide Cross-Feeding in the Human Gut Microbiota”

**Poster 24: Ashu Patel - Health Sciences**
Project Mentor: Xin Feng
"Physiological Responses in Disappointment Task as Predictors of Pre-Schoolers' Social Withdrawal”

**Poster 25: Sanjana Ranade - Neuroscience and Spanish**
Project Mentor: Benedetta Leuner
"Microglial Alterations Following Adolescent Hormonal Contraceptive Administration”
SESSION 2
12:00PM-1:00PM

**Poster 26: Bryan Crase - Neuroscience**  
Project Mentor: Rolf Stottmann  
"BRWD3 as a Candidate Gene to Model Human Polymicrogyria in Mice"

**Poster 27: Giulia Tasso - Psychology and Human Development and Family Science**  
Project Mentor: Allen Mallory  
"Plurisexual Identities, Stigma, and Mental Health"

**Poster 28: Samuel Gill - Environmental Engineering**  
Project Mentor: Karen Dannemiller  
"Microbial Growth on Materials from the International Space Station (ISS)"

**Poster 29: Zaida Jenkins - Public Administration**  
Project Mentor: Josh Hawley  
"Ohio's Youth Comprehensive Case Management and Employment Program Lifetime Enrollment and Performance Metric Analysis"

**Poster 30: Neil Thakkar - Biomedical Engineering**  
Project Mentor: Gallego Perez  
“Nanoengineering Myeloid Cells for the in-situ Deployment of EVs to Enhance Cerebrovascular Function in Alzheimer’s Disease”
Poster 1: Skylar Lynch - Biomedical Engineering  
Project Mentor: Jessica Winter  
"Investigating Effects of Astrocytes on Breast Cancer Tumor Spheres Growth and Migration Using 3D In-Vitro Hydrogel Models"

Poster 2: Andrew Gotschall - Biomedical Science  
Project Mentor: Daniel Gallego-Perez  
"Non-viral Co-transfection of Plasticity-inducing and β Cell Patterning Transcription Factors Mediates Pro- β Cell Reprogramming in Fibroblast Cultures"

Poster 3: Unni Shreram - Mathematics and Spanish  
Project Mentor: Tasha Posid  
"Viewpoints of Patients Regarding Their Reasons for Undergoing a Vasectomy: Impact of the Dobbs vs. Jackson Women’s Health Organization Decision"

Poster 4: Christina Isckarus - Biochemistry  
Project Mentor: Namal Liyanage  
"A Novel Adjuvant to Enhance NK Cell Response in HIV Preventive Vaccines"

Poster 5: Alicea Gosal - Neuroscience  
Project Mentor: Ahmed Yousef  
"Enhancing Production of Nisin with Sequential Drug Resistance Screening"
Session 3
1:30 pm - 2:30 pm

**Poster 6: Matthew Lincicome - Forestry, Fisheries, and Wildlife**
*Project Mentor: Mazeika Sullivan*
"Predator-Prey Interactions of Largemouth Bass in Response to Artificial Lighting at Night and Turbidity"

**Poster 7: Katelyn Fulcher - Sustainable Plant Systems**
*Project Mentor: Kristin Mercer*
"Seed and Seedling Characteristics of Chile Pepper (Capsicum annuum L.) Across a Domestication Gradient"

**Poster 8: Colleen Booth - Molecular Genetics**
*Project Mentor: Ginny Bumgardner*
"Investigating the Memory Capacity of CXCR5+ CD8+ T Cells"

**Poster 9: Maxine Xu and Samantha Caffin**
*Data Analytics and Linguistics | Health Science*
*Project Mentor: Nikole Patson*
"The Lingering of Mentioned and Unmentioned Alternatives"

**Poster 10: Kailee Kretzinger - Environmental Science**
*Project Mentor: Ieva Roznere*
"Assessing Trends in Water Quality at the Freshwater Mussel Conservation and Research Center"
Session 3
1:30 pm - 2:30 pm

**Poster 11: Laurel Fleszar - Molecular Genetics**
Project Mentor: Anna Dobritsa
"Investigating the Effect of Truncated ELMOD Proteins on Pollen Aperture Formation"

**Poster 12: Radhika Abeywickrama - Molecular Genetics**
Project Mentor: Anna Dobritsa
"Uncovering Genes involved in Exine and Aperture Formation in Arabidopsis thaliana Pollen Grain"

**Poster 13: Mingxuan Wu - Engineering Physics**
Project Mentor: Leonard Brillson
"Defect Formation and Diffusion in Nitrogen-Annealed Gallium Oxide"

**Poster 14: Rachel Obler - Environmental Science**
Project Mentor: Ieva Roznere
"Assessing the Quantity and Quality of RNA Extracted from Freshwater Mussels"

**Poster 15: Mia Schmittenberg - Psychology**
Project Mentor: Daniel Strunk
"Stick with It or Change Strategy? An Examination of Therapist Options When Working with Low Engaging Patients"
Session 3
1:30 pm - 2:30 pm

**Poster 16: Megan Bartoszek - Psychology and Molecular Genetics**
Project Mentor: Anthony King
"Investigating Interleukin-6 Levels in Relation to Post-traumatic Stress Disorder Symptom Severity and Therapeutic Response"

**Poster 17: Laksh Dhir - Neuroscience**
Project Mentor: Sudarshan Jadcherla
"A Comparative Analysis of Nutritive and Non-Nutritive Suck in Human Neonates"

**Poster 18: Audrey Odier - Pharmaceutical Sciences**
Project Mentor: Lalit Sehgal
"Understanding the Contribution of Bone Marrow-Derived Stromal Cells to Drive Proliferation in Mantle Cell Lymphoma"

**Poster 19: Brianna Michel - Biochemistry**
Project Mentor: Maryanna Klatt
"Enhancing Quality of Patient Experience via an Innovative Reduction of Pre-Operative Anxiety"

**Poster 20: Katie Vatke - Environmental Engineering**
Project Mentor: Patrick Sours
"Optimization of Sand Filtration for Passive Water Treatment"
Session 3
1:30 pm - 2:30 pm

Poster 21: Dena Mossad - Health Science
Project Mentor: Jerry C.W. Lio
"Targeted Reactivation of Endogenous Retrovirus to Elicit Anti-Tumor Response"

Poster 22: Owen Meadows - Biomedical Science
Project Mentor: Amanda Toland
"Investigating PIK3CA and MAP3K Pathways in Breast Cancer"

Poster 23: Madeline Riley - Biomedical Science
Project Mentor: Lorena Rosas
"Inhibition of TGF-β/Smad Signaling Attenuates Extracellular Matrix Accumulation in a Human ex-vivo Model of Pulmonary Fibrosis"

Poster 24: Xander Carroll - Computer Science and Engineering and Astronomy and Astrophysics
Project Mentor: Darren Drewry
“Utilizing the Process Network Statistical Model to Better Understand Terrestrial Systems”

Poster 25: Rheanna Velasquez - Neuroscience
Project Mentor: Melissa Palma
“Filipino Young Leaders Program (FYLPRO) tayohelp.com: Evaluating Heart Health Education Materials and Recommendations for Community Outreach”
Session 4
3:00 pm - 4:00 pm

**Poster 1: Ally Lewis - Food, Agricultural, and Biological Engineering**
Project Mentor: Gonul Kaletunc
"Effect of Particle Size on the Mechanical and Physical Properties of Ultrasonically Compressed Nutrition Bars"

**Poster 2: Abigail Kraynak - Biology**
Project Mentor: Billur Akkaya
"Identification, Enrichment, and Expansion of Antigen-Specific Regulatory T Cells"

**Poster 3: Jaden Zelidon - Neuroscience**
Project Mentor: Bin Gu
"Automated Detection and Classification of Flurothyl-Induced Seizure in Collaborative Cross (CC) Mice Using DeepLabCut (DLC) and B-SOiD"

**Poster 4: Alora Brown - Animal Sciences**
Project Mentor: Sara Mastellar
"Effects of Meal Frequency on Heart Rate in Horses"

**Poster 5: Dalia Einstein - Psychology and Neuroscience**
Project Mentor: Jasmeet Hayes
"Investigating a Novel Measurement for PTSD White Matter Damage"
Session 4
3:00 pm - 4:00 pm

Poster 6: Mateo Zevallos - Biomedical Science
Project Mentor: Aaron Goldman
"Translation Initiation Factor Homologs’ Role During Cardiac Regeneration in Zebrafish"

Poster 7: Maxine Berger - Neuroscience
Project Mentor: Lalit Sehgal
"Examining the Role of Venetoclax in the Bone Marrow Microenvironment"

Poster 8: Anna Le - Biomedical Engineering
Project Mentor: Sara McBridge-Gagyí
"Lead-Based Nanoparticle Contrast Agent for Vascular MicroCT Imaging"

Poster 9: Zahra Khuhro - Neuroscience
Project Mentor: Tasha Posid
"Improving Resident Autonomy via Scaffolding and Self-Determination Theory: Results from a Qualitative Research Study"

Poster 10: Zaida Jenkins - Public Administration
Project Mentor: Josh Hawley
"Ohio's Youth Comprehensive Case Management and Employment Program Lifetime Enrollment and Performance Metric Analysis"
Session 4
3:00 pm - 4:00 pm

**Poster 11: Debbie Hodson - Mechanical Engineering**
Project Mentor: Ajay Shah
"Applications and Energy Sources of Pico-Grid Systems for Agricultural Mechanization for Smallholder Farmers"

**Poster 12: Geoffrey Xue and Jordan Neal**
Psychology | Chemistry
Project Mentor: Kamalakannan Palanichamy
"Metabolic and Methylation Profiling of Isogenic IDH1(R132H) and MTAP to Understand Methylome Remodeling for Therapeutic Intervention in Gliomas"

**Poster 13: Rebecca Morton - Microbiology**
Project Mentor: Kristine Yoder
"Investigations of Prototype Foamy Virus Integration"

**Poster 14: Emma Spirollari - Biology**
Project Mentor: Mark Rubinstein
"The Effect of Chemotherapy on Immune Cells"

**Poster 15: Abigail Fisk - Chemistry**
Project Mentors: Christopher Callam and Christopher Hadad
"Synthesis of Phenol-Based Quinone Methide Precursors as Potential Resurrectors and Reactivators of Aged and Inhibited Acetylcholinesterase"
Session 4
3:00 pm - 4:00 pm

**Poster 16: Sravani Konakalla - Health Sciences**
Project Mentor: Natalia Vanegas
"Epithelial- IPF Fibroblast Crosstalk and its Effects on Gene Expression of Airway Epithelial Differentiation Markers In 3D Organoids"

**Poster 17: Joshua Jeyandran and Hasan Abaza**
Medical Anthropology | Medical Laboratory Science
Project Mentor: Lilly Hetson
"Enhancing Referral Success for Underserved Hispanic Patients through Follow-Up Calls"

**Poster 18: Robert Smallwood - Biomedical Engineering**
Project Mentor: Sara McBride-Gagy
"Effects of Estradiol (17-alpha) on Osteoarthritis in Genetically Heterogeneous Het3 Male Mice"

**Poster 19: Elizabeth Yirava - Statistics and Public Policy Analysis**
Project Mentor: Joshua Hawley
"OHFA and OERC Data Analysis and Visualizations"

**Poster 20: James DeMarsh - Neuroscience**
Project Mentor: Ruth Barrientos
"Regional Disparities in High-Fat Diet Effects on Neuroinflammation and Amyloid Beta Pathology in 3xTg-AD Mice"
Session 4
3:00 pm - 4:00 pm

Poster 21: Holden DeVassie - Health Sciences
   Project Mentor: Brittany Hand
   "Development of PREPARE for Autistic Adults: An Adult Autism
   Training for Resident Physicians Designed with Autistic Adults and
   Family Members"

Poster 22: Cordelia Van der Veer - Public Policy Analysis and
   Political Science
   Project Mentor: Joshua Hawley
   "Machine Learning and Data Analysis to Improve Public Sector
   Vocational Program Placement"

Poster 23: Payton Compton - Health Sciences
   Project Mentor: Jessica Brown
   "DNA Barcoding of Cryptococcus neoformans to Understand
   Pathogen Dissemination"

Poster 24: Ethan Harpster - Computer Science and Engineering
   Project Mentor: Raghu Machiraju
   "Using Machine Learning for the Automation of Wet Lab
   Procedures to Increase Reproducibility"

Poster 25: Sylvia Ghotra - Microbiology
   Project Mentor: Natalia Vanegas
   “Identification of Secreted Proteins by IPF Senescent Human Lung
   Fibroblasts”