



2022 Spring Undergraduate Research Festival

Thursday, April 7, 2022

Pomerene Hall

TDAI Ideation Zone

ugresearch.osu.edu



Message from the Office of Undergraduate Research & Creative Inquiry

Dear Students and Colleagues,

It is our great pleasure to welcome you to the Spring Undergraduate Research Festival. Over 100 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





EVENT PROGRAM

SESSION 1

9:30-11:30AM

Poster Presentations

9:30-10:30AM

Oral Presentations

10:30-11:30AM

SESSION 2

12:00-2:00PM

Poster Presentations

12:00-1:00PM

Oral Presentations

1:00-2:00PM

SESSION 3

3:00-5:00PM

Poster Presentations

3:00-4:00PM

Oral Presentations

4:00-5:00PM





SESSION 1

POSTER PRESENTATIONS

Hosanna An - Psychology

Project Mentor: Dr. Kentaro Fujita

"Do Our Emotions Motivate Our Task Preferences?: An Exploration of Meta-motivational Knowledge of Emotions"

Benjamin Hu - Biomedical Science

Project Mentor: Dr. Mark Ziolo

"The Effects of Exercise-Induced Lipokines on Cardiomyocyte Function"

Alexis Brengartner - Biomedical Science

Project Mentor: Dr. James Cray

"In Utero Electronic Nicotine Device System Exposure Result in Altered Craniofacial Development"

Dominic Franceschelli - Neuroscience

Project Mentor: Dr. Kathryn Lenz

"Perineuronal Net Remodeling in the Prefrontal Cortex in a Rodent Model of Postpartum Depression"

Maddie Allman - Community & Extension Education

Project Mentor: Dr. Kenneth Martin and Dr. Joe Campbell

"Utilizing the Community Capitals Framework and Community Network Mapping to Analyze the Impacts of COVID-19 and the Federal Stimulus Packages on Poverty in Vinton County, Ohio"

Carolyn Zhang - Nursing

Project Mentor: Dr. Jodi McDaniel

"Effects of Marine Omega-3 Fatty Acids on Biomarkers of Neuroinflammation Linked to Alzheimer's Disease in Older Adults"



SESSION 1

POSTER PRESENTATIONS

Avery Brewer - Sustainable Plant Systems - Plant Biosciences and Philosophy

Project Mentor: Dr. Jess Cooperstone

"A Quantitative Exploration of Wounding-Induced Changes to Tomato Steroidal Glycoalkaloid Profiles in Diverse Tomato Fruits"

Rachel Toelke and Tyler Cronin - Health Sciences and Biology

Project Mentor: Dr. Tasha Posid

"Identifying Barriers to First-Generation College Students' Successful Navigation of the Pre-Medical Track"

Jocelyn Hsu - Biochemistry

Project Mentor: Dr. James Chen

"Increased Phosphorylation of RB and Protein Expression of Cyclin E Confers Resistance to CDK4/6-Inhibitors in the CDK4-Amplified Cancer, Dedifferentiated Liposarcoma"

Tanish Gandhi - Biomedical Science

Project Mentor: Dr. Amanda Toland

"Determining the role of genetic variants linked to PIK3CA and metabolic regulators in breast cancer"

Elizabeth Whetstone - Molecular Genetics

Project Mentor: Dr. Murugesan Rajaram

"Fatty Acid Synthase: A Key Regulator of Viral Replication in Cardiac Cells"

Leslie Simon - Health Sciences

Project Mentor: Dr. Leah Pyter

"Murine mammary tumors inhibit brain microglia immunostaining when challenged with peripheral lipopolysaccharide "



SESSION 1

POSTER PRESENTATIONS

Thanvi Gullapalli - Neuroscience

Project Mentor: Dr. Lluís Samaranch

"AAV2-hAADC Viral Vector Uncoating Dynamics: Correlation Between Capsid Clearance and Transgene Expression"

Adenola Atekoja - Psychology

Project Mentor: Dr. Duane Wegener

"Reducing bias and prejudice towards immigrants using imagined contact"

Kaitlyn Held - Health Sciences

Project Mentor: Dr. Kristen Welker

"Social Comparison by Motivation Type in Fitspiration Viewing Students: A Pilot Study"

Jillian Horan - Sustainable Plant Systems (Agroecology)

Project Mentor: Dr. Zoë Plakias

"Analyzing the Impact of COVID-19 on Farm Participation in Oregon's Farm to School Program"

James Anderson - Neuroscience

Project Mentor: Dr. Tracy Bedrosian

"The Neurodevelopmental Role of Slc35a2 in Congenital Disorders of Glycosylation"

Logan Bradshaw - English and Psychology

Project Mentor: Dr. Brittany Shoots-Reinhard

"Neuroticism and Emotional Reactions to COVID-19"

Ryan McIlvaine - Biomedical Engineering

Project Mentor: Dr. David Dean

"Mesenchymal Stem Cell Time to Confluence on 3D Printed, Porous, Poly(propylene fumarate) Scaffolds for Bone Tissue Engineering"



SESSION 1

POSTER PRESENTATIONS

Chloe Casterline - Nursing

Project Mentor: Dr. Esther Chipps

"An Exploration of Frontline Nurses' Experience Taking Care of Incarcerated Patients during the Covid-19 Pandemic"

Sophia Gutierrez - Psychology

Project Mentor: Kate Valerio

"Cortical thinning in fusiform gyrus as an early neural marker of Alzheimer's Disease"

Reagan Speas - Neuroscience and Biochemistry

Project Mentor: Dr. Cole Vonder Haar

"Caloric Restriction Differentially Affects Impulsivity, Risky Decision-Making, and Motivation following Traumatic Brain Injury"

Arianna Carfora - Neuroscience

Project Mentor: Dr. Shahid Nimjee

"Effect on Platelet Function of Von Willebrand Factor Inhibition by DTRI-031 and Targeted Reversal by DTRI-025 in Canine Circulation"

Sara Zelinskas - Health Sciences

Project Mentor: Dr. William Carson

"A Phase II Open-label Study of Subcutaneous CpG ODN (PF03512676) in Combination with Trastuzumab in Patients with Metastatic HER2+ Breast Cancer"

Simran Bhola - Psychology

Project Mentor: Dr. Ashleigh Pona

"Psychological Correlates of Lifetime Eating Disorder Behaviors in a Bariatric Surgery Sample"



SESSION 1

POSTER PRESENTATIONS

Madison Pinkerton - Animal Sciences

Project Mentor: Dr. Jessica Pempek

"Effects of Different Genres of Music on Dairy Cows During Milking"

Jake Lord - Psychology and Public Policy Analysis

Project Mentor: Dr. Richard Petty

"Threat-related individual differences moderate compensatory attitude-behavior consistency through extreme behavior"

Holly Eberly - Neuroscience

Project Mentor: Dr. Cole Vonder Haar

"Depletion of Gut Microbiota Before Traumatic Brain Injury Transiently Improves Optimal Decision-Making in Rats"

Prathik Chakravarthy - Biomedical Science

Project Mentor: Dr. Steven Sizemore

"Investigation of RALA and RALB function in Triple Negative Breast Cancer through GEMMs"

Cassidy Ficker - Animal Sciences

Project Mentor: Dr. Alvaro Garcia Guerra

"Characteristics of Small Antral Follicles in Heifers Carrying the Bovine High Fecundity Allele Trio"

Katie Campanelli - Nursing

Project Mentor: Dr. Timiya Nolan

"The Effects of Patient Activation in Adult African American Males with Chronic Disease"

Alana Reske - Neuroscience

Project Mentor: Dr. Hiethem El-Hodiri

"Microglia Regulation of HB-EGF Signaling in Muller Glia"



SESSION 1

ORAL PRESENTATIONS

Each student will have a 7 minute presentation followed by 3 minutes of questions from the audience

10:30-10:40AM

Nicolas Beckman - Neuroscience

Project Mentor: Jonathan Packer

"Chronic Inflammation and Cognitive Deterioration after Diffuse Brain Injury are Dependent on Activation of the Stimulator of Interferon Genes (STING) and Increased Type I Interferon Signaling"

10:40-10:50AM

Jad Hussein - Biomedical Engineering

Project Mentor: Dr. Natalia Higuera-Castro

"Uptake Dynamics of EV-mediated Gene Delivery for Direct Lineage Reprogramming of Endothelial Cells"



SESSION 2

POSTER PRESENTATIONS

Rang Zhang - Nursing

Project Mentor: Dr. Heather Tubbs-Cooley

"A Narrative Review of Contributors to and Outcomes of Nurse and Physician Subjective Workload"

Ryan Davis - Nursing

Project Mentor: Dr. Laureen Smith

"Exploring Social Support to Reduce Dietary Sugar Consumption Among Rural Appalachian Youth"

Carson Cooper - Engineering Physics

Project Mentor: Dr. Manoj Srinivasan

"Simulation and Optimization of Robotic In-Hand Manipulation"

Shayla Ta - Pharmaceutical Sciences

Project Mentor: Dr. Charles Bell

"Structural Analysis of Salmonella FraB Deglycase Protein Complexed with Potential Inhibitor Drugs"

Han Zheng- Statistics

Project Mentor: Dr. Amit Vutha

"Sentiment Analysis of OSU Students and Faculties on Social Media"

Katie McGeal - Biology

Project Mentor: Dr. John Hays

"Identifying Targetable Markers of Resistance to Dual TORC1/2 Inhibition in Endometrial Cancer Cell"

Yosup Rhee - Molecular Genetics

Project Mentor: Dr. Matthew Summers

"Effects of FBW7 in Conjunction with USP37 to Mitigate Replication Stress"



SESSION 2

POSTER PRESENTATIONS

Ryan Smith - Biomedical Science

Project Mentor: Dr. Christopher Callam

"Development of Amine Oxide Quinone Methide Precursors as Prospective Resurrecting Agents for Aged Acetylcholinesterase"

Hailey Main - Chemistry

Project Mentor: Dr. Christopher Callam

"Synthesis and Screening of Phenol Substituted Quinone Methide Precursors as Potential Resurrecting Agents for Aged Acetylcholinesterase"

Nava Ramazanali - Biochemistry

Project Mentor: Dr. Abraham Badu-Tawiah

"Solid-Phase Extraction and Contained-Electrospray Ionization Mass Spectrometry for the Rapid, Online Extraction of Lipids for Complex Mixture Analysis"

Heema Vyas - Biomedical Science

Project Mentor: Dr. James Cray

"Effects of in Utero and Post-Natal Nicotine Exposure on Murine Palate Development"

Emily Benton - Animal Sciences

Project Mentor: Dr. Michael Cressman

"Evaluation of a Soy-Biochar Granular Litter Amendment for Broiler Production"

Anna Lanier - Neuroscience

Project Mentor: Dr. Tracy Bedrosian

"Somatic Mutations in SLC35A2 Impact Neurodevelopment and Migration of Neurons in the Cerebral Cortex"

Ruike Li - Psychology and Economics

Project Mentor: Dr. Sarah Schoppe-Sullivan

"Does Infant Temperament Affect Couple Commitment Across the Transition to Parenthood?"



SESSION 2

POSTER PRESENTATIONS

Jimin Kim - Psychology

Project Mentor: Dr. Sarah Schoppe-Sullivan

"Moderator Effects of Father's Traditional Masculinity and Mother's Parental Belief on Associations Between Father's Psychological Distress and Maternal Gatekeeping"

Matthew Titterton - Mechanical Engineering

Project Mentor: Dr. Haijun Su

"Utilization of Layer Jamming and Pneumatic Actuator for Assisted Limb Support"

Anna Nordmann - Chemistry

Project Mentor: Dr. Abraham Badu-Tawiah

"Enhanced Mass Spectrometry Analysis of Fatty Acids with Online C=C Bond Localization Enabled by Plasma-Droplet Fusing Reactions in Contained-Electrospray"

Zahra Khuhro - Neuroscience

Project Mentor: Dr. Tasha Posid

"Exploring Patient-Perceived Barriers and Stigmas to Seeking Healthcare for Urology vs. Non-Urology Patients"

Noah McKee - Engineering Physics

Project Mentor: Dr. Haijun Su

"Design Optimization of Variable Stiffness Soft Gripper Using Machine Learning"

Rahul Manne - Neuroscience

Project Mentor: Dr. Chen Gu

"Alterations in Parvalbumin + (PV+) Interneurons and Their Effect on Adolescent Binge Drinking in a Mouse Model"

Jose Segura-Bermudez - Biomedical Science

Project Mentor: Dr. Aaron Goldman

"Myocardial REN-Directed Gene Expression is Separable From Other Cell Types"



SESSION 2

POSTER PRESENTATIONS

Hannah Lev - Public Health

Project Mentor: Dr. James Odei

"Comparative Biostatistical Analysis of Regional Drug Overdose Death Rates During National Drug Control Strategy Implementation"

Elizabeth Due - Animal Sciences

Project Mentor: Dr. Sheila Jacobi

"*Pediococcus Acidilactici* Inhibits Enterotoxigenic *Escherichia Coli* (F4+) K88 Adhesion to Porcine IPEC-J2 Intestinal Cells, but do Not Protect Paracellular Epithelial Permeability"

Rushil Madan - Public Health, Sociology Specialization

Project Mentor: Dr. Vanessa Hale

"Longitudinal Analyses of Healthy, Free-Catch Canine Urine by Culture Media"

Nikola Ricchiuti - Biochemistry and Mathematics

Project Mentor: Dr. Xun Ai

"Inhibition of JNK2 as a Novel Approach to Inhibiting Atrial Fibrillation"

Diana Appiagyei - Microbiology

Project Mentor: Dr. Swati Misri

"The role of Cannabidiol in inhibiting tumorigenesis in cisplatin resistant Non-Small Cell Lung Cancer"

Kallie Allen - Animal Sciences

Project Mentor: Dr. Sara Mastellar

"Accelerometer Use for Activity Monitoring in Horses by Determining Step Counts at Different Gaits"

Jennifer Shafer - Nursing

Project Mentor: Dr. Lisa Militello

"Stress Management Technologies in Low-Income Families with Preschoolers: A Mixed-Methods Study"



SESSION 2

ORAL PRESENTATIONS

Each student will have a 7 minute presentation followed by 3 minutes of questions from the audience

1:00-1:10PM

Nate Super - English and Biochemistry

Project Mentor: Dr. Jian Chen

"Christine Jorgensen and Sexological Models of the Bodymind"

1:10-1:20PM

McKenzie Bertsch - Earth Sciences

Project Mentor: Dr. Elizabeth Griffith

"Marine Barite Content During Recovery from the Paleocene- Eocene Thermal Maximum (PETM)"

1:20-1:30PM

Kara Flaherty - Animal Sciences

Project Mentor: Dr. Alejandro Relling

"Evaluating the Effect of Hay, Fed Ad-Libitum or Controlled, or Soybean Hulls During Gestation on Body Weight and Dry Matter Intake of the Ewe and Body Weight on the Offspring Until Weaning"

1:30-1:40PM

Cameron Jordan - Food Science & Technology

Project Mentor: Dr. Luis Rodriguez-Saona

"Use of Handheld FT-NIR Sensors to Apply Rapidly Quantify Cannabinoids of Hemp in Situ"



SESSION 3

POSTER PRESENTATIONS

Matthew Giammar - Biochemistry

Project Mentor: Dr. Philip Grandinetti

"Developing open-source NMR Simulation and Analysis Software"

Sara Quinlin - Chemical Engineering

Project Mentor: Dr. Jeffrey Firkins

"Investigating the Uncertainty in EPA Nonroad CI Emission Factors"

Sophia Kienzle - Animal Science

Project Mentor: Dr. Jeffrey Firkins

"Effects of Dietary Conditions on Branched-Chain Fatty Acid and Aldehyde Synthesis in Dual Flow Cultures"

Brian Lesko - Mechanical Engineering

Project Mentor: Dr. Levent Guvenc

"Spherical Video for Object Detection and Autonomous Driving"

Katherine Clark - Molecular Genetics

Project Mentor: Dr. Anita Hopper

"tRNA Family-Specific Turnover Pathways Regulate tRNA Intron Degradation"

Aarushi Kini - Neuroscience

Project Mentor: Dr. Shahid Nimjee

"VWF Inhibition by an RNA Aptamer (DTRI-031) in Combination with rTPA Increases Thrombolytic Efficacy Compared to rTPA or Aspirin in Mouse, Canine, and Human Blood"

Keshav Jindal - Health Sciences

Project Mentor: Dr. Laurence Coutellier

"Determining the Impact that Npas4 Expression has on the Maturation of Social Behaviors during Adolescence"



SESSION 3

POSTER PRESENTATIONS

Amanee Abu Arish - Biology

Project Mentor: Dr. David Dean

"Chaotic Printing of Hydrogel Carriers for Mesenchymal Stem Cell Expansion"

Pooja Kamath - Neuroscience

Project Mentor: Dr. Stephen Kolb

"Motor Neuron Characterization of *srp54* ^{-/-} zebrafish: Potential Link to Spinal Muscular Atrophy"

Tiffany Nguyen - Health Sciences

Project Mentor: Dr. Tasha Posid

"Patient-Perceived Barriers to Seeking and Accessing Healthcare: Identifying Predictors of Cultural, Financial, and Health Literacy Barriers"

Asvena Siva - Biology

Project Mentor: Dr. Michelle Failla

"Investigation of the Relationships Between Socioeconomic Status and Pain Perceptions in Older Adults"

Pete Jordanides - Biomedical Science

Project Mentor: Dr. Steve Oghumu

"PI3Ky Inhibitor Potentiates Anti-PD-L1 Immunotherapy against Head and Neck Squamous Cell Carcinoma"

Diego Torres Acosta - Biomedical Science

Project Mentor: Dr. Andy Fischer

"PRC2 Disruption via EZH2 Inhibition Reduces Müller Glia Reprogramming Potential"

Steven Zhou - Biology

Project Mentor: Dr. Zhengrong Wu

"Investigation of gamma-Crystallins Proteins"



SESSION 3

POSTER PRESENTATIONS

Lauren Grothaus - Psychology

Project Mentor: Dr. Virginia Tompkins

"Parents' Stress and Children's Screen Time During the COVID-19 Pandemic"

Thania Ortiz Santiago - Food Science & Technology

Project Mentor: Dr. Monica Giusti

"Efficient Production of Novel Colorants for the Food Industry Using 4-Vinylguaiacol and Black Carrot-Derived Anthocyanins"

Anna Springer - Biology

Project Mentor: Dr. Steve Oghumu

"Use of Bruton's Tyrosine Kinase Inhibitor in Head and Neck Squamous Cell Carcinoma Improves Survival Outcomes in Preliminary Murine Applications"

Matthew Lastovka - Physics, Astronomy & Astrophysics

Project Mentor: Dr. Scott Gaudi

"The Detectability of Exomoons using Microlensing"

Adam Haag - Psychology

Project Mentor: Dr. Jamie Jackson

"Sports Involvement, Self-Efficacy, and Emotional Distress in Adolescent Survivors of Congenital Heart Disease"

Hemali Amin - Health Sciences

Project Mentor: Dr. Xin Feng

"Analyzing the Relationship between Maternal Depression and Mother/Child Physiological Regulation through Heart Rate Variability"

Alora Brown - Animal Science

Project Mentor: Dr. Sara Mastellar

"Considerations for Color Coding Treatments in Equine Nutrition Studies"



SESSION 3

POSTER PRESENTATIONS

Aymin Bahhur - Biomedical Engineering

Project Mentor: Dr. David Dean

"Melt Electrowriting Polycaprolactone Fibers Into Thin Membranes With Variable Porosity"

Prathyusha Chintalapudi - Biochemistry & Mathematics

Project Mentor: Dr. Timothy Cripe

"A Novel Approach to Oncolytic Herpes Virotherapy"

Emma Bolkovac - Biomedical Science

Project Mentor: Dr. Julianna Nemeth

"Factors Associated with the Procurement of Tobacco Among Youth Experiencing Homelessness"

Dylan Trainor - Mechanical Engineering

Project Mentor: Dr. Haijun Su

"Design of a Soft, Pneumatic, Robotic Hand End Effector with Variable Stiffness via Differential Layer Jamming"

Meredith Jones - Neuroscience

Project Mentor: Dr. Stephen Kolb

"Motor Unit Morphology Analysis in a Mouse Model of an Amyotrophic Lateral Sclerosis-Associated KIF5A Variant"

Pratham Ingale - Neuroscience

Project Mentor: Dr. Jill Rafael-Fortney

"Effects of Mineralocorticoid Receptor Signaling on Fibrotic Scar Composition in Muscular Dystrophy"

Christina Richter - Nursing

Project Mentor: Dr. Jie Hu

"Family Support and Diabetes Self-Management Behaviors in African Americans with Type 2 Diabetes"



SESSION 3

ORAL PRESENTATIONS

Each student will have a 7 minute presentation followed by 3 minutes of questions from the audience

4:00-4:10PM

Tithi Shah - Biology

Project Mentor: Dr. Fu Jidong

"Characterizing the RNA Interference function of MicroRNA Mutants"

4:10-4:20PM

Daniel Adamson - History

Project Mentor: Dr. Joseph Parrott

"Socialism in Ohio, 1917-1919"

4:20-4:30PM

Rashid Mattar - Mechanical Engineering

Project Mentor: Dr. Karen Dannemiller

"Designing a Tunable Assistance Walker-like Exoskeleton"

4:30-4:40PM

Katelyn Stuart - Public Health

Project Mentor: Dr. Karen Dannemiller

"Isolation, Identification, and Characterization of Unique Fungal Species from Dust in the Indoor Environment"

4:40-4:50PM

Elise Spintzyk - Psychology

Project Mentor: Dr. Charles Emery

"Influence of Self-Efficacy on Health Behaviors among Overweight and Obese Women during the COVID-19 Pandemic"



Contact Us

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