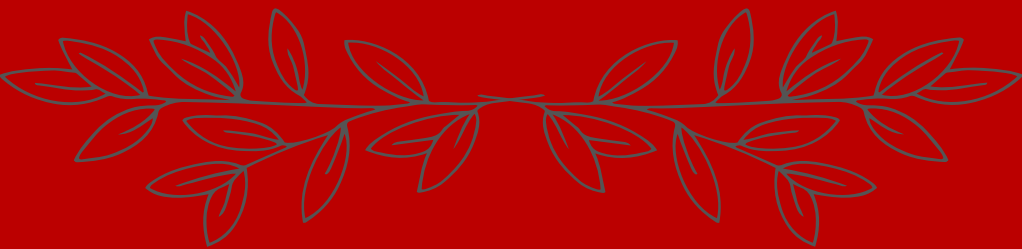


UNDERGRADUATE RESEARCH &
CREATIVE INQUIRY PRESENTS:

**VIRTUAL
AUTUMN
UNDERGRADUATE
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FESTIVAL**



November 15-19, 2021 |

<https://u.osu.edu/2021autumnfestival/>

COLLEGES AND SCHOOLS

College of Arts and Sciences

-Arts and Humanities

-Natural and Mathematical Sciences

-Social and Behavioral Sciences

College of Education and Human Ecology

College of Engineering

College of Food, Agriculture, and Environmental Sciences

College of Medicine & School of Health and

Rehabilitation Sciences

College of Public Health

COLLEGE OF ARTS AND SCIENCES - ARTS AND HUMANITIES

Katherine Kinnaird - Linguistics

Project Mentor: Don Winford, Logistics

Project Title: "Speech and stigma: perception of terms referring
to sex industry participants"

Sabrina Sowa - Spanish & Speech and Hearing Sciences

Project Mentor: John Grinstead - Spanish and Portuguese

Project Title: "Some Existential Interpretations: The Role of
Pitch and Duration in the English Quantity Implicature"

Exer Thurston - Art

Project Mentor: Kay Clopton - Billy Ireland Cartoon Library
and Museum

Project Title: "Onomatopoeia in Translation: A Case Study of
Sound Visualization in AKIRA"

COLLEGE OF ARTS AND SCIENCES - NATURAL AND MATHEMATICAL SCIENCES

Madeline Ball - Biology

Project Mentor: Jonathan Caledo - Evolution, Ecology, and
Organismal Biology

Project Title: "Bite force estimates in geomyoid rodents:
ecological and evolutionary implications"

Taylor Cash - Biology

Project Mentor: Polina Shindiapina - Internal Medicine
Project Title: "Inhibition of PRMT5 leads to MAPK/ERK-driven
upregulation of EBV lytic protein BZLF1 and latent membrane
protein LMP1 in EBV-immortalized lymphoblastoid cells"

Sean Fenoff - Physics

Project Mentor: Vadim Federov, Physiology and Cell Biology
Project Title: "Clinical multi-electrode mapping incorrectly
visualizes conduction during atrial fibrillation due to 3-
dimensional activation asynchrony between atrial layers"

COLLEGE OF ARTS AND SCIENCES - NATURAL AND MATHEMATICAL SCIENCES

Sean Fitzgerald - Zoology

Project Mentor: Frances Sivakoff - Evolution, Ecology, and
Organismal Biology

Project Title: "Reclamation history affects pollinator preference
in surface mined land"

Jocelyn Hsu - Biochemistry

Project Mentor: James Chen - Internal Medicine

Project Title: "Developing and Characterizing Models of
Resistance to Cyclin-Dependent-Kinase (CDK4) Inhibition in the
CDK4 Amplified Cancer, Dedifferentiated Liposarcoma"

Jonathan Leopold - Microbiology

Project Mentor: Matthew Sullivan - Microbiology

Project Title: "Impact of Phosphate Limitation on *Pseudomonas*
aeruginosa Phage Infection"

COLLEGE OF ARTS AND SCIENCES - NATURAL AND MATHEMATICAL SCIENCES

Hailey Main - Chemistry

Project Mentor: Christopher Hadad, Chemistry and
Biochemistry

Project Title: "Synthesis and screening of phenol substituted
quinone methide precursors as potential resurrecting agents for
aged acetylcholinesterase."

Jake Mlakar - Biochemistry

Project Mentor: Zachary Schultz - Chemistry and
Biochemistry

Project Title: " Surface-Enhanced Raman Spectroscopy Detection
of Glucose for Protein Glycosylation Monitoring"

Lily Noftz - Biology

Project Mentor: Jonathan Caledo - Evolution, Ecology, and
Organismal Biology

Project Title: "Multivariate analyses of cranial morphology
inform the taxonomy and evolution of geomyoid rodents."

COLLEGE OF ARTS AND SCIENCES - NATURAL AND MATHEMATICAL SCIENCES

Riley Ogrean - Molecular Genetics

Project Mentor: Susan Cole - Molecular Genetics

Project Title: "Identification and functional analysis of novel regulatory elements in the Hes7 3'UTR that regulate skeletal development"

Michelle Ouviaña – Biology

Project Mentor: Jonathan Packer - Neuroscience

Project Title: "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"

Mirisha Sheth - Biology

Project Mentor: Mathew Cherian - Comprehensive Cancer Center

Project Title: "DPN's role as a therapeutic agent in metastatic breast cancer"

COLLEGE OF ARTS AND SCIENCES - NATURAL AND MATHEMATICAL SCIENCES

Matt Shmukler - Physics & Math

Project Mentor: Chris Hammel - Physics

Project Title: "Magnetization Dynamics in Bilayers of
Ferromagnetic Thin Films"

Sanjana Vivekanandan – Biology

Project Mentor: John Gunn - Microbial Pathogenesis

Project Title: "Characterization of structure-function
relationship of a host-targeted anti-Salmonella agent"

Jerome Walsh - Biology

Project Mentor: Laura Kubatko - Statistics

Project Title: "An analysis on SARS-CoV2 in Wildlife"

COLLEGE OF ARTS AND SCIENCES - SOCIAL AND BEHAVIORAL SCIENCES

Habib Akouri - Neuroscience

Project Mentor: Kathryn Lenz - Psychology

Project Title: "Effects of Maternal Allergic Inflammation in Rats on Offspring Oxytocin and Vasopressin Innervation of the Lateral Septum and Paraventricular Nucleus"

Arianna Carfora - Neuroscience

Project Mentor: Shahid Nimjee - Neurological Surgery

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

Nick Hall - Neuroscience

Project Mentor: Stephen Kolb - Neurology

Project Title: "Kif5a Expression Levels in a Mouse Model of an ALS-Associated Kif5a Variant"

COLLEGE OF ARTS AND SCIENCES - SOCIAL AND BEHAVIORAL SCIENCES

Meredith Jones - Neuroscience

Project Mentor: Stephen Kolb - Neurology

Project Title: "Motor neuron morphology analysis in mouse model of amyotrophic lateral sclerosis-associated KIF5A variant"

Laurienna Kurucz - Neuroscience & French

Project Mentor: Stephanie Gorka - Psychiatry and Behavioral Health

Project Title: "The Impact of Early Life Adversity on Neural and Self-reported Indices of Emotion Regulation"

Hannah Lichtenstein - Neuroscience

Project Mentor: Kathryn Lenz - Psychology

Project Title: "Early Life Stress and Microglia Phagocytosis in Male and Female Rats"

COLLEGE OF ARTS AND SCIENCES - SOCIAL AND BEHAVIORAL SCIENCES

Emmanuel Scaria - Neuroscience

Project Mentor: Ruth Barrientos - Psychiatry and Behavioral
Health

Project Title: "Post-operative morphine decreases hippocampal
synaptic proteins of aged animals during memory
consolidation."

Brooke Schatz - Neuroscience

Project Mentor: Kathryn Lenz - Psychology

Project Title: "Cognitive and Inflammatory Effects of juvenile
TBI in a Rodent Model"

Sophia Yu - Psychology & Criminology and Criminal Justice Studies

Project Mentor: Stephen Petrill - Psychology

Project Title: "Bilingualism, working memory, and math
performance"

COLLEGE OF ARTS AND SCIENCES - SOCIAL AND BEHAVIORAL SCIENCES

Tatum Zeleznik - Psychology

Project Mentor: Jennifer Crocker - Psychology

Project Title: "Non-Zero Sum Beliefs and Intimate Partner
Violence in Romantic Relationships"

COLLEGE OF EDUCATION AND HUMAN ECOLOGY

Shanvanth Arnipalli - Environmental Science

Project Mentor: Xin Feng, Human Sciences

Project Title: "Examination of Mothers' Metaemotion Philosophy
in Relation to Children's Problem Behaviors"

COLLEGE OF EDUCATION AND HUMAN ECOLOGY

Shanvanth Arnipalli - Environmental Science

Project Mentor: Oulianna Ziouzenkova, Human Sciences

Project Title: "The Consequences for Antibiotic Resistance in the Food Chain and Hindrances Induced by Industry Released Metabolites"

Bence Bende - Biology

Project Mentor: Xin Feng - Human Sciences

Project Title: "Examination of Maternal Meta-Emotion Philosophy of Depressed and Nondepressed Mothers and Child Emotion Regulation"

Yifan Zhang - Human Development and Family Sciences & Women's Gender and Sexuality Studies

Project Mentor: Xin Feng - Human Sciences

Project Title: " Maternal Emotion Socialization in Preschoolers: Child Emotion Regulation and Adjustment"

COLLEGE OF ENGINEERING

Thomas Banker - Chemical Engineering

Project Mentor: Kathryn Williamson - Food Science and
Technology

Project Title: "Assessment of Spent Coffee Ground Oil's
Extraction and Epoxidation Derivates via High Field and Low
Field NMR"

Maria Belicak - Chemical Engineering

Project Mentor: Andre Palmer - Chemical Engineering

Project Title: "Surface-conjugated earthworm mega-hemoglobin
as an oxygen therapeutic"

Paul Bowman - Biomedical Engineering

Project Mentor: Matthew Brancaleone - Athletic Training

Project Title: "Postural Control Approximate and Sample
Entropy of Collegiate Marching Artists"

COLLEGE OF ENGINEERING

Ethan Cartwright - Aerospace Engineering

Project Mentor: Krista Kecskemety - Engineering Education

Project Title: "Analyzing Various Grading Methods for Fill-In
Concept Maps"

Liam Chen - Computer Science and Engineering

Project Mentor: David Terman - Mathematics

Project Title: "Mathematical modeling of cerebral capillary
blood flow heterogeneity and its effect on brain tissue oxygen
levels"

Andy Cheng - Aerospace Engineering

Project Mentor: Darren Drewry - Food, Biological, and
Agricultural Engineering

Project Title: "Large Eddy Simulation for Land-Atmosphere
Interactions"

COLLEGE OF ENGINEERING

Rama Diop - Welding Engineering

Project Mentor: Boyd Panton - Material Science and
Engineering

Project Title: "Controlling Solidification and Selective Alloying
Element Vaporization in the Additive Manufacturing of High
Strength Aluminum Alloys"

Maria DiVita - Biomedical Engineering

Project Mentor: Robert Siston - Mechanical Engineering

Project Title: "Predictive Simulations to Investigate How
Changes in Joint Torques, Starting Position, and Assistive
Devices Contribute to the Effort of Standing"

Zixuan Dong - Civil Engineering

Project Mentor: Benjamin Coifman - Civil Engineering

Project Title: "Quantifying Fuel Consumption Savings of Hybrid
Vehicles over Gasoline in Real Traffic"

COLLEGE OF ENGINEERING

Zachary Everett - Materials Science and Engineering

Project Mentor: John Lannutti - Material Science and
Engineering

Project Title: "Optimization of electrospraying PSU core-shell
microspheres for 'smart' drug delivery"

Patrick Freund - Mechanical Engineering

Project Mentor: Ardeshir Contractor - Mechanical and
Aerospace Engineering

Project Title: "Analyses of Photovoltaic Systems for Existing
Buildings"

Gabriel Heyer - Mechanical Engineering

Project Mentor: Giorgio Rizzoni - Mechanical and Aerospace
Engineering

Project Title: "A Critical Comparison of Empirical Models and
Datasets for Aging in Lithium-Ion Cells"

COLLEGE OF ENGINEERING

Maycee Hurd - Environmental Engineering

Project Mentor: Allison MacKay - Civil, Environmental, and
Geodic Engineering

Project Title: "Tracking Bacterial Cell Lysis During
Permanganate Pre-Oxidation Treatment"

**Yu-Shiang Jeng - Computer Science and Engineering &
Mathematics**

Project Mentor: Teng Leng Ooi - Optometry

Project Title: "Extending the capability of a commercial virtual
reality system for use in vision research"

Connor Jenkins - Electrical and Computer Engineering

Project Mentor: Krista Kecskemety - Engineering Education

Project Title: "Undergraduate Teaching Assistant Written
Feedback: Analysis and Comparison"

COLLEGE OF ENGINEERING

Sam Johnstone - Chemical Engineering

Project Mentor: W. S. Winston Ho - Chemical and
Biomolecular Engineering

Project Title: "On the Transport of CO₂, N₂, and H₂O in Poly(N-vinylformamide-co-vinylamine) Copolymers with Different Amine-to-Amide Ratios"

Mihir Joshi - Biomedical Engineering

Project Mentor: Rizwan Ahmad - Biomedical Engineering

Project Title: "Cartesian Sampling Methods to Facilitate Cardiovascular MRI"

Collin Lester - Environmental Engineering

Project Mentor: Ethan Kubatko - Civil, Environmental, and
Geodic Engineering

Project Title: "Assessing and improving parameterized flow over flood-protection systems"

COLLEGE OF ENGINEERING

David McDonald - Environmental Engineering

Project Mentor: Natalie Hull, Civil, Environmental, and
Geodic Engineering

Project Title: "Wavelength Effects on UV Disinfection and
Photorepair of E. coli in Solution"

Marissa McMaster - Civil Engineering

Project Mentor: Mark McCord - Civil, Environmental, and
Geodic Engineering

Project Title: "Investigating Changes in Campus Bus Passenger
Spatial Patterns Associated with the COVID-19 Pandemic"

Edward Ondrejch - Mechanical Engineering

Project Mentor: Clarissa Belloni - Mechanical and Aerospace
Engineering

Project Title: "Design of Testing Rig and Flume Flow Diversion
Device"

COLLEGE OF ENGINEERING

Taggart Stork - Biomedical Engineering

Project Mentor: Shahid Nimjee - Neurological Surgery

Project Title: "Sex Differences with VWF Inhibition by RNA Aptamer DTRI-031 in a Murine Vascular Injury Model"

Joe Tinapple - Biomedical Engineering

Project Mentor: Jonathan Song - Mechanical and Aerospace
Engineering

Project Title: "Engineered Microvessel for Studying the Biochemical Factors Mediating Lymphangiogenesis"

Catherine Tran - Biomedical Engineering

Project Mentor: Gunjan Agarwal - Mechanical Engineering

Project Title: "Identification of Degraded Collagen in Cardiovascular Tissue"

COLLEGE OF ENGINEERING

Emily Yu - Biomedical Engineering

Project Mentor: Zeynep Saygin - Psychology

Project Title: "Functional Network Organization in Premature
and Full-term Adolescents"

Cole Zemelka - Mechanical Engineering & Materials Science and Engineering

Project Mentor: Renee Zhao - Mechanical and Aerospace
Engineering

Project Title: "Magneto-Mechanical Metamaterials with Widely
Tunable Mechanical Properties"

Christopher Zhang - Chemical Engineering

Project Mentor: Samir Ghadiali - Biomedical Engineering

Project Title: "Simulating Particle Transport in Pulmonary
Alveoli using COMSOL Multiphysics"

COLLEGE OF ENGINEERING

Aneesh Zutshi - Biomedical Engineering

Project Mentor: Aleksander Skardal - Biomedical
Engineering & Comprehensive Cancer Center

Project Title: "In Vitro Model of Glioblastoma to Study
Subpopulation Induced Extracellular Matrix Changes"

COLLEGE OF FOOD, AGRICULTURE, AND ENVIRONMENTAL SCIENCES

Spencer Bauman - Environmental Sciences

Project Mentor: Marília Chiavegato – Horticulture and Crop
Science & Animal Science

Project Title: "Influence of flooding intensity on apical meristem
height and growth characteristics of Tall fescue, *Festuca
arundinacea*"

COLLEGE OF FOOD, AGRICULTURE, AND ENVIRONMENTAL SCIENCES

**Shannon Dixon - Food, Agriculture, and Biological
Engineering**

Project Mentor: Andrea Grottoli - Earth Science

Project Title: "The Effect of Long-Term Temperature and PH
Stress on Symbiodiniaceae Density in Montipora Capita Porites
Lobata, and Porites Compressa Coral"

Chenfan Feng - Animal Science

Project Mentor: Macdonald Wick - Animal Sciences

Project Title: "Enzyme activity of black soldier fly larvae"

Katherine Oriyo - Forestry, Fisheries, and Wildlife

Project Mentor: Suzanne Gray - School of Environment and
Natural Resources

Project Title: "Effect of turbidity on the reaction distance of
Green Sunfish (*Lepomis cyanellus*) & Bluegill Sunfish (*Lepomis
macrochirus*) in Columbus, Ohio"

COLLEGE OF FOOD, AGRICULTURE, AND ENVIRONMENTAL SCIENCES

Daniela Saade - Animal Sciences

Project Mentor: Alvaro Garcia-Guerra - Animal Sciences

Project Title: "Blood sample type and storage conditions affect
Anti-Müllerian Hormone concentrations in cattle"

Allison Sanders - Animal Sciences

Project Mentor: Alejandro Relling - Animal Sciences

Project Title: "The Effects of Fatty Acid Supplementation During
Gestation on Growth and Glucose Metabolism in the Offspring of
Sheep"

Hannah Tronetti - Animal Biosciences

Project Mentor: Megan Meuti - Entomology

Project Title: "Urban Heat Island Effect – Culex Restuans"

COLLEGE OF FOOD, AGRICULTURE, AND ENVIRONMENTAL SCIENCES

Kathryn Zic - Environmental Sciences

Project Mentor: Ashok Deshpande, NOAA

Project Title: "Weekly time series of microplastic abundance and composition on Sandy Hook, NJ"

COLLEGE OF MEDICINE & SCHOOL OF HEALTH AND REHABILITATION SCIENCES

Prathik Chakravarthy - Biomedical Science

Project Mentor: Steven Sizemore - Radiation Oncology

Project Title: "Investigation of RalA and RalB function in Triple Negative Breast Cancer Utilizing GEMMs"

COLLEGE OF MEDICINE & SCHOOL OF HEALTH AND REHABILITATION SCIENCES

Harrshavasan Congivaram - Biomedical Science

Project Mentor: Jeff Kuret - Biological Chemistry and
Pharmacology

Project Title: "Bayesian Inference Identifies Key Drivers of
Neuroprotection in Alzheimer's Disease"

Maxwell Devine - Biomedical Science

Project Mentor: James Chen - Internal Medicine &
Biomedical Informatics

Project Title: "Molecular Underpinnings of Sorafenib In
Desmoid Tumors"

Tanish Gandhi - Biomedical Science

Project Mentor: Amanda Toland - Cancer Biology and
Genetics

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

COLLEGE OF MEDICINE & SCHOOL OF HEALTH AND REHABILITATION SCIENCES

Blake Holthaus - Biomedical Science

Project Mentor: Shahid Nimjee - Neurological Surgery

Project Title: "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"

Avni Patel - Biomedical Science

Project Mentor: Margarida Santos - Epigenetics and
Molecular Carcinogenesis

Project Title: "The Transcriptional Role of PHF20 and its Paralog, PHF20L1"

Nickolai Seculov - Biomedical Science

Project Mentor: Kristin Stanford - Physiology and Cell
Biology

Project Title: "Signaling lipids regulate muscle metabolism after burn injury"

COLLEGE OF MEDICINE & SCHOOL OF HEALTH AND REHABILITATION SCIENCES

Snehi Shah - Biomedical Science

Project Mentor: Andrew Fischer - Neuroscience

Project Title: "EDNRB Regulation Facilitates Muller Glia Reprogramming into Progenitor-like Cells via Activation of Inflammatory Signaling Cascades in early Postnatal Chicks"

Ryan Smith - Biomedical Science

Project Mentor: Christopher Callam - Chemistry and
Biochemistry

Project Title: "Development of amine oxide quinone methide precursors as prospective resurrecting agents for aged acetylcholinesterase"

Benjamin Templeton - Biomedical Science

Project Mentor: Brandon Biesiadecki - Physiology and Cell
Biology

Project Title: "Regulation of troponin-I calpain mediated proteolysis by Tyr-26 phosphorylation"

COLLEGE OF MEDICINE & SCHOOL OF HEALTH AND REHABILITATION SCIENCES

Jevin Litwiler - Health Sciences

Project Mentor: Mireia Guerau - Health and Rehabilitation
Sciences

Project Title: "The Effects of HLCL65, a PRMT5 Inhibitor, on
Inflammasome Activation and Pro-Inflammatory Phenotype of
Human Macrophages"

David Stamper - Athletic Training

Project Mentor: Yun Seok Kang - Health and Rehabilitation
Sciences

Project Title: "Development of a Three-Dimensional Rib
Fracture Analysis Methodology"

COLLEGE OF PUBLIC HEALTH

Mahrukh Naqvi - Public Health

Project Mentors: Tasleem Padamsee & Julianna Nemeth -
Public Health

Project Title: "Ohio's COVID-19 Hardest Hit Communities
Project: Geographic Audits"