UNDERGRADUATE RESEARCH & CREATIVE INQUIRY PRESENTS:

VIRTUAL AUTUMN UNDERGRADUATE RESEARCH 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
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"
Madeline Ball - Biology
Project Mentor: Jonathan Calede - 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"
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 Calede - Evolution, Ecology, and Organismal Biology
Project Title: "Multivariate analyses of cranial morphology inform the taxonomy and evolution of geomyoid rodents."
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 Ouvina – 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 Pathogenisis
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"
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"
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"
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"
Tatum Zeleznik - Psychology
Project Mentor: Jennifer Crocker - Psychology
Project Title: "Non-Zero Sum Beliefs and Intimate Partner Violence in Romantic Relationships"

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"
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"

Ande Cheng - Aerospace Engineering
Project Mentor: Darren Drewry - Food, Biological, and Agricultural Engineering
Project Title: "Large Eddy Simulation for Land-Atmosphere Interactions"
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"
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"
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"
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 Ondrejech - Mechanical Engineering
Project Mentor: Clarissa Belloni - Mechanical and Aerospace Engineering
Project Title: "Design of Testing Rig and Flume Flow Diversion Device"
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"
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"
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 Symbiodiniaccae 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"
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"
Kathryn Zic - Environmental Sciences
Project Mentor: Ashok Deshpande, NOAA
Project Title: "Weekly time series of microplastic abundance and composition on Sandy Hook, NJ"

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"
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"
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"
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 methid 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"
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"
Mahrukh Naqvi - Public Health

Project Mentors: Tasleem Padamsee & Julianna Nemeth - Public Health

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