THE RICHARD J. AND MARTHA D. DENMAN UNDERGRADUATE RESEARCH FORUM

MONDAY, APRIL 5 - FRIDAY, APRIL 9 2021
The Richard J. and Martha D. Denman Undergraduate Research Forum showcases outstanding research, scholarship, and creative activity by students at The Ohio State University. The Denman Forum celebrates their discovery innovation and encourages undergraduates to apply to this event to help enrich their education. The Office Undergraduate Research and Creative Inquiry office would like to send a special thanks to our committee of faculty, staff, and administrators who made this 26th Anniversary special.
Dear Students and Colleagues:

On behalf of the Office of Student Academic Success, I am delighted to welcome you to the 26th Annual Richard J. and Martha D. Denman Undergraduate Research Forum. The Denman fosters the engagement of our undergraduate students in the important process of discovering new knowledge. It also provides graduating seniors a capstone experience in which they can showcase their research and accomplishments as scholars and individuals.

Last year, the Denman took place just before the pandemic forced us to shift online. This year then marks the first virtual event in the history of the Denman Forum.

I would like to thank the many people who have contributed to the success of this very special Denman Forum. This includes the sponsors whose contributions play such a key role in supporting this important event. I would also like to recognize the faculty members who worked with the student presenters. As research mentors, they offered expertise, guidance and encouragement — all while adapting to new online tools — and are thus integral to the success of the event.

I also extend my appreciation to the Denman Undergraduate Research Forum organizers from the Offices of Academic Enrichment and Advancement for their dedication to making this year’s virtual Denman a rewarding experience for presenters and attendees. And I thank the faculty and staff who volunteered their time to review presentations and judge student work.

Finally, I would like to congratulate all the undergraduate students who are participating in this event. May this experience inspire you to continue to ask difficult questions and seek new and creative answers.

Sincerely,

Beth Hume, PhD
Vice Provost of Student Academic Success
Dean of Undergraduate Education

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Dear Fellow Buckeyes,

Welcome to the VIRTUAL 26th DENMAN UNDERGRADUATE RESEARCH FORUM! This remarkable event brings together an academically talented group of seniors that puts a spotlight on their talents and abilities. It is the most significant means through which our University encourages and recognizes high-quality undergraduate research.

The DENMAN FORUM highlights the need and importance of undergraduate research, a cornerstone for students to pursue more significant and meaningful research to better prepare them in dealing with the complex processes and sophisticated problems that exist in today's world.

It starts with their passion, perseverance and energy put forth by these high-ability students, as displayed in their oral and poster presentations. Fresh thinking and innovating ideas have been their trademark. Their combined efforts have resulted in the DENMAN FORUM being woven into the academic fabric of our University—a remarkable achievement!

Marte and I want to congratulate all of our students, staff, faculty and faculty mentors for their herculean efforts on successfully showcasing a first...a VIRTUAL DENMAN UNDERGRADUATE RESEARCH FORUM, in spite of the COVID-19 PANDEMIC—a truly remarkable accomplishment!

Thank you Buckeyes,

Rick and Marte Denman
Dear Students and Colleagues,

It is our great pleasure to welcome you to the 26th Annual Richard J. and Martha D. Denman Undergraduate Research Forum. Over 180 undergraduates are presenting their research and creative endeavors in twenty-one categories throughout the week in our new virtual format. 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 our sincere gratitude to Mr. and Mrs. Denman for their longstanding commitment to undergraduate research and scholarship. We also thank President Johnson for her support of undergraduate research endeavors and welcome her to the first Denman Forum of her tenure at Ohio State.

We would also like to extend a special thank you to our many research mentors, faculty advisory committee members, volunteers, and visitors. Congratulations to our students on their research accomplishments. Have a wonderful week.

Sincerely,
The Undergraduate Research and Creative Inquiry Team

Ola Ahlqvist
Associate Vice Provost, Office of Academic Enrichment

Claire Sweigart
Program Director

Kayla Daniel
Program Coordinator
DENMAN
AREAS OF RESEARCH

ANIMAL AND INSECT SCIENCES
BUSINESS AND ECONOMY
CANCER TREATMENT AND INNOVATIONS
EDUCATION, TEACHING, AND LEARNING
ENGINEERING: LIFE AND NATURAL SCIENCES
ENGINEERING: PHYSICAL SCIENCES
ENVIRONMENT AND CLIMATE SCIENCE
FOOD SCIENCE AND NUTRITION
GENERAL AND SOCIAL PSYCHOLOGY
HEALTH PROMOTION
HUMAN EXPERIENCES
INNOVATIONS IN MEDICAL TREATMENT
INNOVATIONS IN TECHNOLOGY, MATHEMATICS, AND PHYSICS
LANGUAGE DEVELOPMENT AND UNDERSTANDING
MEDICAL TECHNOLOGY AND INFORMATICS
NATURAL AND LIFE SCIENCES
NEUROSCIENCE AND BEHAVIORAL HEALTH
SOCIAL DETERMINANTS OF HEALTH
SOCIAL JUSTICE AND ACTIVISM
STUDYING WELLBEING
UNDERSTANDING HEALTH OUTCOMES
DENMAN SCHEDULE

Visit go.osu.edu/denmanpresentations2021 to register for each Denman Undergraduate Research Forum webinar session

MONDAY, APRIL 5
9:00 – 10:30 a.m. – Understanding Health Outcomes
11:00 a.m. – 12:30 p.m. – Education, Teaching, and Learning
2:00 – 3:30 p.m. – Food Science and Nutrition
4:00 – 5:30 p.m. – Engineering and Physical Sciences
6:00 – 7:00 p.m. – Business and Economy

TUESDAY, APRIL 6
9:00 – 10:30 a.m. – Studying Wellbeing
11:00 a.m. – 12:30 p.m. – Human Experiencesc
2:00 – 3:30 p.m. – Animal and Insect Sciences
4:00 – 5:30 p.m. – Innovations in Medical Treatment
6:00 – 7:30 p.m. – Neuroscience and Behavioral Health

WEDNESDAY, APRIL 7
9:00 – 10:30 a.m. – Health Promotion
11:00 a.m. – 12:30 p.m. – Cancer Treatment and Innovations
2:00 – 3:30 p.m. – Innovations in Technology, Mathematics, and Physics
4:00 – 5:30 p.m. – Language Development and Understanding
6:00 – 7:30 p.m. – Natural and Life Sciences

THURSDAY, APRIL 8
9:00 – 10:30 a.m. – Social Justice and Activism
11:00 a.m. – 12:30 p.m. – Environment and Climate Science
2:00 – 3:30 p.m. – Engineering: Life and Natural Sciences
4:00 – 5:30 p.m. – Social Determinants of Health
6:00 – 7:00 p.m. – Medical Technology and Informatics

FRIDAY, APRIL 9
9:00 – 10:30 a.m. – General and Social Psychology
2:00 – 3:00 p.m. – Awards Ceremony
MONDAY, APRIL 5
9:00 A.M. – UNDERSTANDING HEALTH OUTCOMES

ALLISON BISCHOFF
Mentor: Tamar Gur
Project title: IMMUNOMODULATORY EFFECTS OF Prenatal Stress and Gut Microbiome Disruption on the Maternal Gastrointestinal Tract

DIANA HALLAK
Mentor: Noah Weisleder
Project title: INFLUENCE OF LIPID BILAYER COMPOSITION ON PLASMA MEMBRANE REPAIR CAPACITY

MADISON HART
Mentor: Ginny Bumgardner
Project title: IFN-γ AND CD4+ T CELLS ARE KEY FACTORS IN THE DEVELOPMENT OF NOVEL, ANTIBODY-SUPPRESSOR CD8+ T CELLS

ANGELA HUMBEL
Mentor: Todd Monroe
Project title: PAIN INTENSITY AND UNPLEASANTNESS IN PEOPLE WITH VASCULAR DEMENTIA: A CROSS-SECTIONAL STUDY

DANIEL LESMAN
Mentor: Nicolas Wein
Project title: DEVELOPMENT OF EXON SKIPPING VECTORS USING AAV.U7snRNA FOR THE SECOND CALPONIN HOMOLOGY DOMAIN OF DYSTROPHIN USING A NOVEL MURINE MODEL OF DUCHENNE MUSCULAR DYSTROPHY.

XUYU LIU
Mentor: Jiangjiang Zhu
Project title: INVESTIGATING THE MODULATION EFFECTS OF POLYPHENOLS ON CANCER GUT MICROBIOME AND METABOLOME

DANA MIDDENDORF
Mentor: Willa Hsueh
Project title: ADIPOCYTE-SPECIFIC KNOCKOUT OF MHCII LEADS TO IMPROVED GLUCOSE SENSITIVITY AND LIVER FAT ACCUMULATION IN FEMALE PRO-ATHEROGENIC MICE
ELIZABETH MINNCK
Mentor: Cindy Anderson
Project Title: Early pregnancy DNA methylation in stress–related genes and birth outcomes in mothers with mental health diagnoses

SERINA SMITH
Mentor: Marcos Sotomayor
Project title: Structural Stability of a Protein Fragment Essential for Hearing

RAYCHEL EDELSBERG
Mentor: Linda Helm
Project title: Fostering Education

JESSICA KAVINSKY
Mentor: Hollie Nyseth
Project title: Rwanda’s post-conflict educational system: An analysis of peacebuilding mechanisms and State influence

ALIZA KUHRO
Mentor: Tasha Posid
Project title: Simulation Session Improves Resident Comfort and Confidence on Mid-Urethral Sling Placement

KENDALL LOCASCIO
Mentor: Rebeka Campos-Astorkiza
Project title: How early should we teach pronunciation? Sound category formation in beginner and intermediate Spanish learners
OWEN MORRISH  
Mentor: Janice Aski  
Project title: Creating immersion: Pedagogical practices for linguistic integration among adult refugees in the US

ALYSSA TONISSEN  
Mentor: Tzu-Jung Lin  
Project title: Math anxiety in middle grades classrooms serving gifted and non-identified students: The mediation of expectancy and value

2:00 P.M. – Food Science and Nutrition

KAYLIN ANDERSON  
Mentor: Jennifer Garner  
Project title: Program engagement among participants of a farmers market incentive program

SCHELBY BEACH  
Mentor: Annie Specht  
Project title: Ethical perspective of cell-cultural proteins

ANDREW BROWER  
Mentor: Kichoon Lee  
Project title: Improved feed efficiency in quail with targeted genome editing in myostatin gene

CHRISTIN GALES  
Mentor: Kristen Roberts  
Project title: Examination of the prevalence of a positive hydrogen breath test in patients with irritable bowel syndrome and the relationship with dietary intake

JASON HOLLICK  
Mentor: Chieri Kubota  
Project title: Effect of self- and inter-cultivar grafting on growth and nutrient content in sweet basil
JUSTYNA KORNELUK AND ANNA MCSURLEY  
Mentor: Gonul Kaltunc  
Project Title: Effect of nozzle diameter on particle size distribution and sphericity of alginate-pectin hydrogel particles produced by extrusion  

KELLY MURPHY  
Mentor: Tonya Orchard  
Project title: Effects of low-fat and high-fat diets supplemented with omega-3 polyunsaturated fatty acids on liver polyunsaturated fatty acids in a mouse model of chemotherapy  

BRYNN SCHEINBERG  
Mentor: Kristen Roberts  
Project title: Accuracy of a gluten free dietary assessment: An examination of food frequency questionnaire responses in those with celiac disease  

MICHAEL SWINGLE  
Mentor: Steve Oghumu  
Project title: Immunological profiles of head and neck cancer bearing mice fed black raspberry supplemented diets  

4:00 P.M. – ENGINEERING: PHYSICAL SCIENCES  

TOM BALLAS  
Mentor: Ayonga Hereid  
Project title: Off-Policy Reinforcement Learning for Bipedal Locomotion  

ISAAC BENSIGNOR  
Mentor: James Gregory  
Project title: Development of a Propulsion Rotor Performance Model for Ultra-Low Reynolds Number Flow (Re < 10^5)  

JACQUE BERKSON  
Mentor: Antonio Ramirez  
SYDNEY COATES  
**Mentor:** Carolin Fink  
**Project title:** Evaluation of Weld Solidification Cracking Resistance in a Nickel Based Filler Metal at Different Chromium and Nitrogen Additions

JAMES CROSS  
**Mentor:** Darren Drewry  
**Project title:** Integration of Spaceborne-LiDAR and Hyperspectral Imaging for Species Identification

BRANDON CRUZ  
**Mentor:** Ruike (Renee) Zhao  
**Project title:** Additive Manufacturing for Complex Structures with Magnetic Smart Materials

ZHENGQI DONG  
**Mentor:** Darren Drewry  
**Project title:** Image-Based Plant Leaf Disease Recognition with InceptionV3 Network

ANDREW SCHELLENBERG  
**Mentor:** Haijun Su  
**Project title:** Evaluation of Training Methodology for Visuomotor Robotic Controls in a Simulation Environment

ANTHONY WONG  
**Mentor:** Lisa Burris  
**Project title:** Calcium Sulfoaluminate-Portland Cement Concrete Mixtures For Rapid Hydration And Strength Gain

6:00 P.M. – BUSINESS AND ECONOMY

CHARLES DOWNING  
**Mentor:** Tzachi Zach  
**Project title:** CEO and CFO Equity Incentives Ratios Influence Over Real Earnings Management
AMANDA KALL
Mentor: Curtis Haugetvedt
Project title: Corporate COVID-19 Safety Response, Twitter Sentiment Exposure Influence on Customer-Based Brand Equity, Consumer Attitudes, and Intentions: An Experimental Approach

NAYAN RAO
Mentor: Alam Payind
Project title: Comparison of Afghan Remittance Systems

MARGARET SEIKEL
Mentor: Randolph Roth
Project title: Death and Taxes: the Economy and Suicide during the Great Depression and New Deal

SARAH SIDDIQUI
Mentor: Bruce Weinberg
Project title: Religious Representation and Economic Outcomes in India

KATIE VISALLI
Mentor: Stephanie Moulton
Project title: Mortgage Relief Among Low-Income Homeowners During the COVID-19 Pandemic

DYLAN WARD
Mentor: Grant Donnelly
Project title: Do Good Things Come to Those Who Wait?: Consumer Opinions on Advance Selling

LAUREN WHITEFORD
Mentor: Michael Knemeyer
Project title: Exploring How Logistics Activities Can be Used to Motivate Consumer Cross-Buying Behaviors Across Omnichannel Fulfillment Methods

HENRY WONG
Mentor: Jasmine Hu
Project title: Exploring How Logistics Activities Can be Used to Motivate Consumer Cross-Buying Behaviors Across Omnichannel Fulfillment Methods
TUESDAY, APRIL 6
9:00 A.M. – STUDYING WELLBEING

ISAIAH BLOOM
Mentor: Kevin Evans
Project title: Preventative health screening for women at risk for cardiovascular disease: Targeting women 40-60 years of age.

MARGO BUSH
Mentor: Shannon Gillespie
Project title: Maternal Cytokine Production Capacity as a Novel Indicator of Readiness for Labor: A Pilot of Intrapartum Medical Intervention Among Low-Risk Black Women

LILY KAUFMAN
Mentor: Tasha Posid

CRYSTAL MORTIMER
Mentor: Tondi Harrison
Project title: Feeding Outcomes with Single and Two Ventricle Conditions

EVAN NECZYPOR
Mentor: Loren Wold
Project title: Vaping Reduces Left Ventricular Cardiac Function in Adolescent Mice

JIMMY RICHARDS
Mentor: Sharon Tucker
Project title: Check Your Stress and Coping – Utilization of a Mental Health Screening Tool for College Students

TAYLOR SCHWEIN
Mentor: Bernadette Melnyk
Project title: “Effects of MINDSTRONG© on the Levels of Stress, Anxiety and Depression in College Freshmen when Delivered Peer-to-Peer”

ALEITHEA TEFFT AND MARINO MARKHO
Mentor: Irene Hatsu
Project title: Association between Diet and Sleep Quality in a Pediatric ADHD Population
11:00 A.M. – HUMAN EXPERIENCES

DANIELLE BARKER
Mentor: Hannah Kosstrin
Project title: A B-Girl Continuum

BRANDON D’SOUZA
Mentor: Michelle Wibbelsman
Project title: Interactive Technologies and Indigenous Art: Exploring the Use of Immersive Resources to Increase Audience Engagement with Ceramic Pieces in the Andean and Amazonian Indigenous Art and Cultural Artifacts Collection at The Ohio State University

SANJANA KOTHARI
Mentor: Emily Patterson
Project title: Maternal Mortality Litigation Review

MILLY MASON
Mentor: Sathya Gopalakrishnan
Project title: Mapping Connections: Analyzing the Activity and Impact of an Interdisciplinary Collaborative Research Network

MIRANDA MCGOVERN
Mentor: Valerie Williams
Project title: Dance and Disability

SANDHYA NORI
Mentor: Kammi Schmeer
Project title: The Link between Adverse Childhood Experiences and Health Status: An Analysis of Mothers in León, Nicaragua

KERSTIN NORRIS
Mentor: Pil Ho Kim
Project title: From Colonialism to Neocolonialism: The Yongsan Exchange

SAVERIO ROSCIGNO
Mentor: Hollie Brehm
Project title: Examining the Role of Music in Relation to the 1994 Rwandan Genocide
GENEVIEVE SOUCEK  
Mentor: Jeffrey Cohen  
Project title: Changing Research Trends on Turkish Migrants in Germany

EMMA KLINE  
Mentor: Gerry Carter  
Project title: Habituation of vampire bats to animal-borne proximity sensors

ELAINE FINCH  
Mentor: Rachelle Adams  
Project title: Host ants tolerate social parasites by balancing aggression and submission responses

LAUREN KRAUSE  
Mentor: Sheila Jacobi  
Project title: Determination of the effects of dietary probiotic and environmental enrichment on weaning pig growth performance and measures of oxidative stress.

HAILEY JERMOLOWICZ  
Mentor: Benjamin Wenner  
Project title: The Effect of Waterer Color and Frequency of Cleaning on Sheep Water Intake

ABBY ORELLANA  
Mentor: Maurice Eastridge  
Project title: Effects of Fatty Acid Supplementation to Pre-partum Dairy Cows on Immunity and Growth of Their Offspring

SHANNON PYLE  
Mentor: Alejandro Relling  
Project title: The Effects of Long Chain vs. Short Chain Fatty Acid Supplementation in Ewe Diets on the Meat Quality of the Lambs Produced
SAMANTHA ROBINSON
Mentor: Kyle Sozanski
Project title: The evolution of farmer ant exploitation: Comparative methods reveal novel insight

CALEB RYKACZEWSKI
Mentor: Alvaro Garcia Guerra
Project title: Evaluation of on-animal sensors for detection of breeding impediments and beef bull performance during the breeding season: A pilot study

JOSEPH URSO II
Mentor: Rachelle Adams
Project title: Effects of Male Accessory Gland Proteins on Female Reproductive Physiology in the Northern House Mosquito, Culex pipiens

CAMERON WHITE
Mentor: Sheila Jacobi
Project title: The regulatory effect of polyunsaturated fatty acids on the inflammatory response in IPEC J-2 cells challenged with enterotoxigenic E. coli

4:00 P.M. – INNOVATIONS IN MEDICAL TREATMENT

KELLEN BIESBROCK
Mentor: Purnima Kumar
Project title: Site specific determinants of the sub-gingival microbiome

NEVIAN BROWN
Mentor: Benjamin Kopp
Project title: Epithelial Sodium Channel (ENaC) Regulates Macrophage Function in Cystic Fibrosis

ANNA CHEN
Mentor: Daniel Wozniak
Project title: Screening of Novel Bacterial Topoisomerase Inhibitors on Staphylococcus aureus Biofilms
JESSICA FINDSEN
Mentor: Kevin Mason
Project title: Tryptophan Metabolism Modulates Formation of Intracellular Bacterial Communities by Non-typeable Haemophilus influenzae

ABRIANA KROBOTH
Mentor: Mireia Guerau
Project title: The Effect of Dexamethasone Ace-DEX Microparticles on Pro-inflammatory Macrophages

EMILY MCDONEL
Mentor: Andre Palmer
Project title: Sonication Effectively Reduces Nanoparticle Size in Hemoglobin-Based Oxygen Carriers (HBOCs) Produced Through Coprecipitation: Implications for Red Blood Cell Substitutes

DIVYA SHANKAR
Mentor: Susheela Tridandapani
Project title: Inhibition of BET Proteins Regulates Fc-gamma Receptor Function and Reduces Inflammation in Rheumatoid Arthritis

MEGAN SUBR
Mentor: Vadim Fedorov
Project title: 3D In-Vivo to Ex-Vivo High-Resolution Optical Mapping and DE-MRI to Reveal Arrhythmogenic Fibrotic Substrates of Atrial Fibrillation for Patient-Specific Targeted Treatment

ZACHARY WILSON
Mentor: Mireia Guerau
Project title: Effect of Protein Arginine Methyltransferase 5 (PRMT5) on the Inflammatory Phenotype of Human Macrophages

6:00 P.M. – NEUROSCIENCE AND BEHAVIORAL HEALTH

PRACHITI PRADYOT GARGE
Mentor: Michael DeKay
Project title: Nonstandard Risky-Choice Framing Effects with Somewhat Risky Options: Explorations and Theory Comparisons
AUGUST GONZALEZ
Mentor: Daniel Strunk
Project title: Impact of Treatment Information on Views of Major Treatment Options for Patients with Depression

SONIA HAMILTON
Mentor: Paul Martin
Project title: Lysosomal Acid Lipase Deficiency: Muscle and Nervous System Pathology

JOSHUA HASCHER
Mentor: Ian Krajbich
Project title: Incentivized and non-incentivized liking ratings outperform willingness-to-pay in predicting choice

MADELINE PATRICK
Mentor: Sarah Schoppe-Sullivan
Project title: Coparenting, Temperament, and Callous-Unemotional Behaviors in Early Childhood

ALANA SAGGAR
Mentor: Scott Hayes
Project title: Examining Associations Between Inflammation, Modifiable Health Variables, and Cognition in Black Older Adults

MARIA SHEPARD
Mentor: Xin Feng
Project title: Specific and Over-general Autobiographical Memory in Preschool-Aged Children of Depressed and Nondepressed Mothers

LINDSEY TRANK
Mentor: Min Zhou
Project title: Morphological and behavioral effects of astrocytic gap junction coupling modification

YUNZI YU
Mentor: Mo-Yee Lee
Project title: Comparison of Demographic Data between Fathers with and without Paternal Postpartum Depression, Especially during the Covid-19 Pandemic
**WEDNESDAY, APRIL 7**

**9:00 A.M. – HEALTH PROMOTION**

**BROOKE BABBIN**  
Mentor: Tara O’Brien  
**A Systematic Review of the Effectiveness of Dietary and Physical Activity Applications in Adults with Chronic Disease**

**AUDREY LUND**  
Mentor: Mary Beth Happ  
**Project title: Patient-Nurse Effectiveness with Assistive Communication Strategies (SPEACS): Role in Frustration, Communication and Avoidance in ICU**

**PEYTON MAST**  
Mentor: Heather Tubbs Cooley  
**Project title: Vaccine Attitudes and Practices in a National Sample of Pediatric Nurses**

**TRAVIS NEDROW**  
Mentor: Susan Thrane  
**Project title: Comparing ADL Ability Before and After Admission to the Intensive Care Unit in Critically Ill Older Adults**

**DEVIN O’PIELA**  
Mentor: Carolyn Gunther  
**Project title: Social Support Among Head Start Caregivers During COVID-19: Preliminary Results from the Simple Suppers-Gone Online (SS-GO) Study**

**ARIANA PITCHER**  
Mentor: Wendy Yi Xu  
**Project title: The Supply of DATA-waived Providers and Opioid Treatment Programs for Medication-Assisted Treatments in Ohio**

**BRIAN SALOMONS**  
Mentor: Elizabeth Fitzgerald  
**Project title: Enhanced Collection of De-Identified Community Health Data for the Ask A Buckeye Nurse Program: A Quality Improvement Project**
SHREYA SHAW  
Mentor: Amy Ferketich  
Project title: Impacts of the COVID-19 pandemic on male youth in Ohio

ANNE WILLS  
Mentor: Timiya Nolan  
Project title: Acceptability and usability of an evidence-based program to coach newly diagnosed patients

11:00 A.M. – CANCER TREATMENT AND INNOVATION

KRITI AGRAWAL  
Mentor: Thomas Mace  
Project title: Lipocalin-2 expression by myeloid derived suppressor cells in the pancreatic tumor microenvironment

CLAIRE HINTERSCHIED  
Mentor: Robert Baiocchi  
Project title: PRMT5 inhibition drives a pro-apoptotic program in mantle cell lymphoma by directly and indirectly modulating the abundance of BCL-2 family proteins

JULIA HURLEY  
Mentor: Timothy Cripe  
Project title: Targeting tumor-resident myeloid cells via BTK inhibition to enhance oncolytic viroimmunotherapy

MALVENDERJIT JAGIJIT SINGH  
Mentor: Daniel Spakowicz  
Project title: Tumor microbiome correlation with gene expression and epigenetics in early onset colorectal cancer

ANASTASIA KOTKOVSKAYA  
Mentor: Anne Strohecker  
Project title: Rab20 modulates mitochondrial function in human and mouse models of lung cancer
GABRIELLA LAPURGA
Mentor: William Carson
Project title: Characterization of a Novel Compound that Inhibits Peroxynitrite Generation by Immune Suppressive Myeloid Derived Suppressor Cells

RESHAM MAWALKAR
Mentor: Bhuvaneswari Ramaswamy
Project title: Tamoxifen Reverses the Hyperplastic Changes Induced by Abrupt Involution in Mouse Mammary Glands

HANNAH ONG
Mentor: Chuanxi Cai
Project title: Overexpression of MG53 Suppresses the Proliferation of Neuronal Cancer Cells via Inhibition of KIF11 Expression

NIKHIL PRAMOD
Mentor: Bhuvaneswari Ramaswamy
Project title: Targeting HER2 signaling in endocrine-resistant invasive lobular cancers

ARHAM SIDDIQUI
Mentor: Steve Oghumu
Project title: Conditional removal of myeloid cell-derived Mif through a Cre-loxP system in mice

2:00 P.M. – INNOVATIONS IN TECHNOLOGY, MATHEMATICS, AND PHYSICS

ANTHONY ANNERINO AND MICHAEL FALTAS
Mentor: Pelagia-Iren Gouma
Project title: Wearable Devices for Skin Gas Biomarker Detection

ERIC FAWCETT
Mentor: Sergei Chmutov
Project title: Distinguishing Trees via the Symmetric Chromatic Polynomial
TESSA GILLMORE
Mentor: Pelagia-Iren Gouma
Project title: "Electrospinning polymers for wearable electronics"

ZHENGYUAN HUANG
Mentor: Martin Golubitsky
Project title: A classification of homeostasis types in four-node input-output networks

JOHN McALLISTER
Mentor: Ian Hamilton
Project title: An adaptive dynamic model of a vigilance game among group foragers

NASHAD RAHMAN
Mentor: Christopher Orban
Project title: Are two laser beams better than one (with equal energy) for ion acceleration?

JOHNATHAN RICHMOND
Mentor: Clifford Whitfield
Project title: A parametric study of hypersonic waverider flight mechanics in optimized trajectories during atmospheric entry

ISSAC ZACHMANN
Mentor: Jim Davis
Project title: Using visual features to generate language context

ZHENGQI ZHU AND JIKE ZHONG
Mentor: Seth Young
Project title: Innovative enhancements to air traffic data visualization models

4:00 P.M. – LANGUAGE DEVELOPMENT AND UNDERSTANDING

ATENA BAGHBANIAN
Mentor: John Grinstead
Project title: Multiple measures of numerical cognition and quantifier interpretation
NICHOLAS BEDNAR  
Mentor: Laura Wagner  
Project title: Linguistics Outreach for Building Science Trust: DIY Citizen Science

AUSTIN BRAMMER AND JARRETT RARDON  
Mentors: Julie Hupp and Melissa Jungers  
Project title: That’s so NELCH: The Effect of Prosody on Memory for Novel Adjectives

GRACE LEFEVRE  
Mentor: Andrea Sims  
Project title: Quantifying the Inflection Class Structure of Spanish Verbs

KYLE MAYCOCK  
Mentor: Andrea Sims  
Project title: A Formal Analysis of Agreement Marking in the Albanian Noun Phrase

ABIGAIL SEDZIOL  
Mentor: Melissa Jungers  
Project title: The Silent Speaker: The Impact of Emojis on Nonverbal Communication During a Pandemic

NINA SORINE  
Mentor: John Grinstead  
Project title: Inhibition Predicts Morphosyntax as well as Lexicon in Child Spanish

ANNA TAYLOR  
Mentor: Brian Joseph  
Project title: Bilingual Road Signs: A Sociolinguistic Journey of Indigenous Language Revitalization
6:00 P.M. – NATURAL AND LIFE SCIENCES

KATHRYN BYERLY
Mentor: Justin North
Project title: Identification of Rhodospirillum rubrum genes required for the reduction of volatile organic sulfur compounds in a novel Methionine Salvage Pathway

AARON CHARNAY
Mentor: Bern Kohler
Project title: 2-Aminopurine Fluorescence Quenching: A Closer Look at the Mechanism of 2-Aminopurine Quenching by Silver(I)

SHANNON COONEY
Mentor: Christine Thomas
Project title: Synthesis of tridentate NHC Cobalt(II) Complex to explore effect of ligand noninnocence on redox capabilities

ADITYA MISTRY
Mentor: Thomas Magliery
Project title: Understanding Structure-Function Relationships and Exploring Alternative Conformations in a Four-helix Bundle Protein, Rop

LAUREN RAGER
Mentor: Mark Foster
Project title: Characterizing inhibition of the cyclin A2-CDK2 complex by small molecular inhibitors using two-dimensional NMR and ITC.

JILL TEITELBAUM
Mentor: Susan Cole
Project: A Rare Human SNP in the Hes7 3'UTR Alters Alternative Polyadenylation
JOHN VU  
Mentor: Karen Musier-Forsyth  
Project title: Role of the Unique C-Terminal Domain of Arabidopsis thaliana ProXP-ala

LEAH WALSH  
Mentor: Abraham Badu-Twaiah  
Project title: Analysis of Cross-linking Products On-Line via Contained-Electrospray Ionization Mass Spectrometry

RACHEL BRUNOT  
Mentor: Joel Wainwright  
Project title: Garifuna women and the politics of cultural heritage: The legacy of the Belizean women’s movement

MIA CARIELLO  
Mentor: Leigh Bonds  
Project title: Reclaiming Our Histories: Anti-Rape Organizations and Protests at The Ohio State University - 1970s to Present

THURSDAY, APRIL 8
9:00 A.M. – SOCIAL JUSTICE AND ACTIVISM

ERIN BRODERICK  
Mentor: Mary Thomas  
Project title: Prison Abolition in the time of COVID-19

CARIAH COX  
Mentor: Alan Davis  
Project title: The School-to-Prison Pipeline among Black American Boys in Central Ohio: The Influence of Childhood Trauma

MERA CRONBAUGH  
Mentor: Joyce Chen  
Project title: At the Crossroads: Impact of interethnic tolerance levels on labor force participation in the South Caucasus
FATIMA DAHIR
Mentor: Madhumita Dutta
Project title: “Dumarka Ilaali”: Somali-American Relationship with Police and Community Response to Sexual Violence

BRADLEY EIDSON
Mentor: Nicolo Pinchak
Project title: Sexual Minority Status and Suicide: The Moderating Effect of Socioeconomic Status

JESSICA QUEEN
Mentor: Zeyep Benderlioglu
Project title: The Impact of Lockdown Orders and Unemployment on Domestic Violence Cases during the COVID-19 Pandemic

OLIVIA WARNER
Mentor: James O’Donnell
Project title: Qualitative Meta-Analysis of the Impact of Pornography on Social Stereotypes

11:00 A.M. – ENVIRONMENT AND CLIMATE SCIENCES

LAUREL BAYLESS
Mentor: Ellen Mosley-Thompson
Project title: El Niño-Southern Oscillation (ENSO) Signal in an ice core from Huascarán, Peru

SHIVANI BHATT
Mentor: Ryan Norris
Project title: Reassessment of the Alticola roylei Species Group in Northern Pakistan through Morphology, Molecular Systematics, and Biogeography

ZHENGQI HUANG
Mentor: Brittany Shoots-Reinhard
Project title: A Call for Sustainable Living: Leveraging Cognitive Factors to Develop Effective Sustainability Campaigns
ZANNA LECIEJEWSKI  
**Mentor:** Natalie Hull  
**Project title:** Comparison of Microcystin-LR Degradation by UV222 and UV254 via ELISA, UPLC-PDA, and LC-HRMS

WILL PASSIFUME  
**Mentor:** Reed Johnson  
**Project title:** Increase in soybean yield by distance in fields with supplemental honeybee pollination

MADELINE REUSCHLING  
**Mentor:** Matt Davies  
**Project title:** Flammability and Fuel Moisture Content of Golden Rod in Ohio’s Prairies.

AARON TAYAL  
**Mentor:** Steve Hovick  
**Project title:** Population and reproductive biology of lesser celandine (*Ranunculus ficaria*)

MATTHEW WALKER  
**Mentor:** Sean Downey  
**Project title:** The Sustainability of “Slash-and-Burn”: A Bayesian Analysis of Intermediate Disturbance Patterns in Q’eqchi’ Maya Swidden Agriculture

SHILING ZHAO  
**Mentor:** Andreas Chavez  
**Project title:** Environment supersedes host lineage in shaping the gut microbiome of squirrels in the Pacific Northwest

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2:00 P.M. – ENGINEERING: LIFE AND NATURAL SCIENCES

ANDREW CHOI  
**Mentor:** Katelyn Swindle-Reilly  
**Project title:** Controlled Release of Anti-VEGF by Redox-responsive Polydopamine Nanoparticles
JUSTIN HOPKINS
Mentor: Nicholas Brunelli
Project title: Manipulating Zeolite Catalyst Morphology to Modify Catalytic Activity and Address Diffusion Limitations

CONNOR NEIFERT
Mentor: Thomas Hund
Project title: Cardiac cell-to-cell communication via exosomes and cytokines regulated by spectrin-based pathways

ANTARA RATH
Mentor: Andre Palmer
Project title: Methemoglobin Synthesis and Purification

THEODORE RENNER
Mentor: Gunjan Agarwal
Project title: Role of Discoidin Domain Receptor 1 in Vascular Calcification

BENJAMIN RUDZINSKI
Mentor: Umit Ozkan
Project title: Kinetics of Pd supported on swellable organically modified silica (SOMS) catalysts during hydrodechlorination of trichloroethylene in aqueous phase

STAVAN SHAH
Mentor: Gunjan Agarwal
Project title: Mapping of Iron in Brain Tissue from Alzheimer’s Disease using Magnetic Force Microscopy

JANE YU
Mentor: Thomas Hund
Project title: Role for TREK-1 in Modulating Cardiac Excitability and Arrhythmia
4:00 P.M. – SOCIAL DETERMINANTS OF HEALTH

Allie Businger
MENTOR: Scotty Cash
PROJECT TITLE: "Understanding the Mental-Health Needs and Technological Treatment Implications for Vulnerable Youth: A Focus Group with Practitioners"

Dakota Daniel and Adeline Wickerham
MENTOR: Elizabeth Fitzgerald
PROJECT TITLE: Interventions to eliminate cervical cancer in Nicaragua: An integrative review of the literature

Abigail Foster
MENTOR: Abigail Norris Turner
PROJECT TITLE: Characteristics of Ohio women experiencing a lack of access to annual OBGYN visits

Cris Ty Gao
MENTOR: Christina Fortney
PROJECT TITLE: Parent Distress Related to Infant Appearance in the Neonatal Intensive Care Unit

Hannah Gu
MENTOR: Jennifer Bogner
PROJECT TITLE: Income and Health-Related Quality of Life in Traumatic Brain Injury Patients

Cassandra Kemper and Marissa Krietemeyer
MENTOR: Jessica Krok-Schoen
PROJECT TITLE: The Association of Social Support and Income on the Nutritional Status and Physical Activity of Older Female Cancer Survivors

Glorivee Mendez
MENTOR: Cindy Anderson
PROJECT TITLE: Neighborhood Walkability, Perceived Stress and Telomere Length: Is There a Relationship?
VINCENT PANCINI
Mentor: Katie Vinopal
Project title: The Effects of ACA Medicaid Expansions on Health Insurance Coverage and Time Spent Seeking Health Care: Evidence from the American Time Use Survey

ANAND SHAH
Mentor: Chris Taylor
Project title: Differences in Perceived Health Status and Utilization of Assistance Programs in US Women by History of Pregnancy

NICOLE FYE
Mentor: Amanda Agnew
Project title: Utilizing Geographic Information Systems to Analyze Histomorphometry in the Human Clavicle

MUKUL GOVANDE
Mentor: James Blachly
Project title: Prioritization of Potential Targets in a Massive Multiplex CRISPR Screen

GARRETT HAUCK
Mentor: Jonathan Davis
Project title: Mathematical Modeling of the Calcium Binding Proteins Calmodulin and Troponin C

TOSHIKI NAKAO
Mentor: Kou-San Ju
Project title: Discovery of Phosphonate Natural Products from Bacillus velezensis by Genome Mining

6:00 P.M. – MEDICAL TECHNOLOGY AND INFORMATICS

NOAH ECKSTEIN
Mentor: Yun Seok Kang
Project title: Kinematic Model Based Sensor Fusion for Inertial Measurement Units in Injury Biomechanics
MAKAYLA NEWMAN
Mentor: Laura Boucher
Project title: Musculoskeletal Ultrasound of the Patellar Tendon in Adolescent Athletes

ISHAN PATEL
Mentor: Richard Hughes
Project title: Detection of Pneumonia Using Machine Learning

MATTHEW SCHUETZ
Mentor: Igor Joulne
Project title: Niemann-Pick Disease and the SAVER Algorithm

ZHIXIN ZHU
Mentor: Shang-Tian Yang
Project title: Optimization of Embryonic Stem Cell Differentiation for High Throughput Screening of Embryotoxic Drugs and Chemicals

FRIDAY, APRIL 9
9:00 A.M. – GENERAL AND SOCIAL PSYCHOLOGY

ADEN BHAGWAT
Mentor: Russell Fazio
Project title: Shaping Mock Juror’s Judgements: The Role of Individual Differences in Disgust Sensitivity and Valence Weighting Bias

JOSELLE CARRILLO
Mentor: Kentaro Fujita
Project title: The Benefits of Self-Affirmation Beliefs Following Social Exclusion

SHAN GAO
Mentor: Jennifer Crocker
Project title: Name Choice and Stereotype
MIA GARCIA  
Mentor: Sarah Schoppe-Sullivan  
Project title: Constructive and Destructive Marital Conflict and Children’s Social Competence: The Role of Gender

EMILY NOTHNAGLE  
Mentor: Christopher Knoester  
Project title: Sport Participation and the Development of Grit

JOSEPH REITER  
Mentor: Brittany Shoots-Reinhard  
Project title: Political Ideology, Confidence, & Cognitive Ability

ARIAN SORANI  
Mentor: Sarah Schoppe-Sullivan  
Project title: The moderating effect of maternal gatekeeping on the association between fathers’ rough-and-tumble play and children’s self-regulation

ROSE TYLER  
Project Mentor: Jennifer Crocker  
Project title: Nonzero Sum Belief Intervention and Response to Conflict in Romantic Relationships

CAMRYN WEIHRAUCH  
Mentor: Virginia Tompkins  
Project title: Quality of parent-child book reading as a predictor of children’s social-emotional competencies

2:00 P.M. – DENMAN 2021 AWARDS CEREMONY

A celebration of the impressive achievements of undergraduate researchers at Ohio State. Winners in each category will be announced.