As the Director of the Undergraduate Research Support (URS) Office, I would like to welcome you to the 2023 Visible Thinking Undergraduate Research Symposium!

Throughout the year, the URS Office promotes undergraduate research in collaboration with faculty, community, and campus partners and offers programming to help students identify research opportunities and make the most of their experiences. The office also provides funding for assistantships, conference attendance, and supplies for independent studies.

Each year, in partnership with Duke's Trinity College of Arts & Sciences, URS hosts this symposium to celebrate and showcase the research that our undergraduates are involved in across campus. I encourage you to engage with the student presenters to learn more about their projects and research experience – they will be eager to share it with you!

Thank you for joining us at the Visible Thinking Undergraduate Research Symposium, and I hope you will see Duke's rich environment where students are encouraged to explore their curiosities and engage in meaningful scholarly inquiry.

Sincerely,
Jessica R. Harrell, Ph.D.
Director, URS
WHAT IS URS?

Mission
The Undergraduate Research Support Office (URS) encourages and facilitates students and faculty engaging in meaningful research via mentor-mentee relationships through training, programming, opportunities, and funding.

Visit our website!

Leadership
Director:
Jessica Harrell, PhD.
Program Coordinator:
Leah Wills, M.Ed.
Student Support:
Randi Jennings

Join our Listserv!

Follow Us!
IG: @duke_urs
Please scan the QR code for full abstracts of the students' research projects. They are listed by subject area and then alphabetically by last name.
1: Creative Arts, Humanities, and Physical/Quantitative Sciences
2: Physical/Quantitative Sciences
3-6: Behavioral Sciences and Health/Clinical Research
5-11: Biological Sciences and Social Sciences

Entrance/Check In
STAND 1
Chaya Brennan Agarwal - Agua es vida/Water is Life
Lily Levin - Then & Now: My Ancestral History and Jewish Diaspora Identity

STAND 2
Katherine Franz - Metal Catalyzed Oxidation of Sequential Histidine Containing Peptides

STAND 3
Sua Cho - Effects on Status Striving: Self-Perceived Value, Self-Esteem, and Personality Traits
Bentley Choi - Evaluation of Video-Assisted HPV Education in Government-Supported Clinics in Western Kenya
Julia Davis - Using Video and Handheld Technology to Enhance Responsive Caregiving and Early Childhood Development

STAND 4
Nikhita Gopisetty - Lived Experiences of Young Adults with Type 2 Diabetes in Mysore District, South India
Anna Greenleaf - Stressed People Don't Pay It Forward: Detrimental Effects of Stress on Generalized Reciprocity
Sahith Kudaravalli - Utilization of antiviral therapy for patients with hepatitis B-related hepatocellular carcinoma
Sara Mehta - Investigating Gastrointestinal Symptoms and Dietary Restraint Among Young Adults
Kevin Sheng - Mechanisms of Tumor-Mediated Endothelial Cell Proliferation Independent of VEGF

STAND 5
Annabelle Feibel - Home Video Analysis of Affect and Attention at 12 months in Autism and ADHD
Alyssa Nelson - Social Mechanisms of Emotion Regulation in Adult Depression
Katherine Zhong - Behavioral differences in Dictator Games with money vs. experiences

STAND 6
Katherine Burkman - Evaluating how bone marrow stroma impacts drug resistance development in acute myeloid leukemia
Ryan D’Cunha - Engineering Multi-sensing Biosensor Bacteria with Molecular Biology and Computational Methods
STAND 6 (cont.)
Megan Gerges - Can I Still Trust You? Late Trust Violations Hinder Subsequent Cooperation
Peyton Thompson - Developing Viral Transsynaptic Tracing for Interneuron Transplantation in a Seizure Model
Benjamin Wallace - How Suspicion 911 Calls in New Orleans Reshape Our Understanding of the Power Threat Hypothesis
How Suspicion 911 Calls in New Orleans Reshape Our Understanding of the Power Threat Hypothesis
Anna Zolotor - Using Social Risk Associations Between Child Health and Neighborhood Social Vulnerability

STAND 7
Julia Caci - Characterizing mitotic defects in brain-metastatic lung cancer
Kiran Sundar - Gender Transgressed: Trans vs. Cisgender Felt Pressure, Gender Typicality, and Mental Health
Rachel Washart - Executioner caspases restrict mitochondrial RNA-driven Type I IFN induction during apoptosis

STAND 8
Sofia Guerrero - A novel link between mitochondrial energy metabolism and ubiquitin conjugase Rad6
Cierra Harrison - Spastin-loss in Drosophila and the effect on axon length and neuronal sensitivity

STAND 9
Lucas Humayun - Refining CRISPR-Cas epigenetic regulation in primary T cells
Emily Sandberg - A new enrichment apparatus to encourage suspensory postures during foraging in ruffed lemurs

STAND 10
Michael Sheyner - Smelling Fats: Addressing how the olfactory system perceives fatty acids and CD36's role
STAND 1
Chen Shi - ESPs: a new cost efficient sampler for expensive posterior distributions

STAND 2
Joe Laforet Jr. - A novel molecular model for the identification of nanoparticle forming drug-excipient pairs
Aaron Petty - Identification of E. Coli Protein-Copper Binding Sites Using His H/D Exchange-Mass Spectrometry

STAND 3
Annika Agrawal - American-Born “Confused” Desi?: An Exploration of Indian-American Biculturalism & Bilingualism
Alexis Bamfo - Friendship Quality and Mental Health: Bidirectional Associations Over Time

STAND 4
Ana DeCesare - A Survey of Parental Beliefs: Children’s Technology Use in the Digital Age
Fatima Massare Somers - Art, Fear, & Healing in Medicine: Exploring Health Literacy & Empowerment Through Visual Art

STAND 5
Peter Banyas and Sourodeep Bhattacharya - Autonomous Blood Pressure Regulation for Hypertensive Crises: a Software Approach
Ryan Spangler - Xeno-proliferative Response in Highly Sensitized NHPs: Implications for Xenotransplantation
Ella Zanatti Trovarelli - Friends Coming to the Table: Helpful and Harmful Peer Actions for Eating Disorder Recovery

STAND 6
Daniella Galtes - Deletion of β-arrestins abolishes the innate immune response in CVB3 myocarditis
Nicole Izquierdo - Latinx: Race or Ethnicity?
Khilan Walker - Game On: Stopping Athletics from Being the Sole Path for Black Male Success
STAND 7
Elizabeth Boger - Identifying and Characterizing Inhibitors of Plasmodium Heat Shock Protein 70
Melany Fuentes - Exploring the Role of AI Photo Analyzers in the Reification of Racism
Chloe Hicks - Identifying Novel GPCR Signaling Partners with Proximity Labeling

STAND 8
Davina Le - Characterization of Fibrosis in Diaphragm of a Novel Mouse Model of Duchenne Muscular Dystrophy
Kaitlyn Lewars - The Impact of Age on Ozone Responses in Rodents

STAND 9
Julia Lin - Novel protein for mechanistic control of B cell development
Ethan Ong - Next-gen stealth polymer for biofilm-resistant orthopedic implant coatings

STAND 10
Maya Provençal - The Effects of “We” Framing and Group Participation on Young Children's Sense of Commitment
Huiyin Zhou - Nowhere/NowHere: Chinese diasporic feminism(s), proximity, and political translation

STAND 11
Sasha Bacot - UVC-induced PINK-1 mitophagy activation and mtDNA mutation accumulation design in C. elegans
Alexandra Bennion - Qualitative and Quantitative Characterization of Tumor Microenvironment in Novel Murine Model
Sophia Cox - Urban Legacies: Exploring how demographics, canopy cover, and land use affect ground arthropods
STAND 1
Maya Ghanem - Queer Muslim Environmental Futurisms: Introspection, Liminality, Paradox, and Healing
Lisa Zhao - Denial and mistrust in the Sunderland cholera epidemic, 1831-1832

STAND 2
Pranav Charvu - ATLAS Transient Survey Light Curve Release and Analysis
Xander Wilcox - Spin Polarized Charge Transport in Stable Organic Radical Polymer Wrapped SWNT Superstructures
Justin Zhang - Towards a 1,3-Aminodifunctionalization of Cyclopropanes
Jesse Zhang - Geodesic Complexity of Convex Polyhedra

STAND 3
Elissa Harris - Investigating Children's Evaluations of the Permissibility of Gossip
Connor Haughey - Evaluating risk for adolescent anxiety: Sensory over-responsivity and brain volume differences

STAND 4
Janis Zhu - Courtroom Cognition: Guilty Bias or Response Bias?

STAND 5
Elaijah Lapay - The Impact of COVID-19 On Hunger Relief Organizations and Latina Communities In North Carolina

STAND 8
Madison Griffin - The Impact of Tidal Variation on Invertebrate Diversity and Biomass in Seagrass Ecosystems
Xeno Hu - Identification of a covalent inhibitor to probe ubiquitination in the malaria parasite
Isabella Larsen - Play by the Rules: Three-Year-Olds' Normative Understanding of their own Games
Rebecca Li - ASD-relevant mutations in Kdm6b affect its role as a chromatin regulator in brain development
STAND 9
Brooke Bier - How Income and Educational Levels Impact Patient Choice of Doctor: A Systematic Review
Ashley Lo - Finding an Ideal Dose and Incubation Period of Entinostat to Maximize Transfection Efficiency
Katherine LoBue - An Evaluation of the Durham DEAR Program: Comparing Participant and Staff Perspectives
Mihir Patel - Genetic Regulation of STIM1 Gene in Human and Mice Muscle
Jonathan Pertile - Energetics, behavior, & pregnancy: Cortisol correlates in lemurs with varied life-history paces

STAND 10
Isabel Colon - What is the function of human acid sphingomyelinase (SMPD1) during the Plasmodium liver stage?
Kate Silver - Investigating Molecular Mechanisms of Toxicity of GenX and PFOA using C. elegans
Arushi Sivasankar - Introduction of lipids into hyaluronic acid-based hydrogels
Megan Stone - Muscarinic Cholinergic Influence on Cortical Interneuron Excitability
Eric Wang - Total Synthesis of Novel Antiausterity Agents against PANC-1 Human Pancreatic Cancer Cell Line
Jeffrey Zhang - Dock-2 acts as a positive regulator for mast cell degranulation
Lucy Zhang - Developing an Oligonucleotide Therapy for Alzheimer's Disease
STAND 1
Audrey Costley - Cajun, Créole, and CODOFIL: Language Policy and Planning in Louisiana
Diego Diaz - Optimizing over-expression & purification of MenB, protein sensitive to Cu-induced precipitation
Sean Gao - Multiple Modes of Zinc Binding to Histatin 5 Revealed by Buffer-Independent Thermodynamics
Sophia Kuhn - Preparation of Thiol-Containing Benzoxazoles for Metallo-Beta-Lactamase Inhibition
Dennis Tang - A Model Theoretic Approach to Natural Language Inference

STAND 2
Isa Williams - Elucidating the Impact of Copper on GAPDH Activity and Secondary Structure

STAND 3
Michael Blue - Breaking Bad: Creativity and Organic Chemistry
Ishika Gupta - Body image in women with PCOS: The relationship between PCOS, Eating Disorders, & Body Mindset
Amber Smith - Cross-Cultural Adaptation of Scales Measuring Stigma related to HPV, HIV, and Cervical Cancer

STAND 4
Alyssa Guthrie - Reframing Error Reduces Learning Deficits From Prediction Error in High Anxiety Individuals
Reika Shimomura - Analysis of the application of resonance in organic chemistry

STAND 5
William Hayes - Developing a skin cancer prevention resource for migrant farmworkers in North Carolina
Alissa Rivero - Why Students Hate Group Projects: Understanding Psychological Barriers to Collaborative Work
Sofia Silvosa - Dissociating the Effects of Processing Fluency from Aesthetic Experience in Visual Art Viewing
STAND 6
Sarah Kelso - Population Survey of Necturus punctatus in a Perennial Stream within the Duke Forest

STAND 7
Meredith Huston - Proteomic effects of Acute Intermittent Hypoxia in the medulla of a Pompe mouse model
Jason Liang-Lin - Investigating Small Molecule Modulators of β-arrestin and their Potency on T-cell Activation
Zachary Pracher - Novel CRISPR technologies to investigate immune cell specification in the sea urchin embryo
Sarah Zimmerman - Asset-Based Approaches and Multilingual Learner Parent-Teacher Relationships

STAND 8
Katherine Long - CRISPR Screen Reveals Microenvironment-Specific Radiosensitizing Factors in Glioma Models
Grace Sorensen - Identifying Novel Interactors of UFL1 During Flavivirus Infection

STAND 9
Haipei Yao - A high throughput minibrain production platform for childhood brain tumor drug testing

STAND 11
Jason McBane -The effects of mitochondrial damaging reagents on membrane potential and mitophagy induction, with implications in neurodegeneration
Kishen Mitra - Engineering Patient-Specific Menisci Using 3D Bioprinting
Taylor Nguyen - Inducing synthetic lethality using MYC-driven hypertranscriptional activity and BET inhibition
Preston Nibley - Cu-Catalyzed Oxidation of the Disordered C-Terminal Tail of Histone H2A Occurs Through a Histidine-Dependent Mechanism
Rashad Rahman - CAV1 and Mechanotransduction in Pig Trabecular Meshwork Cells
Throughout the symposium, you will see the symbol below to indicate students that met the 4 criteria for Community Engaged Research (CER):

1. There were conversations with the community on the purposes of the CER.
2. There was a collaboration in the design of the project with a community partner.
3. There was collaboration in the implementation of the project with a community partner.
4. There will be public dissemination of the results of the CER.
ACKNOWLEDGEMENTS

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