



CHARLOTTE
HONORS COLLEGE

HONORS RESEARCH SYMPOSIUM

December 3, 2024
2:30pm-6:30pm
Cone University Center



Welcome to the 2024 Honors Research Symposium! The Honors College, in collaboration with the Office of Undergraduate Research (OUR) hosts the Honors Research Symposium each Fall semester. This annual event is a unique opportunity for undergraduate UHP, BHP, AAHP honors students, disciplinary honors students, and OUR students to present the results of their inquiry or research to the UNC Charlotte community.

We encourage you to actively listen to the student presenters, learn, ask curious questions, and provide supportive feedback. Please enjoy this program to learn more about the poster, oral, and virtual presentations.

Honors College

<https://honorscollege.charlotte.edu/>

Office of Undergraduate Research (OUR)

<https://our.charlotte.edu/>

Virtual Platform

<https://symposium.foragerone.com/2024-honors-symposium/>

SCHEDULE

2:30pm-2:45pm	Check In
2:45pm-3:00pm	Opening Remarks
3:00pm-3:10pm	Transition
3:10pm-4:10pm	Poster and Oral Presentations (Concurrent)
4:10pm-4:20pm	Transition
4:20pm-5:20pm	Poster and Oral Presentations (Concurrent)
5:20pm-5:30pm	Transition
5:30pm-6:00pm	Speakers
6:00pm-6:30pm	Reception

SPECIAL FEATURE: ALUMNI PANEL SPEAKERS



Yuliana Ganan

Ganan graduated from UNC-Charlotte in May 2024 with a Bachelor of Science in Public Health, a minor in Spanish and Biology, with Honors Distinction and Magna Cum Laude. Her hometown is Greensboro, North Carolina, and she is a proud daughter of her Colombian parents. While an undergrad, she was a resident advisor, Niner Guide, and housing ambassador; was involved in various Latinx student organizations; and was president of her Latin sorority, Chi Upsilon Sigma National Latin Sorority, Inc. She discovered her passion for public health and working with the Latinx community while interning at Camino Research Institute. For her honors capstone project, she focused on the impact of anti-immigrant attitudes and policies on the wellness and health care experience of the Latinx community. Currently, she is pursuing a Master of Public Health in Epidemiology at UNC-Charlotte and hopes to advance research efforts that address the health disparities within the Latinx community.

Alexander Toback

Toback is cofounder of ECD Global, a non-profit focused on early childhood development worldwide. As an International Business graduate from Charlotte, he is thrilled to return to this conference where he once presented his undergraduate research on political policy and polarization. That experience was pivotal in shaping his current path. Today, he is applying the analytical skills he honed during his research to address global early childhood development challenges. Now in Massachusetts, he is currently applying to economics master's programs to further enhance his impact. When not working on ECD Global initiatives, Toback enjoys exploring geography, following MMA, and playing basketball. He excited to share how his experience as an undergraduate researcher has added such strong value to his life.



5:30pm-6:00pm
McKnight Hall, Cone Center



Abbey Beam

Alumni Panel Moderator

5:30pm-6:00pm
McKnight Hall, Cone Center

2:45pm-3:00pm

Opening Remarks, McKnight Hall

Dr. Cindy Gilson, Associate Dean of the Honors College, will begin the event with opening remarks. After checking in, all attendees will gather together in McKnight Hall. Please attend to learn important information about the event.

3:10pm-4:10pm

Poster Presentations, Lucas Room

Bridging the Gap: The Role of Socioeconomic Status and Race in Shaping Healthcare Access and Utilization Among Adolescents with Epilepsy

Allie Theisen, OUR
Mentor: Dr. Aimee Smith

Developing an Oral Tolerization Therapy for Multiple Sclerosis Using Genetically Engineered Soybeans Expressing MOG-Sigma1 Fusion Protein

Meenu Murugan, Biology
Mentor: Dr. Dan Nelson, Dr. Kenneth Piller

Removing "Forever Chemicals" (PFAS) from Drinking Water through Ion Exchange Resin Filtration

Rachel Irving, Engineering, OUR
Mentor: Dr. Mei Sun

Resolving Thymic T-cell Development within Chiroptera

Andra Buchan, Biology, Computing and Informatics, OUR
Mentor: Dr. Richard Allen White III

Using FRET-derived Distances to Verify the AlphaFold Predicted Sleeping Beauty Transpososome Structure

Matthew Goldstein, OUR
Mentor: Dr. Irina Nesmelova

3:10pm-4:10pm

Poster Presentations, Lucas Room

Two Against One? Investigating AMF-Mediated Defense Against Nematode Infection in Cultivated and Wild Soybean

Kody Angell, Biology
Mentor: Dr. Bao-Hua Song

Characterizing Motion Errors in Metal Additive Manufacturing Machines

Gabriel McAnuff, OUR
Mentor: Dr. Jaime Berez

Arts Participation and Future Outlook Among Youth of Color

Tashawna Wilkins, OUR
Mentor: Dr. Vaughn Schmutz

Assessment of Bacterial Colonization of a Fungal Host Over Time

MyAsia Owens, OUR
Mentors: Dr. Morgan Carter, Ms. Ruth Wright

Illicit Drug Detection Utilizing Chromogenic Properties of Dipyrindinium Thiazolo[5,4-d]thiazole

Aiden Hawkins, Chemistry
Mentor: Dr. Michael Walter

3:10pm-4:10pm

Poster Presentations, Lucas Room

Myogenic Markers of Cancer Cachexia in CAR-T Cell Inoculated Breast Cancer

Hala Khabir, Applied Physiology, Health, and Clinical Sciences, OUR

Mentor: Dr. Bao-Hua Song

Barriers to Early Childhood Education Enrollment For Latino Parents

Devin Frey, OUR

Mentor: Dr. Stephanie Potochnick

The Effectiveness of Wetland Restoration

Robert McLaughlin, Geography, Geology, Earth and Environmental Sciences,
Environmental Studies, or Meteorology, OUR

Mentor: Dr. Sara Gagne

**Assessing 2022 and 2023 Sewer System Overflows in the Upper Little Sugar
Creek Watershed**

Grace Kissel, OUR

Mentor: Dr. Fushcia Hoover

**Bridging Real-World Infrastructure Designed to Goal-Aligned, Engage, and
Stimulate**

Anshuk Gottipati, OUR

Mentor: Dr. Kalpathi Subramanian

3:10pm-4:10pm

Poster Presentations, Lucas Room

Urban Campus Food Environments: An Evaluation of Policies, Practices, and Opportunities for Health Promotion within the University of North Carolina System

Lyba Qureshi, OUR
Mentor: Dr. Alicia Dahl

Entangled Architectures: Drawing Speculative Histories

Enoch Adedeji, AAHP
Mentors: Mr. Peter Wong, Dr. Jae Emerling, Dr. Emily Makas

Ballet and Modern Dance

Kari Sescourka, Art History
Mentor: Dr. Kaustavi Sarkar

Electronic and Optical Properties of Novel Quinoline Thiazolothiazoles

Juliusz Wieckowski, Chemistry
Mentors: Dr. Tyler Adams, Dr. Michael Walter

Analyzing Political Animus and Polarization Among College Students in the 2024 Presidential Election

Natalie Doerfler, OUR
Mentor: Dr. Jason Giersch

3:10pm-4:10pm

Poster Presentations, Lucas Room

Small-Scale Supercomputing with TinyTitan

Sania Khan, OUR

Mentor: Dr. Tyler Allen

Detecting Hate Speech: A Comparative Study of Language Models and Strategies From GPT-4o-mini to Llama

Santhosh Balla, Computing and Informatics, OUR

Mentor: Dr. Mohsen Dorodchi

Examining Charlotte's Latino Parents' Employment Status and Related Barriers

Sofia Herrera-Acosta, OUR

Mentor: Dr. Stephanie Potochnick

Characterizing Input and Output Water Valve Data for ML Models

Olivia Manning, OUR

Mentors: Dr. Nicole Roberts, Dr. Michael Smith

Denosing Diffusion Probabilistic Models: Performance on MNIST Dataset and Beyond

Batman Whiteside, OUR

Mentor: Dr. Hongfei Xue

3:10pm-4:10pm

Poster Presentations, Lucas Room

Synthesis of Peptide Analogs for DNA Conjugation

Dhairya Desai, Chemistry

Mentor: Dr. Eva Ge

How Effective are Existing Campus Accessibility Initiatives According to Student Feedback, and What Gaps Remain?

Arianna Lomonico, OUR

Mentor: Dr. Aimee Smith

Developing an Evidence-Based Children's Book Based on Emotional Clarity as a Pathway to Public Dissemination

Tori Rogers, Psychological Sciences

Mentors: Dr. Sara Levens, Dr. Kathleen Burke, Dr. Aimee Smith

The Oppression of Architecture

Arianna Hawkins, AAHP

Mentors: Ms. Betsy West, Dr. José Gámez, Mr. Kyle Spence

Life Satisfaction Levels in Adults with ADHD : An Evaluation of the Dopamine Reward Pathway

Praneeta Veluri, Psychological Sciences

Mentor: Dr. Hannah Peach

3:10pm-4:10pm

Poster Presentations, Lucas Room

Firefighter Mental/Behavioral Health Resources

Abbey Burgess, OUR

Mentor: Dr. Michael Benjamin

Dance Education

Sharid Olvera, Art History, History

Mentor: Dr. Kaustavi Sarkar

A Comparative Analysis of the Vaganova Method and Balanchine Technique

Angelina Musa, Art History

Mentor: Dr. Kaustavi Sarkar

Resolving the Microbiota in Radiation Survival Using Functional Metagenomics

Joshua Hensley, OUR

Mentor: Dr. Richard Allen White III

The Geography of Arts Funding and Opportunity in Charlotte, NC

Hailey Dunn, Sociology, OUR

Mentor: Dr. Vaughn Schmutz

**Examining the Moderating Effect of Anger on IL-6 Inflammatory Activity,
Perceived Stress, and Anxiety**

Jade Moran & Micah McWhorter, Psychological Sciences

Mentor: Dr. Jeanette Bennett

3:10pm-4:10pm

Oral Presentations, Room 111

Hybridity in the Dance World

Amaree Ratliff, History

Mentor: Dr. Kaustavi Sarkar

Navigating Insurance Challenges for Childhood Cancer Survivors

Duc Anh Nguyen, UHP

Mentors: Dr. Melinda Adnot, Dr. Kevin Benson, Dr. Vania Bredy

**Building the Metropolis: An Examination of Multi-Family Housing in the
Depression Era New York**

Leonie Eisenring, AAHP

Mentors: Dr. Ann Dils, Dr. Kaustavi Sarkar, Mr. José Gámez

3:10pm-4:10pm

Oral Presentations, Room 112

A study on workers' career advancement, and workplace experiences about the effects of artificial intelligence integration in technology

Elizabeth Akinfenwa, UHP

Mentors: Dr. Melinda Adnot, Dr. Barbara Knight, Dr. Harini Ramaprasad

Navigating the Integration of Artificial Intelligence and Surgery

Ishan Patel, UHP

Mentors: Dr. Melinda Adnot, Dr. Srijan Das, Mr. Andrew Goff

Mastering the Game: AI's Role in Developing Billiards Skills

Bryonna Gray, UHP

Mentors): Dr. Aidong Lu, Dr. Minwoo Lee, Mr. Andrew Goff, Dr. Melinda Adnot

How the Implications of AI Affects Students, Notably Students with Disabilities

Mya Allen, UHP

Mentors: Dr. Melinda Adnot, Dr. Minwoo Lee, Dr. Amber Knight

3:10pm-4:10pm

Oral Presentations, Room 113

A Literary Analysis of Urban Homesteading for Sustainable Living

Josie Sheeler, UHP

Mentors: Dr. Melinda Adnot, Mr. Andrew Goff, Dr. Ashli Stokes

**A Literature Review on the Interaction Between Cultural Expression and City
Zoning Ordinance.**

Duncan Bryson, UHP

Mentors: Dr. Melinda Adnott, Dr. Shen En Chen, Dr. Katherine Idziorek

Analysis of the Gender Gap in Engineering

Lauren Wilkie, Madison Johnson, UHP

Mentors: Dr. Melinda Adnot, Dr. Regina Vrikkis, Dr. Hunter Bachman

The Dynamics of Latinx Engineering in America

Esai Torres-Tarango, UHP

Mentors: Dr. Melinda Adnot, Dr. Cathy Blat, Mr. Sherman Mumford

3:10pm-4:10pm

Oral Presentations, Room 208

**Why is Dance in the 21st Century Associated with Femininity and a Female
Connotation?**

Christian Bryant, AAHP
Mentor: Dr. Kaustavi Sarkar

Hop-Hop Pathway from Around the World

Alexis Holloway, AAHP
Mentor: Dr. Kaustavi Sarkar

Louis Prima and the Tarantella: From Taboo Folk Dance to Stereotypical Icon

Vinny Vaccaro, OUR
Mentor: Dr. Jay Grymes

**Efficacy of Anterior Heel Wedge at Reducing Knee Flexion Contracture after
Total Knee Arthroplasty: A Pilot Investigation**

Gracyn Dwyer, Applied Physiology, Health, and Clinical Sciences
Mentor: Dr. Abbey Thomas Fenwick

3:10pm-4:10pm

Oral Presentations, Room 210

Sex at a Disadvantage: An Intersectional Look into Contraceptive Care

Anaciel Harwell, Psychological Sciences, UHP

Mentor: Dr. Hannah Peach

A Historical Look into Societal Change in Gender Roles and Working-Class

Family Dynamics: Analysis of Exhausted Strength by Ferdinand Georg

Waldmüller (1854) and Family First by Jay McKay (2023)

Lena May, UHP

Mentor: Dr. Malin Pereira

**Exploration of Family Dynamics, Concentrating on Fathers' Roles within
Different Races and Periods.**

Meenakshi Nair, UHP

Mentor: Dr. Malin Pereira

**The Progression of Public Perception of Marginalized Communities in Visual
Arts: An In-Depth Analysis of Robert Mapplethorpe and Marc Chagall**

Alastor Gilbert, UHP

Mentor: Dr. Malin Pereira

3:10pm-4:10pm

Oral Presentations, Room 265

**Exploring Cesarean Section Practices: A Comparative Literature Review of
Brazil and the United States**

Elisabeth Becker, UHP

Mentors: Dr. Melinda Adnot, Dr. Shankari Somayaji, Dr. Paloma Fernández Sánchez

The Role of Diet and Exercise on the Treatment of PCOS

Sumayyah Elkhoully, UHP

Mentors: Dr. Melinda Adnot, Dr. Jordan Boyd, Ms. Tracy Bonoffski

**A Literature Review on The Obesity Epidemic and its Effects on Muscle Repair
and Notch Signaling**

Danielle Waters, UHP

Mentors: Dr. Susan Arthur, Dr. Abby Thomas, Dr. Melinda Adnot

**Childhood on Empty Plates: A Comprehensive Literature Review on the Impact
of Food Insecurity on Children's Health and Development**

Karen Gonzalez-Telon, UHP

Mentors: Dr. Kristi Godfrey-Hurrell, Ms. Trudy Moore-Harrison, Dr. Melinda Adnot

4:20pm-5:20pm

Poster Presentations, Lucas Room

The Political Economy of Policing in Critical Theory

Yasmin Moaf, OUR

Mentor: Dr. Martin Shuster

Analysis of Germline CDR3 Expression within the Chiropterans

Sabrina Pinard, OUR

Mentor: Dr. Richard Allen White III

**Variations in Shapes and Dimensions in Copper Age Ceramics from Burial Sites
in Cagliari, Sardinia**

Mallory Moosbrugger, OUR

Mentor: Dr. Luca Lai

Reconstructing Moretti: Architectural Analysis of Fascist Italy

Maggie Orta, OUR

Mentor: Mr. Jeffrey Balmer

Quantifying Trash in Urban Floodplains

Caitlyn O'Kelly, OUR

Mentors: Dr. Sandra Clinton, Ms. Sophie Barnett

4:20pm-5:20pm

Poster Presentations, Lucas Room

Morphing Wind Blades for Wind Turbines

Ruben Castillo-Martinez, Engineering, OUR

Mentor: Dr. John Hall

**Using Atomistic Simulations to Explore the Effect of Uniaxia Loading on
Diffusivity in LLZO**

Khara Warner, OUR

Mentor: Dr. Xiang Chen

**What Was I Made For: The Study of Girlhood through Time utilizing Materiality
of Books**

Isabella Di Biasi, OUR

Mentor: Ms. Randi Beem

Quantification of PFAS Removal by ZNR

Maren Clark, Chemistry

Mentor: Dr. Jordan Poler

**Design of a Slip-Ring Swivel-Based Mooring System for a Wave Energy
Converter (WEC)**

Justin Logan, OUR

Mentor: Dr. Michael Smith

4:20pm-5:20pm

Poster Presentations, Lucas Room

**How the Completion of a Personal Finance Class Correlates to Someone's
Political Ideology**

Emily Hoyle, Political Science, OUR
Mentor: Dr. Jason Giersch

**Facilitating Energy Transition with Smart Renewable Energy Integration
Devices**

Riley van Ravesteyn, OUR
Mentor: Dr. John Hall

Odissi in Contemporary Parlance

Anna Mayorga, OUR
Mentor: Dr. Kaustavi Sarkar

Design of a Source-Seeking Marine Hovercraft Robot and Control Algorithm

Calum Lashley, Engineering, OUR
Mentor: Dr. Artur Wolek

4:20pm-5:20pm

Poster Presentations, Lucas Room

Advances in Photocatalysis Using Organic Thiazolothiazole Derivatives

Cole Heath, Chemistry
Mentor: Dr. Michael Walter

UNCC Students and Insects

Andres Vences, OUR
Mentor: Dr. Sara Gagne

Conceptualizing the Capstone: An Integrative Literature review of Honors Education, Interdisciplinary Research, and Deeper Learning.

Grayce Jeter, OUR
Mentors: Dr. Melinda Adnot, Dr. Cindy Gilson

Functional Characterization of GalE in *Vibrio cholerae* O1 El Tor

Maisy Olmo, Biology, Chemistry, OUR
Mentor: Dr. Jerry Troutman

Binding Specificity of Many Single-Stranded DNA Binding Proteins

Phuong Uyen Le, OUR
Mentor: Dr. Jun-Tao Guo

4:20pm-5:20pm

Poster Presentations, Lucas Room

Design Of Morphing Wind Turbine Blades

Malcolm Blades, OUR
Mentor: Dr. John Hall

Tuning Machine Learning Models to Hear “Silent” Mutations in Yeast

Mehul Jammannagari, OUR
Mentor: Dr. Abigail LaBella

Firefighter Mental/Behavioral Health Resources

Giavonni Cosby-Garvey, OUR
Mentor: Dr. Michael Benjamin

Impact of Input Length on the Consistency and Performance of LLM-Based Text Classifiers

Tarang Sonkusare, OUR
Mentor: Dr. Mohsen Dorodchi

Comparative Analysis of Resource-Efficient Multi-Label Text Classification Methods: GPT-4o vs fine-tuning with SetFit

Andrew Morgan, OUR
Mentor: Dr. Mohsen Dorodchi

4:20pm-5:20pm

Poster Presentations, Lucas Room

**Efficacy of MVA-MUC1 Vaccine in MUC1.Tg Mouse Model of Pancreatic Ductal
Adenocarcinoma**

Mauricio Lopez, Biology
Mentor: Dr. Pinku Mukherjee

**Preparation, Characterization and Reactivity of a Novel Fluorinated Cage
Compound Series**

Logan Hearn, Chemistry
Mentor: Dr. Markus Etzkorn

From Equations to Reactions: The Role of Applied Math in Chemistry

Asma Idris, Mathematics
Mentor: Dr. Xingjie Li

**Regression Analysis of Defense Spending and How it Impacts Society Social
Aspects**

Carlena (Lena) Hauser, Mathematics
Mentor: Dr. Yinghao Pan

4:20pm-5:20pm

Poster Presentations, Lucas Room

Codon Usage Bias: Building Machine Learning Models to Classify Co-Regulated Genes (Pathway vs. Pathway)

Aayu Kalaria, OUR

Mentor: Dr. Abbe LaBella

The Parallels of Circus and Dance

Idaniz Barnhouse, Art History

Krumping: Art is Activism

Amber Isler, AAHP

Mentor: Dr. Kaustavi Sarkar

4:20pm-5:20pm

Oral Presentations, Room 111

Characterizing PTM-driven interactions of the Hsp90 co-chaperone Cdc37

Ashley Choi, Biology

Mentor: Dr. Andrew Truman

Organic and Naturally Synthesized Photoredox Catalysts: Optimizing Commercial Photoredox Catalysis with Cheaper, Greener, and Safer Solutions

Nick Eberwein, Biology

Mentor: Dr. Michael Walter

Platinum-based Prodrug and Nanoparticle Synthesis for Cancer Treatment

Julia Scrbacic, Chemistry

Mentor: Dr. Juan Vivero-Escoto

Synthesis of Light-Activated Nanoparticles for Elimination of Bacteria

Atqiya Nafisa, Chemistry

Mentor: Dr. Juan Vivero-Escoto

4:20pm-5:20pm

Oral Presentations, Room 112

The Impact of Ageism Among Healthcare Workers and Investigation of Successful Interventions: A Literary Review

Larkyn Derrick, UHP

Mentor: Dr. Melinda Adnot

The Desensitization and Secondary Trauma of Medical Workers

Alexis McNeilis, UHP

Mentors: Dr. Melinda Adnot, Dr. Amber Knight, Dr. Jennifer Langhinrichsen-Rohling

Untangled: A Research and Literature Review Addressing the Impact of African Natural Hair on Performance in Schools and the Workplace

Savannah Powell, UHP

Mentors: Dr. Debra Smith, Dr. Melinda Adnot, Ms. Charlitta Hatch

4:20pm-5:20pm

Oral Presentations, Room 113

Religion and Mental Health in American Adolescents

Dalton Yandle, UHP

Mentors: Dr. Melinda Adnot, Dr. Stephen Cheyney, Dr. Erika Montanaro

Childhood Disability, Chronic Illness, and Mental Health Services in America

Madi Adams, UHP

Mentors: Dr. Melinda Adnot, Dr. Amber Knight, Dr. Kathleen Burke

The Relationship Between Mental Health and Pet Ownership in Older Adults

Sophia Call, UHP

Mentors: Dr. Ian Binns, Dr. Meredith Troutman Jordan, Dr. Melinda Adnot

**The Hidden Cost of Oppression: A Study of Financial Chronic Stress and
Wellness in Black Families**

Nazier McIver, UHP

Mentors: Dr. Melinda Adnot, Dr. Sonya Richardson, Mr. A. J. Simmons

4:20pm-5:20pm

Oral Presentations, Room 208

Operation Intercept and its Consequences for the Border Economy, 1969-1970

Dylan Gjerdrum, OUR

Mentor: Dr. Jurgen Buchenau

**Stories and Numbers: The Challenge of Defining Impact in Non-Profit
Organizations**

Eesha Alla, OUR

Mentor: Dr. Sharon Watson

4:20pm-5:20pm

Oral Presentations, Room 210

Reflecting Pool: Intrigue of the Feminine

Emma Hatmaker, UHP

Mentor: Dr. Malin Pereira

**The Objectification of Women in Art and Its Impact on Gender Representation
and Inequality.**

Preslei Piercy, UHP

Mentor: Dr. Malin Pereira

**How “Gamin” by Augusta Savage and “Female Head with Necklace” by Franz
Hagenauer use modernist aesthetics to assert cultural narratives in the face of
societal constraints**

Mo Pirela, AAHP

Mentor: Dr. Malin Pereira

Virtual Only

Poster Presentations

Exploring Teacher Perceptions of Differentiated Curriculum for Gifted Students

Liliahna Bedolla, OUR

Mentors: Dr. Cindy Gilson, Dr. Melinda Adnot

Oral Presentations

The Argentine Tango: Its Origins and Influence on Argentina and the World.

Kaitlyn Bego, History

Mentor: Dr. Kaustavi Sarkar

Hidden Disparities of African American Graphic Design Artists in the Educational System

Jazmine Chance, AAHP

Mentors: Mr. David Brodeur, Ms. Tamara Williams, Ms. Samaria Shiridevich

5:30pm-6:00pm

*Alumni Speakers Panel,
McKnight Room*

6:00pm-6:30pm

Reception, Lucas Room

THANK YOU TO THE FOLLOWING!

Honors Research Symposium Committee Members

Dr. Melinda Adnot
Dr. Lance Barton
Dr. Cindy Gilson
Ms. Denise Lynch
Dr. Sarah Powell
Ms. Shannon Zurell

Student Reps

Abbey Beam
Grayce Jeter
Janvi Nandwani - Program Designer