

24th ANNUAL STUDENT RESEARCH CONFERENCE



Sponsored by the UHD Scholars Academy

April 25, 2025

The Student Research Conference (SRC) is a showcase of academic excellence demonstrated by University of Houston – Downtown (UHD) undergraduates and graduates majoring within the Colleges of Marilyn Davies College of Business, Humanities and Social Sciences, Public Service, and Sciences and Technology.

SRC Program Schedule for April 25, 2025

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8:00 AM	Registration	Mural Area
	Continental Breakfast	Skyline Lounge
9:00 AM	Introductory Remarks - Executive Director, Dr. Mary Jo Parker Recognition of the 2025 SRC Co-Chairs & Committee members Recognition of any Special Guests	Robertson Auditorium
9:15 AM	Introduction of UHD President Introduction of Provost Introduction of CST Dean, Dr. Akif Uzman	
9:30 AM	Introduction of STEM Keynote Speaker – Dr. Michael Tobin	
9:35 AM	STEM Keynote Speaker – Dra. Evelyn Valdez-Ward "Narratives as Data, Identity as Method: How My Journey Through STEM Shaped My Research"	
10:00 AM	Oral Presentations Begin Introductions by SRC Chairs	
11:45 AM	Dr. Mary Jo Parker Remarks	
12:00 PM	Lunch	Welcome Center & Milam/Travis Rooms
1:15 PM	Poster Sessions Begin	A300
1:15 PM	Session I	
2:30 PM	Session II	
3:30 PM	SRC closes – Receive Conference Gift with Survey	

Conference Co-Chairs

Dr. Katherine Shoemaker Dr. Michael Tobin

Conference Planning Committee

Dr. Liza Alonzo
Dr. Amy Baird
Dr. Maria Benavides
Dr. Shahnjayla Connors
Dr. Weining Feng
Dr. César Garza
Dr. Poonam Gulati Salhotra

Dr. Judith Harris
Dr. Katarina Jegdic
Dr. Mian Jiang
Dr. Yuan Yuan Kang
Professor Mitsue Nakamura
Dr. Laura Ruth Parker
Dr. Dvijesh Shastri

Dr. Katherine Shoemaker Dr. Jorge Tito-Izquierdo Dr. Michael Tobin Dr. Saveena Veeramoothoo Ms. Mercedes Gonzales Dr. Mary Jo Parker

Special Guests

Ms. Sangeeta Gad, UHD Mathematics Kevin Anthony, Texas Southern University Stephen Rodriguez, VGXI Inc., Director of Process Development

UHD Alumni Keynote Speaker



Dra. Evelyn Valdez-Ward

Adjunct in NS | UHD

Postdoctoral Fellow | University of Rhode Island

National Science Foundation STEM Education Postdoctoral Fellow

ReclaimingSTEM Institute | Executive Director

Presentation Title: "Narratives as Data, Identity as Method: How My Journey Through STEM Shaped My Research"

Bio-sketch

Dra. Evelyn Valdez-Ward is a Mexican and formerly undocumented scholar dedicated to amplifying voices in science. She earned her B.S. in Biology from the University of Houston-Downtown, where she was a Scholar Academy member, and completed her Ph.D. at the University of California, Irvine, focusing on the narratives of scientists and their use of science communication. As an NSF STEM Education Postdoctoral Fellow at the University of Rhode Island, her research continues to explore the intersections of identity, communication, and experiences in STEM.

Dra. Valdez-Ward is the co-founder of the ReclaimingSTEM Institute, a global initiative that has trained over 3,000 participants through science communication workshops. Through RSI, she conducts research, and evaluation focused on community building.

Presentation Abstract

Her current work investigates how scientists' personal and professional environments shape their STEM identities, self-efficacy, and career trajectories. Drawing on STEM Identity Theory, the Communication Theory of Identity, and Social Cognitive Career Theory, she explores how scientists define their identities, navigate complex environments, and reimagine what is possible in STEM.

Oral Presentations



1 - Ana Diaz, "Al-Powered Failure Analysis of the Deepwater Horizon Oil Spill "

Research Mentor(s): Dr. Mahmud Hasan

Project Location: University of Houston-Downtown



2 - Connor Durrenberger, "Eisenstein Triples and their Genealogical Trees" Research Mentor(s): Dr. Sergiy Koshkin Project Location: University of Houston-Downtown



4 - Tina Prajapati, "Screening Compounds for Their Anti-Cell Proliferation Properties"
Co-Author(s): Audrey Rubio, Jude Campbell, Dr. Vaishali Chaubal, and Dr.

Rachna Sadana

Research Mentor(s): **Dr. Vaishali Chaubal, Dr. Rachna Sadana** Project Location: University of Houston-Downtown



5 - Ryan Price, "What's Your Favorite Dinosaur? Statistical Analyses for Use in Determining Museum Educational Programming"

Co-Author(s): James Washington III
Research Mentor(s): Ms. Joyce Hallaway

Project Location: University of Houston-Downtown, Houston Museum of

Natural Science

Poster Presentation Session I (1:15PM-2:30PM):

1 - Jonathan Aguilar, "Higher Pythagorean Presentation"

Research Mentor(s): Dr. Sergiy Koshkin

Project Location: University of Houston-Downtown

3 - Arvin Allahyari, "Assessing Thermal Tolerance in Guinea Grass, Johnson Grass, and Common Wild Oat: Using Chlorophyll Fluorescence as an Indicator of Plant Damage"

Research Mentor(s): Dr. Michael Tobin

Project Location: University of Houston-Downtown

5 - Patricia Amador, "Anti-Cancer Effects of Fungal and Plant Extracts on

Lung and Breast Cancer Cells" Co-Author(s): Mesias Pedroza, PhD Research Mentor(s): Dr. Mesias Pedroza Project Location: University of Houston-Downtown

7 - Dorothy Arogunjo, "Polarized Light Microscopic Studies of

Polymerizable Catanionic Surfactants" Co-Author(s): Dr. Robin Jose Research Mentor(s): Dr. Robin Jose

Project Location: University of Houston-Downtown

9 - Wendi Beal, Emily Perez, Daniel Odejimi, Margarita Garcia, "Heat and Cold Stress in Grasses: Thermal Tolerance of the Photosynthetic System"

Co-Author(s): Camaya Ezeike, Daniel Odejimi, Emily Perez, Margarita

Garcia

Research Mentor(s): Dr. Michael Tobin

Project Location: University of Houston-Downtown

11 - Kayla Campbell, Giovanni Rodriguez, Stiven Traore, "Studies of

transition metal ions with aromatic amino acids"

Research Mentor(s): Dr. Mian Jiang

Project Location: University of Houston-Downtown

13 - Mercy Clement Akioyamen, "Trajectories of Adulthood Body Mass Index (BMI) and Cognitive Function: A Cross-Sectional Analysis of the National Health and Nutrition Examination Survey 2011-2014"

Research Mentor(s): Dr. Song Ge

Project Location: University of Houston-Downtown

15 - Ana Diaz, "Al-Powered Failure Analysis of the Deepwater Horizon Oil

Spill"

Research Mentor(s): Dr. Mahmud Hasan Project Location: University of Houston-Downtown

17 - Khang Doan, Stacy Salinas, Ganiyat Raheem, Alice Quaye, Brenda Molina, Jennifer Rodriguez, Cassie Licea, Bailey McCann,

"Molecular cloning and expression of actinophage, Zolita genes"

Research Mentor(s): Dr. Sanghamitra Saha Project Location: University of Houston-Downtown

19 - Thomas Duong, "Taking Advantage of Advanced Placement (AP) Statistics for College Admission: A Study of High School Students in the

Houston Area"

Research Mentor(s): Dr. Timothy RedI

Project Location: University of Houston-Downtown

21 - Connor Durrenberger, "Classical Algorithms in Quantum

Computers"

Research Mentor(s): Dr. Cesar Garza

Project Location: University of Houston-Downtown

23 - Jz Kamille Eclarin, Krishnaraj Narayanan, "The role of

Lactobacillus in combination with Bifidobacterium strains in mitigating obesity-related effects: A systematic review of studies in mice and humans"

Co-Author(s): Alec Arbona

Research Mentor(s): Dr. Nagendran Tharmalingam

Project Location: Methodist Academic Institute

25 - Aimalohi Edeghere, "Validation of Quantitative Trait Locus In

Drosophila Melanogaster"

Research Mentor(s): Dr. Yuan Yuan Kang Project Location: University of Houston-Downtown

27 - Adora Eko, Hanya Navarrete, "Comparative study of two pan-

neural Gal4 drivers in Drosophila melanogaster" Research Mentor(s): Dr. Yuan Yuan Kang Project Location: University of Houston-Downtown

29 - Ashely Espinoza, Huriel Bautista, "Analyzing the Viability of PS

Series Compounds in MOLT4 and A549 Cancer Cell Lines:

Advancements in Chemotherapy Efficacy"

Co-Author(s): Maximiliano Perez, Tina Prajapati Research Mentor(s): Dr. Rachna Sadana

Project Location: University of Houston-Downtown

31 - Ingrid Funes, Odette Jaramillo, "The Impact of Parenting Style on

Children's Self-esteem and Mental Health" Research Mentor(s): Dr. Jianling Xie

Project Location: University of Houston-Downtown

37 - Kenneth Garcia, "Quantum mechanical investigation of Stability and

Properties of 1,3,4-Oxadiazolyl-5-yl Thiones using DFT"

Research Mentor(s): Dr. Maria Benavides Project Location: University of Houston-Downtown

39 - Jessica Gonzalez, Edgar Llanas, John Esparragoza, "Faster

Verification Process of Properties in Higher Dimensional Algebraic

Structures with C++ and Python"

Research Mentor(s): Ms. Mitsue Nakamura Project Location: University of Houston-Downtown

43 - Maggie Ha, "Galois Groups of Polynomials"

Research Mentor(s): Dr. Jean Nganou

Project Location: University of Houston-Downtown

45 - Alexandra Hernandez, Alexandria Estimable, Junior Tankoh,

"Population Genetics of Bowhead Whales" Research Mentor(s): Dr. Amy Baird

Project Location: University Of Houston-Downtown

47 - Cristina Hernandez Diaz. "Genetic and environmental effects on the development of socially- and ecologically-relevant behaviors in the house

fly Musca domestica"

Co-Author(s): Jesus A. Villalobos

Research Mentor(s): Dr. Pablo Delclos

Project Location: University of Houston-Downtown

49 - Adolfo Jaimes, Daniela Solorzano, "Food Driven Aggression in

Different Drosophila Species" Co-Author(s): Laurie Neuman

Research Mentor(s): Dr. Yuan Yuan Kang Project Location: University of Houston-Downtown

51 - William Martinez, Jacqueline Nunez, "Screening the antibiotic

activity of synthetic Compounds' Co-Author(s): Dr. Rachna Sadana

Research Mentor(s): Dr. Gabriela Bowden Project Location: University of Houston-Downtown

53 - Kibru Menore, Samuel Holden, "Enhancing A* Search for Robotic Pathfinding by Integrating Velocity and Advanced Search Techniques"

Research Mentor(s): Dr. Azadeh Izadi

Project Location: University of Houston-Downtown

55 - Robert Reinartz, Justin Cline, Mark Garcia, Christina Hamilton, Shikyna William, "Using Artificial Neural Network Models to Understand and Predict Baseball Results"

Research Mentor(s): Dr. Katarina Jegdic

Project Location: University of Houston-Downtown

57 - Alexi Soto, Mike Hampton, Christian Tuffelmire, Ana Vicente.

"Developing a Small-Scale Anaerobic Digestion System for Sustainable Food Waste Management and Methane Energy Production" Research Mentor(s): **Dr. Lisa Morano**, **Dr. Vassilios Tzouanas**

Project Location: University of Houston-Downtown

59 - Eva Williams, Ayanna Davis, "Adolescent School Experiences for

Black Men and Later Outcomes" Research Mentor(s): **Dr. Jianling Xie**

Project Location: University of Houston-Downtown

61 - Isaiah Le, "Validation of Software Tools"

Co-Author(s): Jose Viera

Research Mentor(s): Dr. Dvijesh Shastri

Project Location: University of Houston-Downtown

63 – Prajwal Parajuli, "Comparing Machine Learning Algorithms for ADHD Diagnosis Using rs-fMRI and Clinical Features from the ADHD-200 Pataset"

Research Mentor(s): Dr. Ali Nabi Duman

Project Location: University of Houston-Downtown

65 – Laura Vanessa D'luyz Pastor, "How does exposure to drought and high-temperature conditions affect the development of Arabidopsis thaliana?"

Co-Author(s): Syeda Sanzara

Research Mentor(s): **Dr. Kattia Palacio-Lopez**Project Location: University of Houston-Downtown

67 - Daniel Medina, "Impact of interspecies competition on morphology

and reproductive potential of Arabidopsis thaliana"

Co-Author(s): Kassandra Orellana, Dr. Kattia Palacio-Lopez

Research Mentor(s): **Dr. Kattia Palacio-Lopez**Project Location: University of Houston-Downtown

69 – Brenda Ramirez, "Topological Data Analysis for Understanding

ADHD"

Co-Author(s): **Dr. Ali Duman** Research Mentor(s): **Dr. Ali Duman**

Project Location: University of Houston-Downtown

Poster Presentation Session II (2:30PM-3:30PM):

2 - Thomas Duong, Maggie Ha, "Solving Complex Equations using

Newton's Method with MATLAB"

Co-Author(s): Maggie Ha, Dr. Timothy Redl Research Mentor(s): Dr. Timothy Redl

Project Location: University of Houston-Downtown

4 - Connor Durrenberger, "Eisenstein Triples and their Genealogical

Trees"

Research Mentor(s): Dr. Sergiy Koshkin

Project Location: University of Houston-Downtown

6 - Krishnaraj Narayanan, "A new vitamin C quantification based on the

iodometry modification"

Research Mentor(s): Dr. Mian Jiang

Project Location: University of Houston-Downtown

8 - Laurie Neuman, "Comparative Analysis of Food-Induced Aggression

in Drosophila Species with Varying Dietary Preferences"

Co-Authors: Dainet Arencibia, Tammy Duong, Juan Magadan

Research Mentor(s): Dr. Yuan Yuan Kang

Project Location: University of Houston-Downtown

10 – John Nobles, Jiya Desai, Mateen Hakeem, Juandedios Hernandez, Syed Khalil, Enrique Martinez, Valeria Salgado, Saul Santander, Stephanie Torres, "Lessons from Wall-E: Addressing

Pollution, Waste, and Climate Change"

Co-Author(s): Edward Sanchez, CJ Nwachukwu Research Mentor(s): Ms. Mitsue Nakamura Project Location: University of Houston-Downtown 12 – Judah Okolie, "Synthetic Data Generation's Applications in

Cybersecurity"

Co-Author(s): **Damilola Whedan**Research Mentor(s): **Dr. Emre Yilmaz**

Project Location: University of Houston-Downtown

14 - Andrea Olguin Ledezma, "Healthcare Inequalities from the Male

Perspective"

Research Mentor(s): Dr. Yajaira Ceciliano-Navarro

Project Location: University of Houston-Downtown

16 - Omar Omar, "A Study of Electrolyte Solutions Using the Vernier Go

Direct Conductivity Probe"

Research Mentor(s): Dr. Eszter Trufan

Project Location: University of Houston-Downtown

18 – Isha Patil, "Validation and Characterization of Quantitative Trait Locus Mapping for Circadian-Regulated Locomotor Activity in Drosophila

melanogaster"

Co-Author(s): Pedro Rodriguez Navarro, Delwin Sunil

Research Mentor(s): Dr. Yuan Yuan Kang

Project Location: University of Houston-Downtown

20 – Mandy Payan, Daniela Mejia, "Assessing Thermal Tolerance in Johnson Grass: Relationship of Temperature and Exposure Duration"

Research Mentor(s): Dr. Michael Tobin

Project Location: University of Houston-Downtown

22 - Maximiliano Perez, "Screening TZ62, TZ70, and TZ71 for Inhibition

of Metastasis"

Research Mentor(s): Dr. Vaishali Chaubal, Dr. Rachna Sadana

Project Location: University of Houston-Downtown

24 - Tina Prajapati, "Screening Compounds for Their Anti-Cell

Proliferation Properties"

Co-Author(s): Audrey Rubio, Jude Campbell, Dr. Vaishali Chaubal, Dr.

Rachna Sadana

Research Mentor(s): Dr. Vaishali Chaubal, Dr. Rachna Sadana

Project Location: University of Houston-Downtown

26 - Ryan Price, "What's Your Favorite Dinosaur? Statistical Analyses for

Use in Determining Museum Educational Programming"

Co-Author(s): James Washington III

Research Mentor(s): Ms. Joyce Hallaway

Project Location: University of Houston-Downtown, Houston Museum of

Natural Science

28 - Alondra Ramirez, Miranda Santiago, Jennifer Ocampo, "Concrete

and Anchor Strength Testing"

Research Mentor(s): **Dr. Jorge Tito-Izquierdo**

Project Location: University of Houston-Downtown

30 - Andre Ramirez, Meagan Bachman, "Synthesis of 6,6'-

di(aminomethyl)-2,2'-diethyl-oxybi-1,10-naphthalene"

Research Mentor(s): **Dr. Robin Jose**

Project Location: University of Houston-Downtown

32 - Charzjon Rice, "Computational and Thermal Studies on the Conversion of Waste Polyethylene into High Performance Graphitic

Conversion of Waste Polyethylene into High Performance Graphit Carbon"

Co-Author(s): Alfredo Rodriguez

Research Mentor(s): Dr. Maria Benavides, Dr. Jacob Theruvathu

Project Location: University of Houston-Downtown

34 - Giovanni Rodriguez, Kayla Campbell, Stiven Traore,

"Spectrophotometric studies of proteogenic aromatic amino acids"

Research Mentor(s): Dr. Mian Jiang

Project Location: University of Houston-Downtown

35 - Danna Garcia, Jz Eclarin Kamille, "HPLC Analysis of Nucleosides

and Nucleobases"

Research Mentor(s): Dr. Jacob Theruvathu

Project Location: University of Houston-Downtown

36 – Pedro Rodriguez Navarro, Delwin Sunil, "Analysis and Validation of Quantitative Trait Locus Mapping of Locomotive Behaviors in

Drosophila species"

Co-Author(s): Delwin Sunil

Research Mentor(s): **Dr. Yuan Yuan Kang**Project Location: University of Houston-Downtown

38 - Victoria Romero, "Effects of Mycorrhizal Fungi and Plant Growth Promoting Rhizobacteria on Post-Germination Growth in Cotton and Cucumber Plants"

Co-Author(s): Melanie Sosa

Research Mentor(s): Dr. Lisa Morano

Project Location: University of Houston-Downtown

40 - Eisha Saleem, "Refugee-Learning and Welcome"

Research Mentor(s): Dr. John Linantud

Project Location: University of Houston-Downtown

41 - Yaqueline Gutierrez, "The role of Tfam loss in mitochondrial

metabolism during retinogenesis"

Co-Author(s): **Amy Nguyen, Ross A. Poché** Research Mentor(s): **Dr. Elda M. Rueda**

Project Location: University of Houston-Downtown

42 - Yuliana Santos Ventura, "Community Needs Assessment to

Develop Community Education and Navigator Programs"

Co-Author(s): Katherine Torres

Research Mentor(s): Dr. Mesias Pedroza

Project Location: University of Houston-Downtown

44 - Simonsha Shrestha, Zachary Castro, "LoRaMesh: Data

Transmission"

Research Mentor(s): Dr. Weining Feng

Project Location: University of Houston-Downtown

46 - Alexi Soto, "Effects of sex, temperature, and genotype on the production of cuticular hydrocarbons in the house fly Musca domestica"

Research Mentor(s): Dr. Pablo Delclos

Project Location: University of Houston-Downtown

48 – Alex Soto, Alejandra Alvarado, "Social Media Engagement and Motivation for Use Impact on Body Image, Self-Esteem, and Well-Being"

Research Mentor(s): Dr. Danya Serrano

Project Location: University of Houston-Downtown

50 – Jonathan Stola-Lerma, "Optimizing BPW34 Photodiodes for

Gamma Ray Detection: Efficiency and Schematic Evaluation"

Research Mentor(s): Dr. Weining Feng

Project Location: University of Houston-Downtown

52 - Fatima Tanvir, "HypnoBayes: A Bayesian Neural Network

Framework for Sleep Stage Prediction" Research Mentor(s): **Dr. Hong Lin**

Project Location: University of Houston-Downtown

54 – Janis Tenyah, Aileen Sanchez Medina, "Synthesis of N,N-

Didodecylaniline for the preparation of an azo dye-based surfactant."

Research Mentor(s): Dr. Robin Jose

Project Location: University of Houston-Downtown

56 – Christian Tuffelmire, "Evaluating Microbial Solutions as Alternatives

for Artificial Fertilizers"

Co-Author(s): Dr. Lisa Morano, Mariah Rangel, Danya Chapa, Amanda

Chavez, Odell Evans, Fantasia Ford

Research Mentor(s): Dr. Lisa Morano

Project Location: University of Houston-Downtown

58 - Valeria Vazquez, Lisa Franco, "Plant Growth Responses to

Solutions of Mycorrhizal Fungi and Plant Growth Promoting

Rhizobacteria"

Co-Author(s): Marlene Berrios

Research Mentor(s): Dr. Lisa Morano

Project Location: University of Houston-Downtown

60 - Melanie Solano, "Histological Characterization of Heart Defects in

an Avian Model of Maternal Phenylketonuria"

Co-Author(s): Nikki Seagraves

Research Mentor(s): Dr. Adriana Visbal

Project Location: University of Houston-Downtown

62 - Kassandra Orellana, "Effect of abiotic stresses on cellular

responses in Penium margaritaceum"

Research Mentor(s): **Dr. Kattia Palacio-López**Project Location: University of Houston-Downtown

64 - Mridula Muruganandam, "Colorist Advertisements and Their Impact

on Marginalized Consumers' Mental Health" Research Mentor(s): **Dr. Charlie Finch**

Project Location: University of Houston-Downtown

66 - Syeda Sanzara, "Evidence of aging recovery on germination rate of

admixed genotypes of Arabidopsis thaliana" Co-Author(s): **Dr. Kattia Palacio-Lopez**

Research Mentor(s): Dr. Kattia Palacio-Lopez

Project Location: University of Houston-Downtown

68 – Eunice J Pelcastre Villanueva, "Characterization of BRCA1/2 Variants in Latinas Using Genomic Prediction Tools: A Study from NIH All

of Us Research Program'

Co-Author(s): Dr. Catherine Gavile, Dr. Erick Olivares, Dr. Cathy

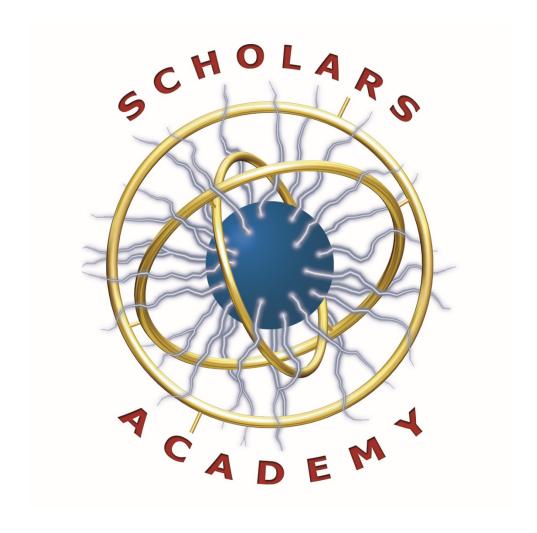
Samayoa

Research Mentor(s): Dr. Adriana Visbal

Project Location: University of Houston-Downtown

1999 - 2025

Celebrating 25 Years



And Counting

Acknowledgments

The SRC event provides an opportunity to experience a professional conference simulation while still on the UHD campus. Most conferences do not state or outline a conference dress code, but rather allow the attendee to infer, through standards upheld by their disciplines' professional societies, the most appropriate dress expectations. SRC will adopt this approach in keeping with the nature of the disciplines comprising the conference and in keeping with the UHD mission/strategic plan supporting student inclusion.

It is a great pleasure to recognize the many individuals, organizations, and institutions supporting our UHD students in their research endeavors. These include significant funding of research over the past year from the Texas Workforce Commission (2824WPB005), The Brown Foundation, Inc., National Science Foundation (Award No. 0934913), DOED MSEIP (P120A220015, P120A230070), and University of Houston-Downtown.

Many students conducted their research during summer research programs on and off-campus. Faculty and staff members of these and other academic institutions, as well as personnel at industrial facilities, have generously supported/mentored our UHD students.

In addition, we would like to thank the UHD faculty and staff who have worked tirelessly to support undergraduate and graduate research experiences as well as the UHD staff, faculty and administrators who have helped make this conference a success.

Thank you for participating in the 24th Annual UHD Student Research Conference.

Thanks to the generous supporters of this student conference:

Texas Workforce Commission (2824WPB005)
The Brown Foundation, Inc.

National Science Foundation (Award No. 0934913)
DOED MSEIP (P120A220015, P120A230070)
UHD Marilyn Davies College of Business
UHD College of Humanities and Social Sciences
UHD College of Public Service
UHD College of Sciences & Technology
UHD Scholars Academy
UHD













Please share your impressions of the SRC by completing a conference evaluation.

Post-Conference Evaluation Survey

Please complete the electronic Student Research Conference 2025 Post-Evaluation Survey by visiting the following web link and receive a Scholars Academy gift for your invaluable feedback:

https://uhd.gualtrics.com/ife/form/SV 3z2Y7llYpHQK1bo

