

ARCH SCHOLARS RESEARCH SYMPOSIUM



October 10, 2025
2:00-4:00pm

Norris Student Center
Evanston Campus

POSNER RESEARCH FELLOWS

Daniela Caceres (Poster #1)

Faculty Mentor: Elvia Mendoza

Department: Latino & Latina Studies

“Queer Narratives: Lesbian Representation in Telenovelas” - This research project looks at how queerness and specifically lesbian identities are represented in telenovelas, through a close reading and analysis of the lesbian relationship of Juliana and Valentina in the telenovela ‘Amar a Muerte’.

Jalyn Dixon (Poster #3)

Faculty Mentor: Jesse Yeh

Department: Legal Studies

“Race, Power, and the Politics of School Policing” - My research examines how school board governance structures, political language, and public engagement shape decisions to dismantle school policing in racially marginalized communities.

Adam Freshley (Poster #2)

Faculty Mentor: Scott Ogawa

Department: Economics

“Is AI Rational? Exploring the Decision-Making of Large Language Models in Strategic Competitive Games” - This project investigates whether large language models (LLMs) behave rationally in strategic settings by testing six popular free models in repeated and one-shot Prisoner’s Dilemma tournaments.

Alex Freshley (Poster #4)

Faculty Mentor: Jim Hornsten

Department: Economics

“Measuring and Mapping Gentrification in Chicago (1990-2020)” - Using Census and ACS data, this study examines patterns of gentrification in Chicago from 1990 to 2020, focusing on how economic, demographic, and housing market forces reshape neighborhoods.

Melanie Galindo (Poster #5)

Faculty Mentor: Jim Hornsten

Department: Economics

“The Effects of PNIS Incentives and Armed Group Pressures on Farmers' Choices to Crop Switch in Colombia” - Through the use of economic theories and a case study, this project analyzes the Comprehensive National Illicit Crop Substitution Program, which allowed Colombian farmers to voluntarily eradicate their coca crops in exchange for governmental help in switching to a legal crop such as bananas, coffee, corn, and rice.

Jessica Gomez (Poster #6)

Faculty Mentor: Brady Clark

Department: Linguistics

“Cardinal Frequency & Irregular Ordinal Forms Across Languages Using Benford’s Law” - Using AI tools, native speaker feedback, and linguistic resources, I gathered and categorized data from 53 languages and proved that Benford’s Law applies to the distribution of regular and irregular ordinals across different language families.

Grace Juarez (Poster #7)

Faculty Mentors: Concepción Soto & Cristina López-Rojas

Department: Communication Sciences and Disorders

“Remembering Future Intentions in the Bilingual Mind” - The purpose of this project was to study Spanish-English Bilinguals Prospective Memory (PM), the cognitive ability that allows anyone to form an intention and execute it in the future.

Adriana Maldonado (Poster #11)

Faculty Mentor: Zach Nissen

Department: Anthropology

“Postclassic Maya Effigy Censer Deities Relation to Trade on New River Island” - My research involved investigating the economic structure of the Maya after their fall in political power because of European settlers, and their subsequent migration towards the outskirts of big cities.

Ashley Mendez (Poster #13)

Faculty Mentor: Karen Alter

Department: Political Science

“Sustainability of Mano Dura: El Salvador” - My research is focused on the policies of the "Iron Fist" in El Salvador. Since becoming president, Nayib Bukele has flipped El Salvador's reputation from being one of the most dangerous countries in the world to one of the safest. This research aims to uncover what makes the past "Iron Fist" policies different from today's and whether this effect will persist beyond President Bukele's presidency.

Bongani Phiri (Poster #9)

Faculty Mentor: Scott Ogawa

Department: Economics

“Investigating TV Viewership Decline in Major Sports Leagues Through the Superstar Effect” - My research investigates whether the decline in sports viewership over the past 20-30 years can be attributed to the "Superstar Effect", a lack of star power of players entering sports leagues.

Chantal Rodriguez (Poster #15)

Faculty Mentor: Laura Pigozzi

Department: Cook Family Writing Program

“Exploring How Aggressive Immigration Policies and Anti-Immigrant Rhetoric Affect Latino Immigrant Health” - This research aims to look at the impact anti-immigrant rhetoric and aggressive policies have had during the second Trump administration, where there has been a clear focus to target spaces that were previously seen as safe spaces for migrants.

Talib Ruff (Poster #10)

Faculty Mentor: Bridget Wild

Department: Pediatrics

“Simulating Checklist-based Procedure Competency Through Low-Fidelity, High-Validity Deliberate Practice For Pediatric Hospitalists” - Our study aims to improve pediatric hospitalists' proficiency in four essential procedures by using deliberate check-list guided practice, evaluated through surveys and video assessments.

Isaiah Thomas (Poster #12)

Faculty Mentor: Galen Bodenhausen

Department: Psychology

“Impressions of Fashion Influencers” – With a sample size of about 800 participants, we examined how white and Black women perceive fashion influencers who represent thrifty, eco-friendly, affordable, or trendy styles.

Jonas Ward (Poster #14)

Faculty Mentor: Reuel Rogers

Department: Political Science

“A Comparison of Yale and Northwestern University’s Local Public Education Programs” - This study takes a comparative look, primarily through interviews, at how Northwestern and Yale University support their local public schools through investments and initiatives to understand the successes and shortcomings of each respective model.

NU BIOSCIENTISTS

Abdel Aguilar (Poster #16)

Faculty Mentor: Jeffrey Savas

Department: Neurology (FSM)

“Role of Long-lived H2AK96ac on Neuronal Cell Fate” – The Savas Lab investigated an unusually long-lived histone acetylation mark on histone H2A at lysine 96 (H2AK96ac) in the mouse brain. The project tested whether this persistent modification helped stabilize neuronal identity across development.

Sara Al-Azzam (Poster #19)

Faculty Mentor: Brian Popko & Trupti Ghatage

Department: Neurology (FSM)

“Hypoxia-Induced Oligodendrocyte Dysfunction in Mouse Models of Vascular Dementia” - Hypoxia-inducible factor 1-alpha (HIF-1α) mediates cellular responses to low oxygen but its role in oligodendrocyte health under cardiovascular stress is not well understood.

Sammie Amoo (Poster #18)

Faculty Mentor: Iris Titos Vivancos

Department: Biochemistry & Molecular Genetics (FSM)

“Exploring the Role of the Gut Microbiome and Immune Signaling in Sleep Depth Regulation” - My research focuses on the potential connection between the gut microbiome and sleep architecture. This summer, I studied how signaling molecules in the gut of fruit flies respond to environmental changes induced by a high-protein diet.

Ariana Avila (Poster #20)

Faculty Mentor: Ana Maria Acosta

Department: Physical Therapy & Human Movement Sciences (FSM)

“A Method for Investigating the Interaction between Vision and Kinesthesia During Reaching in the Presence of Flexion Synergy Post-Hemiparetic Stroke” – We developed a novel protocol using a mechatronic device to assess proprioceptive function during multi-joint reaching under different arm loading and visual conditions.

Diya Bhakta (Poster #21)

Faculty Mentor: Amy Paller

Department: Dermatology (FSM)

“shRNA-Mediated Knockdown of SPTLC3 Impairs Epidermal Differentiation and Filaggrin Expression in 3D Skin Organoid Models” - My research explores the role of SPTLC3 in maintaining skin barrier integrity and its potential involvement in atopic dermatitis. My findings support a model where SPTLC3 reduction disrupts ceramide composition and weakens the epidermal barrier.

Kassadi Brown (Poster #8)

Faculty Mentor: Robert Galiano

Department: Surgery (FSM)

“Optimizing Aesthetics in Two-Stage Breast Reconstruction” - The aim of this study is to examine the relationship between native breast characteristics, the process of tissue expansion, and the ultimate aesthetic outcomes of bilateral breast reconstruction.

Nate Chavez (Poster #22)

Faculty Mentor: Amy Paller

Department: Dermatology (FSM)

“Investigating the Relationship Between SPTSSB Expression and Production of Sphingolipids to Address Skin Barrier Deficiencies in Atopic Dermatitis” - In the Paller Lab, I worked in manipulating the expression of ceramide-producing enzymes that may be responsible for skin deficiencies present in atopic dermatitis.

Aiden Cordova (Poster #24)

Faculty Mentor: Sarki Abdulkadir

Department: Urology (FSM)

“c-MYC Inhibitor MYCi975 Targets Gene Expression and Degradation Through the Discovery of a New Binding Site” - The majority of my research time was spent doing quantitative analysis, cell culturing, western blots, and more to test the capabilities of the lab's drug, MYCi-975.

Lauren Delapenha (Poster #28)

Faculty Mentor: Sandy Waxman

Department: Psychology

“Investigating the Effect of Linguistic Labeling on Object Categorization and Memory in 7 and 12-Month Olds: Evidence From a “Peek-A-Boo Occlusion” Task” - I investigated the connections between linguistic labeling, object categorization, and memory in 7 and 12-month-old infants as they watched 3-minute long videos where they were shown images of verbally-labeled stuffed animals.

Angela Ennin (Poster #23)

Faculty Mentor: Stephanie Eisenbarth & Adam Williams

Department: Pathology (FSM)

“NSAID Responses in Mouse Models of Anaphylaxis” - This project investigated how NSAID exposure, particularly ibuprofen, influences allergy susceptibility in mouse models of oral anaphylaxis. Using peanut sensitization and challenge models, we measured IgE levels, core body temperature, and anaphylaxis scores to assess allergic responses.

Kiya Ettefa (Poster #25)

Faculty Mentor: Daniel Martin Watterson

Department: Pharmacology (FSM)

“Permeability of Molecules” - My research studied how small drug molecules can cross the blood-brain barrier, which is important for treating brain diseases. Using research databases, I focused on protein kinase inhibitors (PKIs) and looked at chemical properties such as LogP, molecular weight, and polar surface area.

Jolet Garcia (Poster #17)

Faculty Mentor: Loretta Li

Department: Pediatrics (Lurie’s Children’s Hospital)

“Mechanisms of Resistance in B-ALL: Investigating the L611S Mutation in JAK2” - I used previously designed mutagenic primers to try to introduce the L611S mutation into a plasmid containing wild-type JAK2 using the QuikChange site-directed mutagenesis kit. I also performed bacterial transformation into XL10-Gold and STBL3 competent cells.

Jordy Gonzalez (Poster #30)

Faculty Mentor: Anis Contractor

Department: Neuroscience

“Investigating the Role of Synaptotagmin 7 in Hippocampal Synaptic Plasticity and Memory” - My research used a conditional knockout mouse model to investigate the role of Synaptotagmin 7 (Syt7) in hippocampal synaptic plasticity and memory, specifically how the loss of Syt7 in CA3 neurons impacts neuronal activation during a spatial memory behavioral task.

Amy Guallpa (Poster #32)

Faculty Mentor: Loretta Li and Tiffany Sharma

Department: Pediatrics (Lurie’s Children’s Hospital)

“PRL2 and the PTEN/PI3K/AKT Signaling Pathways in T-ALL” - PRL2, a phosphatase highly expressed in T-cell Acute Lymphoblastic Leukemia (T-ALL), has been shown to promote leukemic cell survival and proliferation. Targeting PRL2 in vivo has yet to be fully investigated, representing a promising avenue for future research.

Rayan Lahlou-Nabil (Poster #27)

Faculty Mentor: Robert Vassar

Department: Neurology (FSM)

“Discovering & Quantifying AETA Kinetics in patients with or without Alzheimer’s Disease” - This project investigates a newly uncovered APP processing pathway in Alzheimer’s disease known as the η -secretase pathway, focusing on AETA fragments, which may be five times more abundant than amyloid- β .

Tracy Liang (Poster #29)

Faculty Mentor: Judd Hultquist & Jacob Class

Department: Microbiology & Immunology (FSM)

“Manipulating P-TEFb Levels to Control HIV Latency” – While antiretroviral therapy (ART) can suppress HIV replication, HIV persists in long-lived latent reservoirs of infected cells. One proposed strategy for eliminating the latent reservoir is termed “shock and kill,” which uses latency-reversing agents (LRAs) to forcibly reactivate the dormant virus so infected cells can be cleared.

Chidi Mba (Poster #34)

Faculty Mentor: Guillermo Ameer & Xinlong Wang

Department: Biomedical Engineering

“Investigating the Growth of Human Induced Pluripotent Stem Cells on Micropillar Substrates” – When pluripotent stem cells are placed on surfaces with specific microtopography, their nuclei begin to deform, inducing a series of biochemical signals that affect gene expression and prevent cell differentiation. Our project utilizes this cell feature to study a method of growing stem cells without affecting their differentiation potential.

Onyekachi Mbonu (Poster #36)

Faculty Mentor: Shana Augustin & Yasmeeen Lowe

Department: Pharmacology (FSM)

“Baseline Learning in Wildtype Mice and Establishing controls for future CB₁-receptor knock-outs” - I used different behavioral tests to measure key factors such as locomotion, anxiety-like behavior, coordination and motor learning. This project will determine how basal ganglia circuitry and the endocannabinoid system help shape movement and learning.

Inioluwa Odumosu (Poster #31)

Faculty Mentor: Sandy Waxman

Department: Psychology

“Babies and Race?” - My research delves deeper into how language and facial recognition comes into play when infants are exposed to individuals from their own race vs other races, and if their representations of people are based on their names.

Chizora Okolo (Poster #33)

Faculty Mentor: Seth Goldstein

Department: Surgery (Lurie Children’s Hospital)

“Pediatric Colorectal and Pelvic Learning Study” – I performed a chart review to evaluate the current diagnosis and treatment of pediatric colorectal patients, assess treatment outcomes, and compare the quality of care across different colorectal treatment centers.

Britney Orcullo (Poster #26)

Faculty Mentor: Jami Josefson

Department: Pediatrics (Lurie’s Children’s Hospital)

“Growth and Body Composition Among Uninfected HIV-exposed and Unexposed Infants” - This study explored the impact of maternal HIV exposure and the duration of dolutegravir (DTG)-based antiretroviral therapy (ART) on infant growth and adiposity in the first year of life. The study examined whether maternal health outcomes associated with DTG influenced early childhood development.

Maxwell Parrish (Poster #42)

Faculty Mentor: Zabin Syed-Patel

Department: Psychiatry & Behavioral Science (FSM)

“Problem Management Plus: An Affordable Stress Support Program for Parents” – This is a pilot study on the intervention appropriateness of Problem Management Plus -- a low-cost psychological support program designed by the World Health Organization -- for addressing parental stress in the United States.

Jessica Santos (Poster #35)

Faculty Mentor: Brian Hitsman & Annie Lee

Department: Psychiatry & Behavioral Sciences (FSM)

“Baseline Characteristics of Participants Enrolled in an Ongoing Multi-site Randomized Smoking Cessation Trial Involving Persons with HIV” - This research study aims to help people living with HIV quit smoking through tailored support interventions, specifically whether the nicotine metabolite ratio will enhance adherence to cessation medications and improve quit rates.

Yuri Stahl (Poster #43)

Faculty Mentor: Anis Contractor & Charlotte Castillon

Department: Neuroscience

“Subregional Activity in the Dentate Gyrus is Amplified During Elevated Cognitive Demands” - The research involved seeing how adult-born granule cells (abDGCs) and mature granule cells (mGCs) within the dentate gyrus (DG) affect cognitive performance, as well as whether high cognitive demand changes the amount of abDGCs and mGCs in the dentate gyrus.

Nicholas Williams (Poster #38)

Faculty Mentor: Hirokazu Miyazaki

Department: Anthropology

“Studying How U.S. Public Healthcare Has Responded to Adverse Radiation Effects” – An examination on how the Radiation Exposure Compensation Act has been implemented since its passage in 1990.

NU NANOSCIENTISTS

Casandra Arellano (Poster #37)

Faculty Mentor: Dayne Swearer & James Ho

Department: Chemistry and Chemical & Biological Engineering

“Plasma Reforming of CO₂ and CH₄ into Methanol” - My research focused on converting carbon dioxide and methane into methanol using a plasma-catalytic bubble reactor. I explored two types of titanium dioxide directly dispersed into the water interface. Using nonthermal plasma, it is hoped to increase methanol selectivity and production rates. I utilized NMR to identify liquid products and make calculations.

Andrea Guzman (Poster #40)

Faculty Mentor: Xiaoyu Zhang & Assa Magassa

Department: Chemistry

“Discovery of Ligandable Acquired Cysteines: Targeting TAB1 Y394C” - This project explores new strategies to target cancer proteins that lack conventional druggable sites. Acquired cysteines, which arise from cancer-specific mutations, introduce chemically reactive thiol groups that can serve as handles for covalent drug binding. Several promising compounds were identified, confirming that TAB1 Y394C is chemically engageable and supporting its classification as a ligandable acquired cysteine.

Ashley Puente-Pena (Poster #41)

Faculty Mentor: James Gaynor

Department: Chemistry and the International Institute for Nanotechnology

“Spectroscopic Insights into Ligand-Functionalized Gold Nanoparticles for Photothermal Applications” - This research explores how surface ligands influence the stability and optical properties of gold nanoparticles for use in photothermal cancer therapy. Using techniques such as UV-Vis and FTIR spectroscopy, this project investigates 11-mercaptoundecanoic acid as an ideal ligand due to its strong thiol-gold bond stability and general biocompatibility.

Francisco Ramirez (Poster #39)

Faculty Mentor: Xiaoyu Zhang & Alondra Sanchez

Department: Chemistry

“Comparative Analysis of BAP1 as a Regulator of Spindlin Family Proteins” - The Spindlin family of epigenetic reader proteins play a vital role in chromatin remodeling and gene expression, yet the complete function of Spindlin family member 4 (SPIN4) remains elusive. Recent findings has shown that BRCA1-associated protein 1 (BAP1) interacts with SPIN4 by functioning as a deubiquitinase, which regulates the SPIN4 protein and prevents its degradation. It encompasses that BAP1 may be a regulator for SPIN4 primarily over its other Spindlin family protein members. Hence, this research aims to uncover the specificity of this newly identified regulator of SPIN4 through direct comparison with SPIN1, a protein within the same family.

WE WOULD LIKE TO RECOGNIZE OUR ARCH SCHOLARS UNABLE TO PRESENT TODAY

Amirah Collins (NU Bioscientist)

Lamarr Stratton (NU Nanoscientist)

Marium Zubaida (NU Nanoscientist)

Antonio Man (NU Nanoscientist)

Alexia Sotelo (NU Nanoscientist)

Faculty and Staff

Luke Flores – Director
Rebecca Siroky – Assistant Director
Carissa Thalmann – Program Coordinator

Veronica Berns – Nanoscientist Faculty
Bill Leonard – Bioscientist Faculty
Michele McDonough – Bioscientist Faculty
Zach Nissen – Posner Fellowship Faculty

Thank You!

A special thank you to all our wonderful donors to the Arch Scholars Programs who provide the support that makes these experiences possible. Thank you for ensuring that all students can thrive here at Northwestern!

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We also want to thank the dozens of faculty, graduate students, and research staff who welcomed, trained, and mentored our students in their first research experience here at Northwestern! These programs cannot exist without you!