TEXAS WOMAN'S UNIVERSITY | APRIL 21 - 22

2026 Student Creative Arts & Research Symposium

2026 Student Creative Arts & Research Symposium

Welcome

Welcome to the **2026 Annual Student Creative Arts & Research Symposium**! For more than twenty years TWU has honored students, both artists and scholars, who have since gone on to fulfill the promise they first demonstrated at these Symposiums. These students have become researchers, teachers, artists, health care providers, and working professionals contributing to society and serving as positive role models as graduates of TWU. We are celebrating more than 20 years of meeting the following goals:

- Providing opportunities for all students to share their scholarly pursuits and build leadership and other professional skills, and
- Celebrating student-mentor achievements in a way that promotes a culture of scholarship and community at TWU.

We continue to offer various venues for presentations including poster and platform sessions and virtual presentations. Thank you for joining us in this joyous celebration of a culture of scholarship at the **2026 Annual Symposium**!

Acknowledgements

The involvement and support of many people and departments across campus make the 2026 Student Creative Arts & Research Symposium possible. The student presenters and mentors are thanked for their participation and congratulated on their accomplishments! All participating mentors and featured speakers are dedicated scholars who care about inspiring student researchers and artists.

The Student Symposium is fortunate to receive support from several sources this year to make the program a success. We are especially grateful for the generous support provided by the Office of Research and Sponsored Programs, the Center for Student Research and the Woodcock Institute. Many members of the University community graciously provided their time and expertise to support Symposium functions. We want to thank members of the Research Committee of the Graduate Council for the final selection of the Chancellor's Student Research Scholars and Graduate Council Awardees for Exceptional, Original Scholarship. Staff members in ORSP deserve special recognition for their extensive work to make this program a success.

The Annual Student Creative Arts & Research Symposium has received University-wide support. This celebration of student discovery and of scholarly discourse across disciplines is a part of TWU's rich academic tradition. Everyone's contributions are much appreciated!

Cover Art

Artist: Susan Seaborn

Sundown on Matt's House, Feb. 24, 2026, 6:28pm to 6:54pm, 2026
Inkjet photos mounted on wood
Size: 42 x 42 inches, individual panels 10 x 10 inches

Susan D. Seaborn, Cover Artist

A special thank you goes to this year's Symposium Program cover artist, Susan D. Seaborn. Born in Tulsa, Oklahoma and raised in Clear Lake (Houston), Texas, Susan worked in Information Technology and Italian language instruction until returning to university in 2016 to study art. She graduated in 2020 with a BFA from the University of North Texas. Susan joined the TWU Visual Arts MFA cohort in 2022 studying under Tanya Synar as her faculty advisor. On the side, Susan founded and runs Anna Street Studios, a gallery space, located in the Bolivar neighborhood of Denton, TX.

Artist Statement:
My artistic practice is that of close observation of the things around me: tree shadows on a house, the changing colors of a window reflection at sunset, the simple shapes of old houses, and the color of the sky. My work captures these moments, in a reductive but realistic style, to produce tranquil paintings that suggest there is beauty all around us if we are present and looking for it. My thesis work was inspired by the Bolivar neighborhood, of which TWU is a part. This neighborhood, bounded by University Drive, Bell Avenue, Panhandle Street and Carroll Boulevard, was built between the 1920's and 1950's, and housed both students and townspeople. Now a magnet for Denton creatives, the colorful houses and simple architecture make this a magical place worth painting!

TWU Bettye Myers Butterfly Garden Photo Contest

Tuesday, April 21, 2026 (2:40 – 4:00 p.m.) and
Wednesday, April 22, 2026 (2:40 – 4:00 p.m.)

Student Union 2300 (Southwest Ballroom B)

This photography contest is open to all current TWU students (division 1) and TWU faculty/staff (division 2). The subject matter must be The Dr. Bettye Myers Butterfly Garden (phase I or phase II). This contest is hosted by the Women in STEM Leadership program, The Dr. Bettye Myers Butterfly Garden Advisory Committee and the School of the Sciences. We are celebrating Texas Wildflower Day (Apr 26) as well as promoting community, mindfulness and well-being, as well as sharing the beauty of the butterfly gardens. All attendees of the symposium are welcome to view and submit a vote for your favorite photograph! Winners will be announced on Friday April 26 during the Texas Wildflower Day morning symposium with prizes being awarded to 1st, 2nd and 3rd places as well as a special prize, The Jeff Robb Prize, for capturing a pollinator in action.

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A Celebration of Research

Chancellor's Student Research Scholars
And
Graduate Council Awardees for Exceptional, Original Scholarship

Tuesday, April 21, 2026, 10:30 am – 12:00 pm
Student Union 2231

A special category of recognition, the Chancellor's Student Research Scholars, began in 2004. These student participants were nominated by their faculty mentors for exhibiting outstanding achievement in research or creative arts endeavors. Final selection of these scholars was made by the Research Committee of the Graduate Council. Scholars will be recognized and awarded individually at this session and will briefly share their research experiences.

Congratulations to our 2026 Honorees and their Faculty Mentors:

Doctoral Students

Chung, Eileen (Language, Culture, and Gender Studies)..... Dr. AnaLouise Keating
Clark, Cayla (Kinesiology)..... Dr. Brandon Rhett Rigby
Connors, Gage (Sciences – Biology)..... Dr. Juliet Spencer
Jin, Changyan (Nutrition and Food Sciences - Denton)..... Dr. Zhipeng Tao
Mehebub, Md Shabab (Sciences – Biology)..... Dr. Catalina Pislariu
Mirembe, Winnie (Sciences – Biology)..... Dr. Christopher Brower
Munoz, Angeles (Literacy and Learning)..... Dr. Mary Amanda Stewart
Wang, Mengdi (Physical Therapy - Dallas)..... Dr. Priya Karakkattil

Masters Students

Honey, Omma (Sciences – Biology)..... Dr. Tina Gumienny
Nakata, Aya (Library and Information Studies)..... Dr. Priya Kizhakkethil

Undergraduate Students

Crane, Robin D (Sciences – Biology)..... Dr. Camelia Maier
Hutton, Milena L (Sciences – Chemistry and Biochemistry)..... Dr. Dianna Hynds
Pellacani, Abby G (Sciences – Biology)..... Dr. Christopher Brower
Rodriguez, Xanthie (Sciences – Biology)..... Dr. Sushmita Sinha
Sloan-Garza, Emma J (Nursing - Dallas)..... Dr. Jennifer Wilson

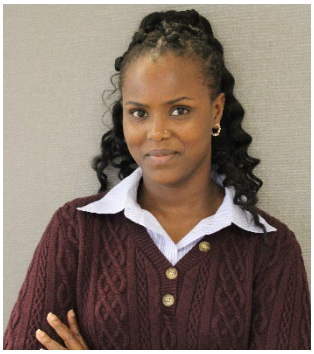
Graduate Council Award for Exceptional, Original Scholarship

Justin Fontenot, Ph.D. Candidate in Nursing Science
Esmeralda Cartagena Collazo, Ph.D. in Reading Education
Winnie Mirembe, Ph.D. Candidate in Biology

These three students were selected by the Research Committee of the Graduate Council as recipients of the 2026 Graduate Council Award for Exceptional, Original Scholarship. Recipients receive a monetary award/scholarship and below is a summary of their research.

Justin Fontenot is a TWU PhD Nursing Science student who recently defended his dissertation, which explored the process of building professional confidence among newly graduated nurses. The findings offer a different approach for transition and nurse residency programs to strengthen early-career support and reduce burnout and turnover. Dr. Fontenot is also an Associate Professor at the Tulane University School of Medicine, Program of Nursing in New Orleans, LA, where he plans to continue building on his research program. Additionally, Dr. Fontenot is the newly appointed Editor-in-Chief of two international nursing journals in the Wiley Nursing portfolio, the Journal of Nursing Management and Nursing Open. According to Google Scholar metrics, these journals are ranked 4th and 7th, respectively, in the global general nursing category.

Esmeralda Cartagena Collazo is a recent doctoral graduate in Literacy, Language, and Culture in the College of Professional Education at TWU. Her research centers on Indigenous language preservation, heritage language development in immigrant families, and culturally sustaining literacy practices for emergent bilingual and newcomer students in U.S. schools. Drawing on her own experiences as a Latina educator and learner of Hiwatahia Taíno, her ancestral language, her scholarship challenges deficit-based approaches to multilingual learners and advocates for decolonial, asset-based frameworks in K–12 classrooms. She has published peer-reviewed articles in the Journal of Latinos and Education and the Journal of Education for Multilingualism, presented at national and international conferences including AERA, AACTE, NABE, and La Cosecha, and has been recognized as a HOLMES/PULSE Scholar and recipient of the COPE Outstanding Doctoral Student Award. Esmeralda has been funded through the HOLMES Scholars Grant and the LEAMOS Grant to support her research, and she has taught undergraduate and lectured graduate courses at TWU while completing her doctoral studies.



Winnie Mirembe is a PhD candidate in Molecular Biology. Her research investigates the molecular mechanisms underlying Amyotrophic Lateral Sclerosis and Frontotemporal Dementia, with a focus on the role of TDP43 C-terminal fragments and their toxic gain-of-function. Specifically, she studies how TDP43 fragments behave differently from the full-length TDP43 protein when they are not efficiently cleared by the proteasome. Using cellular, biochemical, and *in vivo* approaches, she demonstrates that aggregation-prone fragments can independently disrupt RNA processing and neuronal function, even in the presence of intact normal TDP43. Supported by funding from the National Institutes of Health, her work links proteostasis failure to disease-relevant splicing defects and motor impairment, advancing a clearer mechanistic framework for TDP43 proteinopathies and highlighting protein quality control pathways as potential therapeutic targets. Winnie has presented her work at multiple scientific conferences, such as Cold Spring Harbor Laboratories, Keystone Symposium, and the Society for Neuroscience. She placed second in the 3-Minute Thesis competition and won the People's Choice Award

Keynote Speaker

Stephanie Rodriguez, PhD

Director, STEMM Opportunity Alliance

From Path to Purpose: A STEMM Journey

Tuesday, April 21, 2026, 1:30 pm – 2:30 pm
Student Union 2300 (Southwest Ballroom A)

Dr. Stephanie Rodriguez is the Director of the STEMM Opportunity Alliance at the American Association for the Advancement of Science (AAAS). In this role, she leads the cross-sector coalition of partners working together to implement a national strategy for progress and prosperity in STEMM.

Most recently Dr. Rodriguez served as a STEM Next Sr. Workforce Fellow at the U.S. Department of Labor's Employment and Training Administration, in the Office of the Assistance Secretary. While at ETA Stephanie developed and launched the *DOL Youth Employment Works strategy* focused on centering young people in critical workforce development opportunities connected to historic federal investments in infrastructure, semiconductors, and clean energy. As a Fellow, Stephanie received a Secretary's Honor Award for her work.

Dr. Rodriguez has government experience at the National Science Foundation, working on the computer science education equity portfolio and *CSforALL* movement, and then took that focus to the Afterschool Alliance as STEM Policy Director, ensuring access to STEM engagement and computer science learning in the out of school space. She spent several years as VP of Policy and Engagement at AnitaB.org a global nonprofit advancing women technologists into positions of power in the tech workforce. In this role, Dr. Rodriguez developed and led the workforce policy portfolio, managing Hill and Executive branch relationships. She also served as the Federal Partnership Director at Tech Talent Project, working to increase the ability of the U.S. government to recruit modern technical leaders. An immunologist by training, Dr. Rodriguez brings evidence-based approaches to education and workforce development, equity, and policy advancement.

Dr. Rodriguez grew up in South Bend, Indiana, and received her Bachelor of Science from Stanford University and Ph.D. in Immunology from Washington University in St. Louis.

ABSTRACTS FOR PLATFORM PRESENTATIONS

Abstracts are listed in the department of the faculty sponsor.

Session 1. Tuesday, April 21, 9:00 am – 10:20 am
Track A (Student Union 2231)
Moderated by Dr. Christopher Brower

1. STRESS MODIFIES SENSORY NEURONS TO AMPLIFY PAIN IN FEMALES. B. Islam, D. Averitt. Sciences – Biology

Psychological stress contributes to and amplifies orofacial pain, which is more prevalent in women. Exposure to sub-chronic stress exacerbates inflammatory orofacial pain to a greater degree in females. We identified sex-specific differentially expressed genes in the trigeminal ganglia (TG) of stress-exposed rats using transcriptomic analysis and validated them by qPCR. We performed immunohistochemistry (IHC) to observe P2RX3 protein expression within a subpopulation of nociceptive sensory neurons that express TRPV1. Rats received an injection of complete Freund's adjuvant or saline into the right vibrissal pad, followed by a forced swim test (FST) or sham paradigm for 3 days. Ipsilateral TGs were extracted and processed for qPCR and IHC. We found higher expression of P2RX3 in the TRPV1-positive sensory neurons in stressed females compared to males. Together, these data provide evidence that stress alters P2RX3 expression in the trigeminal sensory ganglia, which is highly sexually dimorphic under pathological conditions related to stress. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NIDCR R15 DE025970, TWU Center for Student Research, and TWU Experiential Student Scholars Program.

2. EMPLOYING A CRISPR/PITCH KNOCK-IN STRATEGY TO CHARACTERIZE THE ATE1- LIAT1 INTERACTION. G. Escobar Verdezoto, K. Budhathoki, C. Brower. Sciences – Biology

Arginyltransferase 1 (ATE1) is essential for cellular proteostasis, mediating targeted protein degradation via the N-degron pathway across various physiological contexts. Our laboratory previously identified a novel interactor, Ligand of Arginyltransferase 1 (LIAT1), which directly binds ATE1; however, the functional significance of this partnership remains poorly understood. We propose that LIAT1 modulates ATE1 behavior and/or its subcellular localization. To investigate this, we are engineering mouse cell lines expressing fluorescently tagged endogenous ATE1 using a CRISPR/Cas9 PITCh (Precise Integration into Target Chromosome) system. Unlike traditional homology-directed repair, the PITCh system leverages microhomology-mediated end joining (MMEJ) to achieve efficient gene knock-in using short homology arms (5–25 bp). By integrating a fluorescent reporter at the endogenous locus, we aim to enable real-time visualization of ATE1 dynamics. This research will establish a robust foundational tool to evaluate ATE1 behavior under LIAT1 overexpression, ultimately advancing our understanding of how LIAT1 regulates ATE1- dependent proteolysis. (Faculty Sponsor: Dr. Christopher Brower)

Supported by Daisy Brand Undergraduate Research Grant.

3. INVESTIGATING THE ROLE OF CLEAVED FRAGMENTS OF TDP43 LINKED- AMYOTRPHIC LATERAL SCLEROSIS AND FRONTOTEMPORAL DEMENTIA. W. Mirembe, E. Na, C. Brower. Sciences – Biology

ALS and FTD are associated with cleavage and aggregation of the TAR DNA- binding protein 43 (TDP43). While loss of function due to cleavage can contribute to disease, it remains unclear whether the resulting fragments also cause toxicity through a gain-of-function mechanism. To address this, we studied two TDP43 fragments, TDP43-219 and TDP43-247, found in aggregates from human FTD brains, in contexts where full-length TDP43 remains intact. We expressed these fragments in primary neurons to assess neurodegenerative features like protein aggregation and activation of apoptotic markers. We also expressed them in the upper motor cortex of mice and evaluated motor function using behavioral assays. Results show that TDP43 fragments increase protein aggregation, trigger apoptosis, and worsen motor deficits, supporting a toxic gain-of-function in neurodegeneration. Interestingly, the fragments differed in their effects, with TDP43-247 showing greater aggregation and more pronounced toxicity. These results suggest that different TDP43 fragments contribute uniquely to disease. (Faculty Sponsor: Dr. Christopher Brower)

Supported by US Dept of Education Award P031M220022 (ACCESS) and NIH NIDNS R15 NS095317.

4. COMPARATIVE EFFECTS OF DIETARY NUT AND SEED OILS ON CHRONIC INFLAMMATION: A SYSTEMATIC REVIEW. L. Aschenberg, S. Juma. Nutrition and Food Sciences - Denton

Debate over the effects of nut and seed oils on inflammation and chronic disease remains a topic of considerable interest and controversy. Clarifying these relationships is essential for developing evidence-based dietary guidance. A systematic search of PubMed (N = 144) and the Cochrane Library (N = 83) identified human randomized and crossover trials (2011–2025) comparing nut oils (almond, walnut, other tree nuts) with seed oils (canola, sunflower, flaxseed, grapeseed) that reported inflammatory biomarkers. Nine studies met the inclusion criteria. Nut oil interventions demonstrated neutral to modest anti-inflammatory effects, including reductions in postprandial inflammatory gene expression. Seed oils generally showed neutral effects on inflammation and when compared with saturated fat controls, demonstrated modest improvements. Overall, current evidence suggests that both nut and seed oils are neutral to beneficial with respect to inflammation, particularly when substituted for saturated fats. Well-controlled comparative trials are needed to further refine dietary fat recommendations and support public health guidance. (Faculty Sponsor: Dr. Shanil Juma)

5. EFFECTS OF PASSIVE HEATING AND TREADMILL WALKING ON CORE BODY TEMPERATURE, PROTEIN EXPRESSION, AND NONMOTOR SYMPTOMS IN WOMEN WITH PARKINSON'S DISEASE: A PRELIMINARY ANALYSIS. C. Clark, S. Davis, T. Gaibor Verdezoto, G. Varjian, C. Fidalgo Garcia, S. Innes, K.

Biggerstaff, G. King, B. Rhett Rigby, Kinesiology, Faculty, brigby@twu.edu. Kinesiology

Parkinson's disease (PD) is a neurological disorder accompanied by motor and nonmotor dysfunction. Heat shock proteins (HSPs) may reduce α-synuclein aggregation, yet HSP responses to elevated core temperature (TC) in PD remain unexplored. In this study, protein expression, TC, and PD symptoms were observed following acute heating in women with PD. Nine women with PD completed treadmill walking (TM), passive heating (HT), TM followed by HT (TM+HT), and a control condition (CON). Variables measured include TC, proteins, heart rate variability (HRV), cognition, pain, sleep, and quality-of-life (QoL). All variables were taken at baseline, immediately post, and 24 hrs post. There were no statistical differences for protein concentrations. The TC during TM was higher than HT and CON. High-frequency HRV was significantly higher in TM+HT than TM. Executive function, pain, and QoL improved across time, while sleep improved only after TM and HT. Favorable changes in nonmotor symptoms were therefore observed. (Faculty Sponsor: Dr. Brandon (Rhett) Rigby)

Supported by TWU Experiential Student Scholars Program and TWU Center for Student Research.

Session 1. Tuesday, April 21, 9:00 am – 10:20 am
Track B (Student Union 2238)
Moderated by Dr. Ana Louise Keating

1. MOBILE HEALTH INTERVENTIONS FOR PERINATAL AND POSTPARTUM DEPRESSION AMONG ASIAN AMERICANS: A SCOPING REVIEW. S. Rana, R. Buster. Health Studies

Perinatal and postpartum depression (PPD) is a leading cause of morbidity and disproportionately affects Asian American women. Mobile health (mHealth) interventions provide accessible and scalable approaches to address these challenges. This review examines the current methods, evidence gaps, and opportunities to address PPD in this population. Using systematic and rapid review principles, 25 studies were selected out of 246 identified through PubMed, EBSCOhost, Google Scholar, and manual reference searches. Findings were synthesized thematically across six domains. Hybrid approaches were widely used regardless of location and systemic barriers. Mindfulness-based interventions proved effective in reducing depressive symptoms and improving maternal psychosocial outcomes, while stigmatization limited the accessibility to digital tools. Key facilitators included social connectivity, feasibility, and adaptability. Although mHealth interventions demonstrate potential, culturally and linguistically tailored tools, integration of peer and professional support, and alignment with maternal health systems remain critical for improving uptake and impact. (Faculty Sponsor: Dr. Renee Buster)

2. WRITING HABITS OF BODY AND MIND: A QUALITATIVE STUDY ON INSTRUCTOR PERSPECTIVES OF EMBODIED AND CONTEMPLATIVE WRITING PEDAGOGIES. J. Judd. Language, Culture, and Gender Studies

College students continue to experience high levels of anxiety, loneliness, and mental health challenges. College writing classrooms are uniquely situated to address these concerns with their focus on meaning-making and capacity to foster community. Scholarship on embodied and contemplative writing pedagogies positions them as promising interventions to meet these student needs; however, these approaches remain on the margins of writing instruction. To address this gap, my qualitative empirical study examines the perspectives of 14 diverse college writing instructors on these pedagogies. Using rhetorical feminism and grounded theory methodologies, I conducted and analyzed interviews, identifying four key themes that capture how instructors define, enact, and value these approaches. Based on my findings, I argue for a theory and language for an integrated pedagogy of body and mind, offering a multivocal, practitioner-oriented perspective that contributes to the growing body of scholarship on these writing interventions. (Faculty Sponsor: Dr. Jacquelyn Hoermann-Elliott)

3. HEALING FROM HYPERSEXUALIZATION: ASIAN AMERICAN WOMEN'S DYNAMIC RESISTANCE AGAINST FETISHIZATION. E. Chung. Language, Culture, and Gender Studies

This qualitative feminist study discerns how Asian American women resist and heal from hypersexualization as interconnected processes through spiritual activism. Research on the mental health ramifications of being fetishized as Asian American women is burgeoning. However, current scholarship has yet to link how Asian American women mitigate the emotional tax of being fetishized through their spiritual activist practices. To address this gap in the literature, I examine how Asian American women may create new, empowering counternarratives through Gloria E. Anzaldúa's theory-praxis of spiritual activism, which promotes self-change in the service of social transformation. I utilize heuristic inquiry and Asian American feminist theoretical frameworks to conduct narrative semi- structured interviews. Through creating an affirming, vulnerable, and dialogic research process, respondents construct meaning from retelling their personal experiences of being hypersexualized. Ultimately, by inviting Asian American women to self-reflect on their lived experiences, this project proposes autonomous self-healing strategies to address fetishization. (Faculty Sponsor: Dr. AnaLouise Keating)

Supported by TWU Doctoral Merit Scholar Award, TWU Center for Student Research, and Arden Eversmeyer Endowed Scholarship.

4. RESILIENCE FACTORS OF LGBTQ IMMIGRANT POPULATIONS IN RESPONSE TO SOCIOPOLITICAL EVENTS. J. Lumbre, S. Adhikari, S. Romero, M. Williams, M. Kim. Social Work, Psychology, and Philosophy

Immigrant LGBTQ+ people of color (POC) in the United States experience heightened sociopolitical stress due to intersecting systems of discrimination related to race, immigration status, gender identity, and sexual orientation. These stressors are intensified in the current sociopolitical climate, particularly in

conservative states such as Texas, where shifting policies and public discourse disproportionately affect immigrant and LGBTQ+ communities. Prior literature highlights both the psychological impact of sociopolitical hostility and resilience strategies rooted in community connection, cultural pride, and intergenerational strengths. Despite this, the lived experiences of LGBTQ+ POC immigrants remain underrepresented in psychological research. This qualitative study aims to explore how LGBTQ+ POC adults with immigrant backgrounds in Texas experience sociopolitical stressors, navigate intersecting identities, and cultivate resilience through 60-90 minute semi-structured individual interviews. Data will be analyzed using constructivist grounded theory framework to inform culturally responsive mental health practices, community support, and advocacy. (Faculty Sponsor: Dr. Marlene Williams

Session 2. Tuesday, April 21, 2:40 pm – 4:00 pm
Track A (Student Union 2231)
Moderated by Dr. Catalina Pislariu

1. FROM SLUMBER TO AWAKENING: WHAT SPARKS SPIRITUAL EVOLUTION. J. Brauer, R. Hulla. CRDA

This study examined psychological traits and lifestyle behaviors associated with spiritual awareness and their role in biopsychosocial well-being. Prior research on spiritual awareness using the Spiritual Intelligence Self-Report Inventory (SISRI), has focused largely on personality, demographics, and mental health indicators. The present study extends this work by simultaneously examining a broad range of psychological and lifestyle factors, including emotional intelligence, trauma-related growth, absorption, self-regulation, social and relational needs, introspection, spiritual practice, exercise, meditation persistence, nature connectedness, health consciousness, and psychedelic use. Data was collected from over 300 adults recruited via convenience sampling. Participants completed the SISRI and 29 validated measures assessing psychological and behavioral constructs. Hierarchical regression analyses evaluated predictors of spiritual awareness while controlling for age, sex, and social desirability. Cluster analyses explored distinct profiles of spiritual awareness. Results clarified relationships of psychological traits and lifestyle behaviors that influence spiritual awareness. (Faculty Sponsor: Dr. Ryan Hulla)

2. HYPERACTIVE MTORC2 SIGNALING ON NEUREXIN-1 (NRX1) DISTRIBUTION: A MECHANISM FOR PRESYNAPTIC DYSFUNCTION IN AUTISM. M. Hutton, E. Swensen, D. Hynds. Sciences – Biology

Autism Spectrum Disorder (ASD) is characterized by disrupted synaptic connectivity linked to Neurexin-1 (NRX1) dysfunction, a presynaptic adhesion protein essential for synapse formation. Prior work suggests NRX1 transport to presynaptic terminals is mediated by RabGTPases (Rab3A, Rab27A, and Rab37) via kinesin motor KIF1A. mTOR signaling is disrupted in ASD, with hyperactivation of mTORC2 impacting cytoskeletal dynamics. The consequence on NRX1 transport remains unclear. We hypothesized that mTORC2 hyperactivation disrupts the microtubule architecture required for NRX1 delivery to presynaptic membranes. Our model included B35 rat neuroblastoma cells and primary rat cortical neurons. mTORC2 hyperactivation was induced via insulin treatment and validated through immunoblotting for p-AKT. In differentiated cells, NRX1 colocalized with Rab3A and KIF1A along neurites, confirming active vesicular transport. Results suggest that excessive mTORC2 activity may destabilize the microtubule tracks necessary for NRX1 delivery. These findings provide a mechanistic link between abnormal mTORC2 signaling and synaptic function in ASD. (Faculty Sponsor: Dr. Dianna Hynds)

Supported by Robert A. Welch Foundation, TWU Jane Nelson Institute for Women's Leadership, TWU Quality Enhancement Plan (QEP), NSF Award 1953448 (PRIME), and US Dept of Education Award P031M220022 (ACCESS).

3. IDENTIFICATION OF PANGENOMIC BASED STRAIN-SPECIFIC MARKERS FOR RAPID DETECTION OF NITROGEN-FIXING SINORHIZOBIUM BACTERIA. M. Mehebub, C. Pislariu. Sciences – Biology

The environmentally-friendly symbiotic association between legumes and nitrogen-fixing bacteria from the soil allows this group of plants to acquire bioavailable nitrogen, bypassing the need for applied fertilizers. Not all associations are equally compatible and efficient. Research involving single strains and communities of bacterial strains is challenging due to potential cross-contamination. Strain identification by phenotype and 16S ribosomal RNA gene-based Polymerase Chain Reaction (PCR) are unreliable. Using a pangenomics approach, strain-specific markers for six Sinorhizobium meliloti, three S. medicae, and two S. fredii strains were identified and validated by duplex PCR and Sanger sequencing. For S. meliloti 1021, one strain-specific Single-Nucleotide Polymorphism (SNP) marker was identified. These strains are used to study host-strain specificity in symbiotic interactions with the legume host Medicago truncatula. These markers can rapidly, economically, and accurately identify 12 Sinorhizobium strains at the species level. This innovative approach can be applied to other Sinorhizobium strains and microorganisms. (Faculty Sponsor: Dr. Catalina Pislariu)

Supported by NSF Awards IOS 2139351 and IOS 2146440.

4. ERASURE OF THE GREAT QUEEN: QUEEN ELISSA AND THE ROMANIZATION OF CARTHAGINIAN CULTURE. C. Kirkpatrick. Social Sciences and Historical Studies

From Virgil's The Aeneid to Purcell's Dido and Aeneas, the erasure and mythification of Carthaginian culture has been perpetuated. Queen Dido, or Elissa which is her true name, has been misrepresented throughout the history of western art and made to fit the misogynistic tropes of the hysterical and lovesick woman. Art has been used as a form of propaganda for ancient empires in order to erase a culture that was deemed lesser and marked by horrific phrases such as "Carthago delenda est." Henry Purcell’s opera, Dido and Aeneas highlights the historical erasure of the Carthaginians through the view of the legendary founder of Carthage, Queen

Elissa, or Dido, by portraying her as mad and using mythification to distort her history. However, Purcell's opera only represents the final form of her story. (Faculty Sponsor: Professor Aubri Thurmond)

5. UNDERSTANDING THE EFFECTS OF BIAS AND ASSUMPTION ON WOUND CARE- ASSOCIATED PAIN MANAGEMENT. K. Clark. Nursing - Dallas

The purpose of this project is to help educate nursing students in addressing pain in the wound care setting. Specifically, this project aims to help them learn to identify their bias and assumptions about a variety of patients and factors and recognize the resulting impact on the patient's experiences and outcomes. This presentation will be supported by evidence-based research. The project is a 30-minute presentation with two case studies for the audience to observe and analyze. The audience will take a short pre- and post-test to assess their understanding of the subject. The goal of the project is to encourage future healthcare professionals to advocate for equity in the management of wound care-associated pain, with the end result being improved patient outcomes. If the project is successful, it could be implemented in a variety of settings by a broad range of health care professionals. (Faculty Sponsor: Dr. Cecilia Wilson

Session 3. Tuesday, April 21, 6:00 pm – 7:20 pm
Track A (Student Union 2231)
Moderated by Dr. Jennifer Wilson

1. BRIDGING THE GAP: CHILD LIFE INFOGRAPHICS FOR PEDIATRIC PATIENT AND FAMILY EDUCATION. L. Bowman, N. Gillum. Human Sciences

This project involves developing a series of age-appropriate infographics designed to educate children and their parents about medical procedures, hospital policies, and coping mechanisms. The content will be informed by the principles and perspectives of a child life specialist, aiming to promote better understanding, reduce anxiety, and support positive coping in a healthcare setting. (Faculty Sponsor: Dr. Nerissa Gillum)

2. A STUDY ON THE VARIETY OF STRUCTURES OF GROUPS OF UNITS OF ORDER 2^N. C. McKinney, A. Hardesty , A. Martin , C. McKinney. Sciences – Mathematics

The Fundamental Theorem of Finite Abelian Groups describes the possible structures of finite abelian groups based on their order. When first learning this topic, one may find themselves searching for examples of groups with the same order and different structure. In this work, we study groups of units, exploring if they provide a good class of examples to showcase a variety of group structures. We focus on groups of units of order 2^n, as groups of units of this order can be generated using Fermat primes. For each value of n, we compute a metric on the variety of structures realized and analyzed how this metric changes based on a partition of n using distinct powers of 2. (Faculty Sponsor: Dr. Alexis Hardesty)

Supported by NSF Award 1953448 (PRIME).

3. BREAKING THE MORAL COMPASS: DESPERATION AND THE PATH TO DISHONESTY. J. Brauer, C. Hart. Social Work, Psychology, and Philosophy

The present studies aimed to validate the Desperation Proneness Scale (DPS) and examine whether a chronic tendency toward desperation predicts deceptive behavior, with moral disengagement as a mediator. Prior research links desperation to habitual deception and psychological disorders, but existing measures focus on temporary states rather than enduring traits. Study 1 developed and validated the DPS using exploratory factor analysis, test–retest reliability, and concurrent validity, demonstrating that the scale reliably measures chronic desperation proneness. Study 2 further tested the DPS through confirmatory factor analysis and examined its associations with different forms of lying, including self-serving, vindictive, face-saving, and altruistic deception. It also assessed moral disengagement as a mediating mechanism between desperation proneness and deceptive behavior. Overall, the findings provide a reliable tool for assessing desperation proneness and offer new insights into the psychological mechanisms underlying dishonest behavior. (Faculty Sponsor: Dr. Christian Hart)

4. ASSOCIATION BETWEEN ADMISSION GLUCOSE AND ALL-CAUSE MORTALITY IN CRITICALLY ILL PATIENTS WITHOUT KNOWN DIABETES. B. Cook, J. Immanuel. Nursing - Denton

The purpose of this study was to examine the relationship between admission glucose concentrations and all-cause mortality in critically ill patients without known diabetes. Data from the eICU Collaborative Research Database (2014-2015) were analyzed. Mean blood glucose concentration within 24hours of ICU admission was stratified into 5 groups: groups 1–5: <80, 80-109, 110-139, 140-179, and ≥180 mg/dL, respectively. Of 148,805 admissions, 11.3% had mean glucose ≥180 mg/dL. Compared with group 2, hospital length-of-stay was increased in all other groups. The risks of ICU and hospital mortality were higher in group 1, 4 and 5 (ICU mortality:adjusted hazard ratio (95% CI), group 1: 1.96(1.64-2.33), group 3: 1.02(0.93-1.12), group 4: 1.19(1.08-1.30), group 5: 1.56(1.42-1.72); hospital 50-day mortality: 1.68(1.45-1.95), 0.99(0.91-1.06), 1.19(1.10- 1.28), and 1.52(1.40-1.64), respectively. Kaplan-Meier analysis showed lowest survival probabilities for groups 1 and 5. The conclusion is that Mean admission glucose between 80 and139 mg/dl was associated with better survival outcomes. (Faculty Sponsor: Dr. Jincy Immanuel)

Supported by TWU Experiential Student Scholars Program.

5. BRIDGING THE GAP: ENHANCING STROKE CAREGIVER READINESS WITH THE CARE CORNER. H. Osman, J. Wilson. Nursing - Dallas

The CARE Corner is a resource hub located on a rehabilitation floor at UT Southwestern, designed to empower stroke caregivers during the transition from hospital to home. This initiative is funded by the TWU Experiential Student Scholar Program and allowed me to apply the findings of my research study I conducted at the UTSW Neuroscience Nursing Research Center. My study revealed a gap in educational

resources for caregivers of stroke patients to help them prepare for discharge home. I built on this finding by creating a resource library for stroke patients' caregivers on the UTSW Stroke Rehabilitation unit. The CARE Corner applies Meleis' Transition Theory, providing multilingual books, pamphlets, and QR-coded digital tools in the family room. This project addresses a valuable need to prepare caregivers for their new role, reduce their burden, and enhance their knowledge and confidence caring for loved ones after a stroke. (Faculty Sponsor: Dr. Jennifer Wilson

Supported by TWU Experiential Student Scholars Program.

6. LUNG PERFUSION EDUCATION USING VIRTUAL REALITY. S. Santhosh, J. Wilson. Nursing - Dallas

This presentation highlights a project funded by the TWU Experiential Student Scholar Program (ESSP). Simulation-based training is increasingly being used to improve clinical performance within hospitals. Annual in-person training simulations are not only costly, but prohibitive due to nurses' staffing and scheduling conflicts, and a lack of opportunities to frequently practice ex vivo lung perfusion (EVLP) skills. Using 360-degree video technology, one can create a virtual reality (VR) simulation designed to support nursing education for a plethora of hospital events. This project used ESSP funds to develop one 360-degree VR video depicting lung perfusion scenarios before transplantation to supplement in-person training at any time to maintain their skills. By capturing realistic clinical scenarios, the VR videos aim to increase learner engagement, realism, and provide exposure to high-risk, but low-occurring lung perfusion events in their professional practice, at UT Southwestern Medical Center and TWU College of Nursing. (Faculty Sponsor: Dr. Jennifer Wilson

Supported by Neuroscience Nursing Research Center (NNRC), UT Southwestern.

Session 4. Wednesday, April 22, 9:00 am – 10:20 am
Track A (Student Union 2231)
Moderated by Dr. Nerissa Gillum

1. FROM MANUSCRIPT TO MICROPHONE: ADAPTING SIR GAWAIN & THE GREEN KNIGHT. F. Ferris. Language, Culture, and Gender Studies

This project examines multimodal adaptation as persuasive redesign across semiotic systems through the transformation of Sir Gawain & The Green Knight from medieval manuscript to staged reading and ultimately to radio drama. It argues that rhetorical structures, in this case rituals of honor and exchange, shift as they are rearticulated across modes. Drawing on social-semiotic theory, the project treats stage performance and sound design as distinct semiotic resources whose affordances and constraints determine what aspects of spectacle, interiority, and ethical tension can be made legible. Visual embodiment intensifies public ethos and gesture, while radio redistributes narrative authority through voice, pacing, music, and acoustic space. Culminating in two performances and a symposium presentation featuring a curated audio excerpt, the work demonstrates how multimodal adaptation operates as a process of rhetorical reconfiguration. (Faculty Sponsor: Dr. Gretchen Busl)

2. THE FATHERHOOD SUPPORT NETWORK: A FATHER-LED CO-DESIGNED PROGRAM FOR FATHERS EXPERIENCING HOMELESSNESS. S. Bergman, N. Gillum. Human Sciences

Family homelessness is increasing in the United States (HUD, 2024). Mothers experiencing homelessness are identified as the face of homeless families and frequently receive gender specific services (Bullock et al., 2020; Owens et al., 2022), yet fathers remain underrepresented in parenting and housing services despite evidence linking father involvement to positive child outcomes. These challenges enhance instability by weakening fathers' ability to remain involved in their children's lives (Ferguson & Morley, 2011; Stokes et al., 2020). The Fatherhood Support Network is a father-led support group implemented within a transitional living homeless shelter and examined through a bioecological systems framework. A program evaluation was created to understand components fathers perceive as supporting parenting confidence and engagement across ecological systems, including family relationships, service interactions, and structural barriers. (Faculty Sponsor: Dr. Nerissa Gillum)

Supported by TWU Experiential Student Scholars Program.

3. SELECTIVE USE OF VISUAL INFORMATION IN COORDINATED RHYTHMIC MOVEMENT. L. Woods-Malmuth, K. Mori, Y. Kwon, S. Huang. Kinesiology

Many daily tasks, such as eating or dressing, require coordination between both hands. The current study explored how we use visual and kinesthetic information to maintain this coordination at different speeds. Nine participants performed visually defined in-phase (two hands moving left/right in the same direction with the same speed) and anti-phase (two hands moving in the opposite direction with the same speed) using a computer-joystick system at frequencies from 0.5 to 3.0 Hz, with and without visual feedback. Coordination performance was quantified using proportion of time-on-task, and eye-hand coupling was assessed using eye-tracking. Results showed that as speed increased, the in-phase coordination declined, while the anti-phase coordination remained stable. Furthermore, visual feedback did not change overall performance, but eye- hand coupling was strongest only during slow, in-phase movements. These findings suggest that visual information is selectively used at lower movement frequencies, while kinesthetic information becomes dominant at higher frequencies. (Faculty Sponsor: Dr. Shaochen Huang)

4. CHRONOQUEER: SPECULATIVE TEMPORALITIES AND QUEER RESISTANCE. M. Collier. Language, Culture, and Gender Studies

Bodies are inherently tied to the times in which they exist. Chrononormativity, a term popularized by Elizabeth Freeman in the book "Time Binds: Queer Temporalities, Queer Histories", describes the use of "time to organize individual human bodies toward maximum productivity" (3). This regulation of bodies thus creates systemic hierarchies—valuing only those who conform to a linear, "normative" progression

of time. This directly impacts the queer community, who, in a world constructed around expectations of heteronormativity, may be seen as deviating from a chronological "norm". To resist, many turn to speculative elements in their work to navigate these marginalizing systems of normativity, including speculative temporalities where time does not progress as it is "supposed to". I argue that the destabilization of linear time in queer narratives may directly serve as a form of queer resistance. By utilizing speculative temporalities, queer creatives resist the intersecting oppressions of chrononormativity in a heteronormative society. (Faculty Sponsor: Dr. Rachel Johnston)

5. WON'T YOU PLAY ALONG? - A COLLECTION OF SIX STUDENT-WRITTEN CLINICAL SONGS INSPIRED BY EXPERIENCES IN VARIOUS UNDERGRADUATE MUSIC THERAPY PRACTICUM SETTINGS. J. Lucas. Arts and Design – Music

Reflecting on clinical experiences from four various music therapy settings, the author composed six songs to encapsulate her time in practicum spaces with a myriad of different clients. The six compositions include a session-start song, a session-end song, and a song inspired by each setting: elementary school special education, an adapted rock band, the pediatric intensive care unit, and a memory care facility. The compositions are not only informed by the author's personal experience at each setting but also the wealth of pre-existing research on different populations in music therapy. Upon completion, the author had written, recorded, and produced six original songs, chord charts and sheet music for each song, and a complementary essay detailing both the creative and research-based processes for the project. The songs and accompanying resources were written with the purpose of being shared with the greater music therapy community to utilize in their own clinical practice. (Faculty Sponsor: Dr. Della Molloy-Daugherty)

Session 5. Wednesday, April 22, 2:40 pm – 4:00 pm
Track A (Student Union 2231)
Moderated by Dr. Tina Gumienny

1. MOTUSKIT: PROSTHETIC ASSEMBLY KIT. C. Bacidore. Sciences – Computer Sciences

The development of personalized prosthetics has historically been constrained by slow, labor-intensive creation methods that rely heavily on manual measurements, mold construction, and repeated in-person fittings. To address these longstanding challenges, I developed MotusKit, an innovative prosthetic assembly system that streamlines the transition from digital customization to real-world functionality. MotusKit operates in direct collaboration with HANDI, a system of formulas I developed that automatically generates patient-specific scaling measurements from body measurements. Once these formulas determine the required dimensions, each component of the prosthetic can be scaled to size and 3D printed. The resulting parts are organized into a comprehensive kit that emphasizes intuitive usability. The detailed assembly guide in the kit features labeled components, color-coded diagrams, and step-by-step instructions, enabling users or caregivers with minimal technical training to construct a fully functional device. (Faculty Sponsor: Dr. David Gardner)

Supported by McNair Scholars and The Experiential Student Scholars Project.

2. DETERMINING THE ROLE OF ADAMTS PROTEASES IN TGF-B SIGNALING IN C. ELEGANS. O. Honey, T. Gumienny. Sciences – Biology

The transforming growth factor-β (TGF-β) signaling pathway plays critical roles in regulating animal development, tissue homeostasis, and disease progression. However, how this pathway is regulated between the sending cell and the receiving cell is not well understood. A family of protein-cutting enzymes called ADAMTS (A disintegrin and metalloprotease with thrombospondin motifs) proteases help to regulate TGF-β cell signaling. The known roles of ADAMTS proteases is to cleave extracellular matrix (ECM) proteins to activate TGF-β by unknown mechanisms. It is difficult to study TGF-β signaling in mammalian systems because they have complex, critical, and sometimes redundant functional roles. It is ideal to study TGF-β signaling in the roundworm C. elegans system because TGF-β, ADAMTS, and ECM genes are conserved, the mutants are nonlethal, and the system offers practical advantages. In C. elegans, DBL-1 is a conserved TGF-β superfamily member and is essential for regulating body size, tissue morphogenesis, and other processes (Faculty Sponsor: Dr. Tina Gumienny)

Supported by TWU Quality Enhancement Plan (QEP) and TWU Center for Student Research.

3. THE ASSOCIATION BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND ADULT MENTAL HEALTH OUTCOMES: A QUANTITATIVE LITERATURE REVIEW. K. Stokes, K. Middleton. Social Work, Psychology, and Philosophy

According to the World Health Organization (2025), over one billion people worldwide experience mental health disorders. While biological and genetic factors contribute to mental illness, substantial evidence indicates that exposure to adverse childhood experiences (ACEs) significantly increases the likelihood of developing mental health disorders in adulthood. This literature review examines quantitative studies exploring the association between ACE scores and adult mental health outcomes. Across multiple cross- sectional and longitudinal studies, higher ACE scores were consistently linked to increased rates of depression, anxiety, PTSD, and substance use disorders. These findings highlight the critical importance of trauma- informed interventions, early prevention strategies, and social work practices aimed at mitigating the long-term psychological consequences of childhood adversity. (Faculty Sponsor: Dr. Shamsun Nahar)

4. RELIGIOUS OPPRESSION IN NELLA LARSEN'S 1928 NOVEL, QUICKSAND. B. Faulkenberry. Language, Culture, and Gender Studies

In this essay, I examine Nella Larsen's critique of the Protestant Black community and the ways in which storefront churches

exploit and manipulate vulnerable women in her 1928 novel Quicksand. I trace Helga Crane's experience as she is manipulated into seeking acceptance from her religious community, a process that ultimately leads to her demise through the pressures of blind faith. My analysis centers on her final relationship with Reverend Mr. Pleasant Green, focusing on how he frames his treatment of Helga as both righteous and Christian. (Faculty Sponsor: Dr. Genevieve West)

Session 6. Wednesday, April 22, 6:00 pm – 7:20 pm
Track A (Student Union 2231)
Moderated by Dr. Kathleen Davis

1. ASSEMBLAGE & COMMONPLACING AS ANALOG, AFFECT(IVE) FEMINIST PRACTICE. J. English. Language, Culture, and Gender Studies

This presentation links the storied history of assemblage art and commonplace journaling to embodied rhetoric and feminist practice. I draw a connection from visual artists like Bettye Saar to movements on social media seeking analog outlets during times of critical cultural upheaval. I provide examples of assemblage as embodied reclamation and self-advocacy, and common-place journaling as an in-between, affective endeavor that can be practiced by students and laymen. (Faculty Sponsor: Dr. Rima Abunasser)

2. EMBODYING COMMUNITY: A REFLECTION ON THE VALUE OF AFRICAN DIASPORIC DANCE FORMS. C. Banks. Arts and Design – Dance

Rooted in dance studies scholarship, this research integrates theoretical inquiry with choreographic process. Drawing on concepts and traditions from the African diaspora, including the cypher, call and response, and polyrhythmic movement, the resulting project blends an array of styles such as traditional African dance, house, jazz, hip hop, Afro-Caribbean ballroom, and dancehall. Developed collaboratively with performers, rehearsals integrated group discussions and movement explorations, transforming scholarly insights into embodied expression. The performance highlights the reciprocal relationship between mover and witness—a participatory framework central throughout the African diaspora. This framework challenges the Western tradition in which audience members passively view concert dance. Instead, as the dancers enter the space, throwing flowers beyond the fourth wall of the stage, they invite an embodied presence and shared energy, displacing the conventional roles of performer/audience, rather, establishing an appreciation of the presence of the entire community in the space, sharing and co-creating the experience. (Faculty Sponsor: Dr. Robin Conrad)

3. EAT HEALTHY, GROW HEALTHY: STRATEGIES TO PROMOTE FRUIT AND VEGETABLE INTAKE AMONG PRESCHOOLERS IN DENTON COUNTY TO PREVENT CHILDHOOD OBESITY AND RELATED HEALTH COMPLICATIONS. B. Coffie, D. Miketinas, C. Warren, M. Massey-Stokes, S. Juma, K. Davis. Nutrition and Food Sciences - Denton

Childhood obesity remains a significant public health concern in the US, disproportionately affecting children from low-income and racially and ethnically diverse families. Many children fail to meet recommended fruit and vegetable intake benchmarks. Eat Healthy, Grow Healthy (EatGrow) is a virtual, family-based randomized controlled trial designed to examine the impact of cooking, nutrition education, and taste-testing activities on fruit and vegetable intake among preschool-aged children (3–5 years). Guided by Social Cognitive Theory, the intervention engages children and parents to improve parental nutrition literacy, self-efficacy, and attitudes while reducing children's food neophobia. Families are recruited from lower-income preschool centers and randomized to an 8-week intervention or delayed-intervention control group. Baseline, midpoint, and post-intervention surveys use validated measures of nutrition literacy, dietary intake, and food neophobia. This study aims to inform scalable virtual approaches for improving early dietary behaviors and preventing childhood obesity. (Faculty Sponsor: Dr. Kathleen Davis)

4. GUIDING CAREGIVERS IN SUPPORTING LANGUAGE STIMULATION DURING EARLY CHILDHOOD. K. Grace, N. Gillum. Human Sciences

Early language development is crucial for children's cognitive, social, and academic success (Zhang et al., 2024). Within the first five years of life, children develop significant language skills that affect their long-term communication. Children who experience limited language exposure and/or delayed intervention are at greater risk of academic and social challenges (Salo et al. 2022). As an aspiring speech-language pathologist, my goal is to promote early identification of speech disorders and support families and educators in fostering language-rich environments to produce a strong foundation for lifelong learning. This pamphlet contains tips for early language acquisition through tangible caregiver interactions and language-rich environments. (Faculty Sponsor: Dr. Nerissa Gillum)

5. FEASIBILITY AND ACCESSIBILITY OF VIRTUAL REALITY ON OLDER ACUTE STROKE PATIENTS IN A CRITICAL CARE SETTING. E. Sloan-Garza, D. Wilson. Nursing - Dallas

Stroke is the 5th leading cause of death, and age predicts stroke risk. Virtual reality (VR) improves outcomes in post-stroke rehab, but age- related perceptions of VR use during the acute phase have not been studied. This prospective, non-randomized observational study enrolled stroke patients admitted to an acute stroke unit or neuroscience ICU. Patients played a standardized VR game requiring at least one arm movement for 5 minutes, then completed the Acceptability of the Intervention Measure (AIM) and Feasibility of the Intervention Measure (FIM). Thirty patients participated (21 Baby Boomers, 9 Generation X). AIM and FIM scores were generally high, and there were no significant differences by age group (AIM P=.24591; FIM P=.29391). Many participants had never played video games and still found VR fun and engaging; one gained functional arm mobility during the intervention. VR appears feasible and acceptable across age groups in acute and critical care settings. (Faculty Sponsor: Dr. Jennifer Wilson

Supported by McMenamy Award.

ABSTRACTS FOR POSTER PRESENTATIONS

Abstracts are listed in the department of the faculty sponsor.

Session 1. Tuesday, April 22, 9:00 am – 10:20 am
Student Union 2230 (Southwest Ballroom B)

1. "HOW BACCALAUREATE NURSE EDUCATORS FORM THEIR OPINIONS ON THE AACN GUIDELINE FOR ONE OF THE FOUR CORE 'SPHERES OF NURSING CARE' OF THE BSN CURRICULUM BE DEVOTED TO PALLIATIVE, HOSPICE, AND SUPPORTIVE CARE: A QUALITATIVE ANALYSIS". C. Bostelman. Nursing - Houston

Palliative and end-of-life (EOL) nursing education are deficient in undergraduate nursing programs in the United States. A significant concern expressed by baccalaureate nursing educators is the insufficient knowledge base and lack of preparedness to teach this essential content (Josephsen & Martz, 2014). To learn “how the lived experiences of baccalaureate nursing faculty form their opinions on the 2021 AACN Guideline that one of the four core ‘spheres of nursing care’ of the BSN curriculum be devoted to palliative, hospice, and supportive care”. Qualitative design will be utilized for the study. BSN educators are the target population. Audio-only, semi-structured interviews will be conducted via Zoom. To understand how the BSN educators’ lived experiences influence their opinion formation on EOL education inclusion in BSN programs. New knowledge informs an evidence-based EOL curriculum, acknowledging the importance of lived experiences of BSN educators tasked with teaching the content. (Faculty Sponsor: Dr. Judith McFarlane)

2. ART & AVIATION; AN ARTIST WITH WINGS. A. Parker. Arts and Design – Visual Arts

Dora Dougherty Strother (1921-2013) is most frequently remembered for her service as a member of the Women Airforce Service Pilots (WASP) and for her later advocacy in securing veteran status for women pilots. However, her artworks remain largely absent from art historical discourse, positing her a “forgotten” figure within twentieth-century American art. This research examines Strother’s artwork in relation to, but not reducible to, her wartime service. Rather than assuming direct causation, this study considers how her identity as a pilot, a veteran advocate, and an individual shaped her art. By situating Strother within both military and cultural history, this project argues that recovering her artistic production complicates singular narratives of the WASPs as solely wartime beings. Reframing Strother as both an aviator and an artist highlights the multidimensional lives of WASP members and challenges the disciplinary boundaries that obscured women’s creative contributions. (Faculty Sponsor: Dr. Sara Ishii)

3. BARRIERS BEYOND TUITION: HOUSING INSECURITY, EDUCATIONAL ACCESS, AND INCLUSION AMONG ASPIRING PUBLIC UNIVERSITY STUDENTS. R. Nandalike Rao. Teacher Education

Housing insecurity is a critical "barrier beyond tuition" constraining educational access and persistence among public university students. Grounded in Transformational Leadership (Bass, 1990), Astin’s Theory of Involvement (Astin, 1984), and Maslow’s hierarchy of needs (Maslow, 1943), this review examines how unmet basic needs disrupt engagement. Literature demonstrates that housing instability—often compounding with food insecurity—substantially increases risks of anxiety, poor health, and academic attrition (Coakley et al., 2022; Sanborn et al., 2025). Despite this, institutional basic needs infrastructures remain highly variable and fragmented (Speirs et al., 2023). This review highlights critical scholarship gaps: inconsistent measurement metrics (Broton, 2020), lack of service quality evaluation, and a severe dearth of research on "aspiring" students prevented from enrolling due to housing instability. Ultimately, addressing these disparities requires cohesive, cross-unit institutional commitment to foster equitable and accessible higher education environments. (Faculty Sponsor: Dr. Jerry Ausburn)

4. CHARACTERIZATION OF RHESUS CYTOMEGALOVIRUS (RHCMV) G PROTEIN-COUPLED RECEPTORS. O. Sana, S. Pathak, C. Horn, D. Streblow, D. Malouli, K. Früh, J. Spencer. Sciences – Biology

Cytomegaloviruses (CMVs) are β-herpesviruses that can establish lifelong persistence in the host. CMV can maintain high-frequency, non-exhausting effector memory T cells for life, making them attractive vaccine vectors. A G protein-coupled receptor (GPCR) in human CMV, US28 (captured host chemokine receptor), and its duplicate US27 share a sequence similarity but perform distinct functions in the host. Similarly, Rhesus CMV encodes five homologs of US28, including Rh214 and Rh220. Rh214 and Rh220 promote protective immune responses in RhCMV-based vaccine studies in monkeys. However, whether these duplicated GPCRs play overlapping or distinct roles is still a question. To address this, we performed RNA sequencing and phospho-kinase array to examine their effects on host. Our preliminary analyses indicate subtle changes in host gene expression and phosphorylation patterns. Further studies will clarify how Rh214/Rh220 reprogram host signaling. Understanding Rhesus GPCRs may inform the design of effective CMV vaccines that stimulate unique immune pathways. (Faculty Sponsor: Dr. Juliet Spencer

5. COMPUTATIONAL INVESTIGATION OF STRUCTURAL CHARACTERISTICS, ELECTRONIC PROPERTIES, AND COUPLING-DRIVEN AGGREGATION BEHAVIOR OF THE 12- 5-12 CATIONIC GEMINI SURFACTANT. S. Bristi, N. Kohan, R. Sheardy, S. Bachofer, S. Lin. Sciences – Chemistry and Biochemistry

Cationic surfactants are significant due to their unique structural, electronic, and coupling behaviors in diverse environments arising from their dimeric architecture. The study investigates the structural, electronic, and coupling interactions of the cationic Gemini surfactant 12- 5-12 ((CH3 (CH2)11(CH3)2-N+-(CH2)5 -N+- (CH3 (CH2)11(CH3)2). Density Functional Theory calculations are employed to optimize molecular geometries and analyze fundamental properties across three distinct conformers: parallel, wing, and bent. Comparative stability assessments provide insight into critical

micelle concentration, micelle size, and overall stability. DFT-based adsorption, energy calculations with Grand Canonical Monte Carlo simulations in Materials Studio are used to evaluate adsorption energies and elucidate the interactive coupling between the surfactant and organic anions. Additionally, molecular dynamics simulations using GROMACS software and the CHARMM force field investigate surfactant aggregation and micelle formation in the presence of organic anions, capturing collective self-assembly behavior. (Faculty Sponsor: Dr. Shiru Lin

6. DIVERSITY WITHIN THE UNITED STATES MILITARY OFFICER RANKS. T. Alexis. Human Sciences

The United States is an incredibly diverse country with over 1,500 distinct race and ethnic groups represented in the 2020 Census. However, when assessing military officer ranks, there is a significant disparity compared to the country's overall ethnic representation. Because military leaders are responsible for implementing diversity strategies to create a healthier and inclusive armed forces, this study purposes to understand the disparity in ethnic representation between the United States and its military population. Findings from this study will be used to address impacts on armed forces leadership and offer research-based recommendations for implementing changes in the US military. (Faculty Sponsor: Dr. Renee Blanchard)

7. EDUCATION IN THE CONTEXT OF IMMIGRATION: POLICY INTERSECTIONS AND STAKEHOLDER OUTCOMES. P. Olayinka, R. Runnels. Social Work, Psychology, and Philosophy

This review of literature examines research that emphasizes and comprehends how the American immigration policy correlates with varying state, district, and school education policies and ultimately aims to discover how immigration impacts stakeholders, such as administration, educators, and students. Seventeen peer-reviewed articles were analyzed. Some of the scholarships were quantitative and either used longitudinal, survey, or mixed-methods designs. Another set of literature was qualitative, and they used either ethnography, meta-synthesis, grounded theory, or action research methodologies. Finally, conceptual reviews of literature, news articles, or policies were used. Educational programs and opportunities, political, legal, and historic contexts, and xenophobia among peers and educators are some of the distinct areas where education, education policy, and immigration policy intersect. These factors negatively impact the well-being of stakeholders in both education and immigration policy. The identification of these factors can persuade lawmakers to create laws that help stakeholders or amend existing laws in place. (Faculty Sponsor: Dr. Ratonia Runnels)

Supported by TWU Experiential Student Scholars Program.

8. ENHANCING PALLIATIVE CARE EDUCATION FOR NURSING STUDENTS. A. Heredia. Nursing - Dallas

Research has found that nursing students are unsure how to care for patients receiving palliative care due to limited education in differentiating between palliative and hospice care. One proposal is to help students understand the purpose of palliative care and distinguish hospice through a tabletop activity in a didactic setting for the NURS 3233: Collaborative Nursing Care of the Adult Population course. Students will be assigned to groups of three to four students to complete three phases in the tabletop activity. A tool known as GAS, which gathers, analyzes, and summarizes, will be used to pre-debrief, implement, and then debrief during the activity. Before starting the activity, students will complete a pre- and post-survey on Google Forms to assess their confidence levels. By the end of the activity, students will meet three objectives to differentiate between palliative and hospice care. (Faculty Sponsor: Dr. Cecilia Wilson)

9. HOW HERPES VIRUS MIGHT HELP US UNDERSTAND ALZHEIMER'S. D. Gaibor Verdezoto, L. Hanson, D. Hynds. Sciences – Biology

Alzheimer's disease (AD) is the most common form of dementia and is linked to the buildup of abnormally modified tau protein. Recent research suggests that infection with herpes virus might contribute to Alzheimer's disease. One such virus is cytomegalovirus (CMV), which infects a large portion of the population. This project explores how CMV infection may cause changes to tau protein and possible outcomes in neuronal and immune cells. Using biochemical tools, we are comparing different cell types respond to CMV over time, and how localization may play a role in tau's functions. We are also investigating how two cellular enzymes, Protein Kinase A (PKA) and Protein Phosphatase 2A (PP2A), may influence these changes. Understanding how a common virus like CMV alters tau phosphorylation and its link to the cytoskeleton could reveal new insights into the early steps in development of Alzheimer's pathology, leading to improved diagnosis and targets for prevention. (Faculty Sponsor: Dr. Laura Hanson)

Supported by Daisy Brand Undergraduate Research Grant.

10. IDENTIFYING LON-2-INTERACTING PROTEINS THAT REGULATE INTERCELLULAR SIGNALING IN C. ELEGANS. E. Kirby, T. Gumienny. Sciences – Biology

An important kind of cell-to-cell communication is transforming growth factor-beta (TGF-β) signaling, which must be properly regulated for normal growth and homeostasis. Some conserved TGF-β inhibitors are proteins that act between cells and prevent TGF-β signals from being received by other cells. The mechanisms of action of many inhibitors involved are unknown. C. elegans roundworms are an effective model to study TGF-β signaling because many genes are conserved, yet mutations are non-fatal to C. elegans. Animals lacking DBL-1 signaling are small, and too much signaling makes animals long. C. elegans LON-2 is an extracellular negative regulator of DBL-1/TGF-β. We aim to 1) identify proteins that interact with a protein- protein interaction motif (RGD) of the LON-2 protein, 2) determine if loss of those proteins inhibit DBL-1 signaling, and 3) determine if the proteins interact with DBL-1 directly. This knowledge will

enhance our understanding of the regulation of TGF-β intercellular signaling. (Faculty Sponsor: Dr. Tina Gumienny)

11. IMMUNOHISTOCHEMICAL MAPPING OF SEGMENTAL NEUROPLASTICITY: EVALUATING THORACIC DORSAL HORN HYPER-ARBORIZATION IN TOWNES SICKLE CELL MICE. C. Broomfield, K. Sadler, D. Hynds. Sciences – Biology

People afflicted by Sickle Cell Disease (SCD) experience chronic pain likely driven by central sensitization and neuroplastic changes in the spinal cord. We are using multi-channel immunohistochemistry to characterize axonal arborization in the Townes SCD mouse model and hypothesize that these mice exhibit increased arborization of primary nociceptive fibers in the thoracic dorsal horn. To assess this, we are quantifying axon branching by comparing the amount of growth-associated protein 43 (GAP43; active sprouting), beta-III-tubulin (structural arborization), and calcitonin gene-related peptide (CGRP)-positive fiber (primary nociceptors) immunoreactivity in cervical, thoracic, and lumbar dorsal horns from normal and SCD mice. We anticipate these markers will be increased in thoracic segments compared to cervical or lumbar regions, correlating with clinical thoracic and abdominal SCD pain. By defining whether SCD increases region-specific arborization, we are starting to define the mechanism through which SCD causes pain, potentially identifying anatomical and neurochemical targets for novel SCD therapies. (Faculty Sponsor: Dr. Dianna Hynds)

Supported by NSF Award 1953448 (PRIME).

12. INFECTION WITH CYTOMEGALOVIRUS COULD POTENTIALLY INDUCE ALTERATION IN PHOSPHORYLATION OF TAU IN RELATION TO ALZHEIMER'S DISEASE. G. Aleman Melendez, L. Hanson. Sciences – Biology

Previous research has been conducted and discovered how Alzheimer's disease (AD) manifests with loss of neurons and correlates with the hyperphosphorylation of tau (Mody, Prapti H et al.) Research has targeted hallmarks of Alzheimer's disease; however, this has not brought closer developments of new effective treatments. One of the underexplored areas is the potential relation between infection with herpesvirus and the increase in risk of AD. Past research has shown how the infection of CMV on B35 neuroblastoma, NIH3T3 fibroblasts, and primary rat cortical neurons may play a role in dysregulation of tau. For this research, SGC1 cells will be tested to see if they can be used as a potential model for investigating Alzheimer's disease pathogenic mechanisms. This investigation will address questions such as whether we will see cytopathic effects in these cells and whether the amount of hyperphosphorylation of tau will be affected by mutations of the virus. (Faculty Sponsor: Dr. Laura Hanson)

13. INSTRUMENTAL ANALYSIS OF THE PHYSICOCHEMICAL PROPERTIES OF RECOMBINANT INBRED LINE CUCUMBERS: EFFECTS OF CULTIVATION ENVIRONMENT ON TEXTURE AND TASTE-RELATED PROFILES. U. An, Y. Weng, X. Du. Nutrition and Food Sciences - Denton

Cucumbers are valued for their refreshing sensory profile, characterized by attributes such as texture (juicy and crispy) and refresh green aroma. However, the integrated biochemical and molecular mechanisms underlying the formation and interaction of these sensory attributes remain insufficiently understood. This study investigates how different cultivation environments (open field vs. greenhouse) affect the quality of Recombinant Inbred Line (RIL) cucumbers. Hardness was assessed using a texture analyzer, sweetness with a refractometer, sourness through pH and titratable acidity measurements, and bitterness by quantifying total phenolic content (Gallic Acid Equivalent) with a spectrometer. Results indicate that cucumbers from open fields show greater hardness (12.7 N), increased sweetness (0.35 °Brix), and higher acidity (0.79 pH) than those grown in greenhouses ($p<0.05$). However, open-field cultivation exhibits greater variability than greenhouse. Specifically, texture, sweetness, and sourness are influenced by cultivation environment. This study enhances understanding of the impact of cultivation conditions on cucumber quality attributes. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by USDA-NIFA.

14. INVESTIGATING MODELS TO UNDERSTAND THE POSSIBLE MECHANISMS OF CYTOMEGALOVIRUS IN ALZHEIMER'S DISEASE. S. Nath, L. Hanson. Sciences – Biology

Over 50 million people are affected by Alzheimer's disease (AD) worldwide. Emerging evidence suggests viral infections, such as herpes virus, may contribute to AD progression. Cytomegalovirus, a herpes virus, has been shown to turn on markers of AD. One such marker is the excessive phosphorylation of Tau protein. Although excessive phosphorylation was seen in neurons and neuroblastoma cells, there were differences in the pattern. Since neurons are difficult to work with, we are examining other related cell lines, trying to find a better cell model to study the mechanisms of the effects of the virus on Tau. We are also examining what happens with virus spread and replication, where cells can change their behavior because they are not all infected at the same time. To better understand the changes to Tau, we are working on a plasmid that can allow us to more directly assess how Tau is modified (Faculty Sponsor: Dr. Laura Hanson)

15. INVESTIGATING THE EFFECTS OF A MYHRE SYNDROME SMAD4 MUTATION ON TGF-BETA SIGNALING USING C. ELEGANS. R. Umanzor, T. Gumienny. Sciences – Biology

Myhre Syndrome is a rare de novo genetic disorder with symptoms that include facial deformities, short stature, and fatal heart defects. Myhre syndrome is caused by a missense mutation in the SMAD-4 gene, an essential part of the transforming growth factor-beta (TGF-β) cell signaling pathway. Nucleotide substitutions affect one of two amino acids in SMAD-4 protein, either at R496 or I500 (Lin et al, 2023). However, it is uncertain if these variations cause a loss or gain of SMAD4 function, which is important to understand for possible therapeutic intervention. Because gene sequences in SMAD-4 are highly conserved, C. elegans

mutants with the R496C Myhre syndrome variant in the homologous sma-4 gene were studied using fluorescent imaging of three transgenic reporters of TGF-β activity. Results could shed some light on how this mutation affects SMA-4/SMAD4 interactions with other proteins and expression of target genes. (Faculty Sponsor: Dr. Tina Gumienny)

Supported by NSF Award 1953448 (PRIME) and NIH NIAID Subaward.

16. INVESTIGATING THE ESCHERICHIA COLI YFE OPERON IN BORIC ACID RESISTANCE. A. Landeros, Y. Li, A. Landeros. Sciences – Chemistry and Biochemistry

Boric acid is widely recognized for its antimicrobial properties; however, its mechanism of toxicity and potential bacterial resistance pathways remain unclear. This project aims to identify and characterize the yfe operon that may confer boric acid resistance in Escherichia coli. Using recombinant E. coli strains with yfe operon knockouts and specific plasmid vectors, growth yields are analyzed under increasing boric acid concentrations. Preliminary observations indicate variability in tolerance among mutant strains, suggesting that the yfe operon confers boric acid resistance. Comparative analyses between wild-type and knockout strains are conducted to determine the IC50 of boric acid. Future study will involve subcellular localization of the yfeK and yfeS proteins. The overall goal of this study is to establish a foundation for understanding boric acid resistance at the molecular level, which could contribute to future applications in antibacterial design and bioremediation. (Faculty Sponsor: Dr. Yunxiang Li)

Supported by TWU Center for Student Research and NSF Award 1953448 (PRIME).

17. NEUROPLASTICITY IN SENSORY NEURONS FOLLOWING BURN INJURY. E. Seastrom, T. Olaoluwa, D. Averitt. Sciences – Biology

Burn injury causes neuronal damage that can drive maladaptive neuroplasticity, leading to persistent hypersensitivity and chronic pain. Current analgesics, including opioids, are limited by tolerance and dependence, underscoring the need to better understand mechanisms underlying chronic pain. Key markers of neuronal injury and plasticity include activating transcription factor 3 (ATF3) and the neurotrophin receptors TrkA and TrkB. Using a rat burn injury model, we assessed behavioral hypersensitivity and changes in ATF3, TrkA, and TrkB expression in L5 spinal cord tissue. At 8 weeks post-injury, animals were primed with prostaglandin E2 (PGE2) to evaluate latent sensitization. Burn-injured rats displayed sustained pain hypersensitivity and elevated neuroplasticity- associated markers compared to sham controls. Following PGE2 priming, previously injured animals exhibited significantly greater hypersensitivity than non-injured rats, indicating persistent maladaptive plasticity and a primed state that may increase vulnerability to chronic pain. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by TWU Center for Student Research.

18. PLATINUM-DECORATED CARBON NITRIDE AS A MOTT-SCHOTTKY PHOTOCATALYST FOR EFFICIENT COX-FREE HYDROGEN PRODUCTION FROM METHANOL. S. Castillo, S. Lin, C. Wang, M. Silva. Sciences – Chemistry and Biochemistry

As the demand for energy sources increases, hydrogen has emerged as a promising energy carrier due to its high energy density and clean conversion in fuel cells. However, challenges in hydrogen storage and transportation hinder its widespread adoption. Methanol represents a practical hydrogen carrier because it can be readily integrated into existing fuel infrastructures, but efficient hydrogen release relies on an active methanol dehydrogenation catalyst. Molten-salt carbon nitride (MCN) has shown potential as a photocatalyst, yet its limited interaction with methanol molecules constrains performance. To enhance these interactions and improve photocatalytic activity, in this work, a Pt_{13} cluster is incorporated into MCN to generate a Pt13@MCN photocatalyst. Density Functional Theory (DFT) is used to study MCN, Pt13, and methanol-based molecules including CH3OH and CH2O, along with composite systems including Pt13@MCN–CH3OH and Pt13@MCN–CH2O. We examine charge distribution changes before and after adsorption to better understand the catalytic mechanism. (Faculty Sponsor: Dr. Shiru Lin

19. TEMPORAL DYNAMICS OF SATELLITE GLIAL CELLS IN THE SENSORY GANGLIA DURING OROFACIAL INFLAMMATION. Z. Gonzalez, A. Acayan, A. Basnet, D. Averitt. Sciences – Biology

Orofacial pain affects approximately 27% of the population, yet the neuroimmune mechanisms driving sex differences in these conditions remain poorly understood. This study investigated whether satellite glial cells (SGCs), the major non-neuronal cell type in the trigeminal ganglia (TG), exhibit sexually dimorphic activation patterns over time during orofacial inflammation. To induce inflammation, Complete Freund's Adjuvant (CFA) was injected into the masseter muscle of male and female rats. We isolated and sectioned TG at 1, 3, 5, 7, 10, and 14 days post-injection to characterize the temporal progression of inflammatory response. SGC activation was quantified in 30 μm frozen sections using immunohistochemistry to visualize GFAP and GS markers with confocal microscopy. Our preliminary data indicate that there is higher activation of SGCs in inflamed females over the first 3 days of inflammation. These findings implicate sex-specific SGC activity within the TG that may be contributing to sex differences in orofacial pain. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NIDCR R15 DE025970, NSF Award 1953448 (PRIME), and TWU Center for Student Research.

20. TESTING TEXAS NATIVE PLANT EXTRACTS FOR ANTIVIRAL AND ANTICANCER ACTIVITY. S. Castillo, H. Laura. Sciences – Biology

Plants have been used for centuries in traditional medicine, and interest in plant-based compounds continues as the search for new effective and selective anticancer, antibacterial, and antiviral agents advances. Many natural products may inhibit cancer or microbe growth, but safety

toward normal cells is often an afterthought. In this study, extracts from six Texas native plants were chosen to evaluate their anticancer and antiviral potential. Extracts were first tested on J774 macrophage cells to assess effects on normal cell viability, as excessive cytotoxicity would limit further therapeutic evaluation. Due to significant cytotoxic effects observed in J774 cells, antiviral testing was not pursued. Initial evaluation for anticancer activity was performed by assessing whether the extracts had higher toxicity to a cancer cell line, B35 rat neuroblastoma cells. Cell viability was measured using the CellTiter-Blue assay. Two of the six plant extracts showed greater toxicity to the cancer cells. (Faculty Sponsor: Dr. Laura Hanson)

21. VIRAL MODULATION OF ESTROGEN RECEPTOR GENE EXPRESSION IN BREAST CANCER CELLS. D. Khudary, J. Spencer, N. Griggs. Sciences – Biology

Estrogen signaling is a central driver of breast cancer progression, mediated through a complex network of three distinct receptors: ERα, ERβ, and the G protein-coupled estrogen receptor (GPER). Human Cytomegalovirus (HCMV) is a widespread beta-herpesvirus frequently detected within breast tumor tissue, potentially altering the hormonal environment to favor tumor growth. This study investigates the impact of HCMV infection on gene expression of all three estrogen receptors across various breast cancer cell lines. We will utilize RT-PCR to identify receptor transcripts and employ quantitative PCR (qPCR) to measure precise changes in gene activity following viral infection. By characterizing how HCMV rewires these critical pathways, this research seeks to determine if viral infection interferes with the targets of endocrine therapy, potentially influencing patient response to traditional hormone-based treatments. (Faculty Sponsor: Dr. Juliet Spencer

22. VIRAL SABOTAGE: HCMV AND THE REPROGRAMMING OF BREAST CANCER IMMUNITY. C. Tran , S. Rubinstein , N. Riggs , J. Spencer. Sciences – Biology

Human Cytomegalovirus (HCMV) is a widespread virus frequently detected within the breast tumor microenvironment. While often studied in malignant cells, HCMV also targets infiltrating monocytes, which serve as critical regulators of the inflammatory environment through cytokine production. This study investigates how HCMV infection remodels the G protein-coupled estrogen receptor (GPER) in monocytes to facilitate tumor progression. We will determine if viral infection alters GPER expression and disrupts downstream signaling pathways that govern immune activation. Using the THP- 1 monocytic cell line as a model, we employ immunoblotting and targeted cell signaling assays to quantify protein expression and activation patterns. By identifying how HCMV manipulates GPER-mediated signaling, this work characterizes the mechanisms by which viral pathogens reprogram immune cells to promote a pro-tumor environment. This research provides a vital bridge between virology and tumor immunology, highlighting new therapeutic targets within the complex breast microenvironment. (Faculty Sponsor: Dr. Juliet Spencer

23. WOMEN OF COLOR PAIN MANAGEMENT AND HOW MEDICAL NEGLIGENCE CAN LEAD TO LIFE-LONG CONSEQUENCES. L. Cruz-Perez. Language, Culture, and Gender Studies

Gynecologic pain experienced by women of color (WOC) is often minimized or dismissed within medical settings. This neglect contributes to delayed diagnoses, inadequate treatment, and long-term health outcomes. Racial and ethnic disparities continue to shape clinical responses when it comes to WOC with gynecologic pain. Aiming to highlight the issue occurring in the United States, this project uses academic literature and existing public health data. Expected findings include WOC encountering barriers when receiving appropriate pain management, patterns of underdiagnosis, and patient-provider communication. Ultimately, this research seeks to raise awareness and support efforts toward improving healthcare equality for all women. (Faculty Sponsor: Dr. Damien Hagen)

Session 2. Tuesday, April 21, 2:40 pm – 4:00 pm
Student Union 2230 (Southwest Ballroom B)

1. IRL (IN REAL LIFE): A REDDIT ANALYSIS OF ASIAN AMERICAN PARENT- CHILD INTERACTION. R. Shyu, H. Lau. Human Sciences

As the population of Asian American (AA) immigrant families in the United States continues to grow, there is an increasing need for culturally responsive and contextually grounded family support. This study examines parent–child interactions within the online AA Reddit community to explore individuals' thoughts, emotions, perspectives, and lived experiences related to family communication and relational dynamics. Using an innovative phenomenological analytic approach, this research leverages publicly accessible online discourse to capture recurring themes embedded in the everyday experiences of AA immigrants that may remain unspoken in face-to-face contexts. Findings aim to deepen understanding of acculturative stress, intergenerational relationships, and familial processes within AA communities, while contributing experiential insight to the broader literature on minority family experiences. Systemic clinical implications for work with AA families will be discussed. (Faculty Sponsor: Dr. HouI Lau)

Supported by TWU Experiential Student Scholars Program.

2. AMINO ACID PROFILE OF PLANTS GROWN AT REDUCED PRESSURE. S. Bernstein, S. Harms, K. Anderson, C. Bateman, J. Camilo, J. Beatty. Sciences – Chemistry and Biochemistry

This study investigates the impact of reduced atmospheric pressure, approximately two-thirds of Earth's atmospheric pressure (~10 psi), on the nutritional profile of spinach, focusing on the profiles of nutritionally relevant amino acids. For space habitats, reduced-pressure environments compared to earth's standard atmosphere are preferred; however, the biological response of crops to these conditions remains underexplored. Spinach will be cultivated in a pressure-controlled chamber under low- pressure conditions, with

control samples grown under standard atmospheric pressure. Following germination and growth to a defined developmental stage, spinach samples will be analyzed using Gas Chromatography–Mass Spectrometry (GC–MS) to quantify amino acid composition. The results will be compared to determine whether low-pressure cultivation affects nutritional content critical for astronaut health. The results of this study will improve the knowledge of crop growth to develop sturdier and nutrient rich crops for space travel and help design habitats for future missions to the Moon and Mars. (Faculty Sponsor: Dr. John Beatty)

Supported by Daisy Brand Undergraduate Research Grant.

3. BEYOND THE PINK OPAQUE: AN ANALYSIS ON GENDERED SCORING AND IDENTITY IN "I SAW THE TV GLOW". R. Braunschweig. Arts and Design – Music

I Saw The TV Glow is a coming-of-age horror movie in which teenagers Owen and Maddy uncover reality through their shared connection to the fictional show “The Pink Opaque.” Director Jane Schoenbrun characterizes Owen and Maddy based on their real identities by associating them with non-diegetic popular music, scoring each with the inverse of their traditionally feminine or masculine instrumentation and style. Based on the work of film music scholars, I explore how Schoenbrun uses scoring to establish Owen’s character, reveal his conflict of desire versus agency, and align him with his true identity. In contrast, the music associated with Maddy utilizes traditional masculine scoring techniques. By expanding on existing frameworks of comparative analysis, I analyze the music of I Saw The TV Glow and compare it to music in other films. In doing so, I inspect the impact of orchestration, style, and timbre on audiences’ perceptions of character identity. (Faculty Sponsor: Dr. Paul Thomas

4. CHARACTERIZATION OF PLATINUM-BASED DRUG INTERACTIONS WITH 5′- DEOXYGUANOSINE MONOPHOSPHATE USING ^{1}H NMR, HPLC, AND MASS SPECTROMETRY. M. Obradovic, M. Rodriguez, N. Mirsaleh-Kohan. Sciences – Chemistry and Biochemistry

Platinum-based chemotherapeutic drugs are widely used in cancer treatment because they bind to DNA and disrupt cellular replication, although their limited selectivity requires further study of their molecular interactions. In this work, 5′-deoxyguanosine monophosphate (5′-dGMP) was used as a simplified DNA model to investigate reactions with platinum-based drugs under controlled conditions. Formation of platinum–nucleotide adducts was monitored using proton nuclear magnetic resonance (^{1}H NMR) spectroscopy to observe structural changes in solution. High-performance liquid chromatography (HPLC) was used to separate reaction components and follow reaction progress, while mass spectrometry (MS) confirmed the formation and composition of platinum–dGMP adduct species. Together, these analytical techniques provide complementary structural and compositional information, allowing characterization of platinum–DNA model interactions and contributing to a better understanding of the mechanisms underlying platinum-based chemotherapy. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan

Supported by Robert A. Welch Foundation; Daisy Brand Undergraduate Research Grant.

5. DEVELOPMENT OF A THREE-PLASMID CRISPR/PITCH STRATEGY FOR ENDOGENOUS FLUORESCENT TAGGING OF ARGINYLTRANSFERASE 1 (ATE1). G. Escobar Verdezoto, K. Budhathoki, C. Brower. Sciences – Biology

CRISPR/Cas9-mediated Precise Integration into Target Chromosome (PITCh) has emerged as a high-efficiency alternative for genomic knock-ins. It employs templates with short homology arms (5–25 bp) to repair double-strand breaks, a microhomology-mediated end joining (MMEJ) pathway. This research focuses on engineering a three-plasmid PITCh system to fluorescently tag endogenous Arginyltransferase 1 (ATE1). ATE1 is a critical enzyme in the N-degron pathway, mediating protein arginylation and subsequent proteasomal degradation. However, how ATE1 is regulated is still unknown. To facilitate real-time visualization of ATE1 dynamics, we developed: 1) a Cas9 and gRNA expression vector targeting the ATE1 locus; 2) a donor template plasmid containing a fluorescent reporter flanked by microhomology arms; and 3) a specialized PITCh vector to mediate specific cleavage of the donor. This three-plasmid architecture establishes the molecular foundation for future co-transfection experiments, enabling further study of the spatial localization and proteomic interactome of ATE1 in vivo. (Faculty Sponsor: Dr. Christopher Brower)

Supported by Daisy Brand Undergraduate Research Grant.

6. DEVELOPMENT OF RED WINE POMACE ENCAPSULATED NANOFIBERS VIA COAXIAL ELECTROSPINNING: DOSE-DEPENDENT CYTOCOMPATIBILITY ON HUMAN AORTIC ENDOTHELIAL CELLS. C. Ghanta, A. Thapa, S. Panta, N. Moustaïd-Moussa, A. Ahmad, M. Pahlavani. Nutrition and Food Sciences - Denton

Anthocyanins are powerful antioxidants with anti-inflammatory properties, but their poor bioavailability limits their therapeutic potential, especially in addressing cardiovascular disease (CVD) and inflammation. This project aimed to overcome these barriers by using coaxial electrospinning to encapsulate whole grape pomace—a sustainable, anthocyanin-rich byproduct—within core-shell nanofibers. Nanofibers were produced from a core of red wine pomace in gelatin/acetic acid and a shell of polyvinyl alcohol and glycomacropeptide. Cytocompatibility was evaluated in vitro using a tryptophan assay at concentrations of 6, 12, 24, and 48 µg/mL. Results showed that the nanofibers were biocompatible at 6 and 12 µg/mL, while higher doses reduced viability ($p \leq 0.05$). By improving stability and delivery, this electrospinning approach addresses the main barriers to anthocyanin’s use and, through whole-pomace encapsulation, offers a novel and sustainable route for developing functional nanomaterials targeting inflammation and oxidative stress in CVD. (Faculty Sponsor: Dr. Mandana Pahlavani)

Supported by USDA/NIFA A-1343- 2024-67018-42465.

7. DIETARY VITAMIN A EFFECTS ON EPRESSION ON SDR16C5. L. Deen, Christine A VanBuren, NFS, Doctoral student, cvanburen@twu.edu; Helen B Everts, NFS, Faculty, heverts@twu.edu. Nutrition and Food Sciences - Denton

Hair follicles undergo cycles of growth and dormancy. These cycles are tightly regulated by a variety of factors within the body, such as hormones and nutrients (Goggins et al., 2024). One of the most important factors is retinoic acid (RA), derived from vitamin A. If RA levels are not balanced, issues such as hair loss, inadequate skin health, or diseases like psoriasis can occur (Adams et al., 2017). The enzyme SDR16C5 assists in producing RA in the skin. Recent studies suggest that this enzyme may also play a role in maintaining the hair cycle. In previous studies from our lab, dietary vitamin A at extreme levels (1.35 and 250 IU vitamin A/g diet) resulted in an accelerated hair cycle, similar to what was observed in Sdr16c5 and Sdr16c6 double knockout mice. However, how dietary vitamin A regulates SDR16C5 or SDR16C6 has not yet been tested. In this work-in- progress study, I am examining fluctuations in the localization and quantity of the SDR16C5 enzyme in the skin in response to four different levels of dietary vitamin A. It is hypothesized that the 250 IU/g diet will alter both the protein levels and localization of the SDR16C5 enzyme. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Center for Student Research.

8. DIFFERENCES IN GAZE-STIMULUS COUPLING IN PERCEIVING INTRINSIC COORDINATION PATTERNS ACROSS MOVEMENT FREQUENCIES. K. Mori, L. Woods-Malmuth, R. Adhikari, Y. Kwon, S. Huang. Kinesiology

Visual information plays an important role in perceiving coordinated rhythmic movements, but how it is utilized across different movement speed remains unclear. This study examined gaze behavior during the perception of fundamental coordination patterns using eye tracking. Nine participants completed a judgment task to distinguish the in-phase and anti-phase coordination of two moving dots across six frequencies (0.5 to 3 Hz in 0.5 Hz increment). Gaze-stimulus coupling was quantified using the Fisher Z- transformed peak cross-correlation between gaze trajectories and stimulus motion. Results showed significant main effects of coordination pattern and frequency, along with a strong interaction between them. During phase judgments at low frequencies, gaze showed strong coupling with the stimulus. Conversely, gaze stimulus coupling remained low during anti-phase judgments across all frequencies, suggesting a stable gaze strategy. Overall, gaze-stimulus coupling decreased as frequency increased, indicating a strategic shift in visual processing at higher movement speeds. (Faculty Sponsor: Dr. Shaochen Huang)

Supported by TWU Experiential Student Scholars Program.

9. DISSECTING UBR5 RECOGNITION OF TDP43 FRAGMENTS. A. Pellacani, O. Van, J. Olmeda, W. Mirembe, C. Brower. Sciences – Biology

In many forms of neurodegeneration, the human Tar DNA-binding protein 43 (TDP43) undergoes proteolytic cleavage resulting in fragments that can form toxic oligomers and aggregates within cells. Our lab has discovered that cells utilize a multi-layered approach for recognizing and degrading these proteolytic fragments to prevent harmful aggregates. Here, we are investigating their clearance by the E3 ubiquitin ligase N-Recognin 5 (UBR5) pathway. While UBR5 is known to ubiquitylate proteolytic fragments bearing positively charged N-terminal amino acids such as arginine, we have found that UBR5 can recognize TDP43 fragments irrespective of the N-terminal residue. From this, we hypothesize that UBR5 recognizes TDP43 fragments through interactions with mono-ubiquitylated lysine residues. To investigate this, we will mutate individual lysines to arginines, and create a lysine-lacking (non-ubiquitable) fragment to examine UBR5 binding and determine lysine priority. (Faculty Sponsor: Dr. Christopher Brower)

Supported by NSF Award 1953448 (PRIME).

10. EFFECTS OF TRAUMA-INFORMED CARE ON THE ALLOSTATIC LOAD FOR DOMESTIC VIOLENCE SURVIVORS. A. Williams, J. Immanuel. Nursing - Denton

Domestic Violence (DV) affects nearly one in two women in the United States and is associated with increased allostatic load (wear and tear on the body) and chronic health risks. This literature review focuses on existing research on DV survivors and the impact of trauma-informed services on allostatic load among adult women survivors of DV. Using non-invasive biomarkers, specifically heart rate variability (HRV) and salivary cortisol, this study seeks to provide a biological data review to advance evidence-based trauma-informed care. This systematic review will follow PRISMA guidelines. Medical Subject Headings (MeSH) searches will include domestic violence, interpersonal violence, allostatic load, heart rate variability, and cortisol in PubMed, CINAHL, PsycINFO, and Scopus, focusing on peer-reviewed studies examining TIC and biomarkers of allostatic load. This review will identify gaps in biomedical research on DV and the necessity for focused studies examining TIC as a gold standard for biological recovery amongst DV survivors. (Faculty Sponsor: Dr. Jincy Immanuel)

11. EXAMINING THE EFFECT OF VARIOUS ROASTING SPECIFICATIONS ON THE DENATURATION AND REDUCTION OF ALLERGENIC VICILIN PROTEINS IN SIX COMMONLY CONSUMED TREE NUTS. S. Salazar, J. Beatty , P. Justice, S. Juma. Nutrition and Food Sciences - Denton

Tree nuts, the edible seeds of diverse tree species, are a nutritious source of fiber, protein, and micronutrients important for health. However, the rate of tree nut allergies has increased 2% in the adolescent population in the US over the past thirty years, affecting roughly 1.4 million children annually. Most allergies are caused by various protein families in tree nuts, one major contributor being the vicilin family. This study aims to explore the effect of several time and temperature roasting parameters on vicilins found in almonds (non-characterized), cashews (Ana o 1), hazelnuts (Cor a 11),

pecans (Car i 2), pistachios (Pis v 3), and walnuts (Jug r 2). We will conduct a series of roasting experiments, followed by protein extraction and quantification through thin layer chromatography. Using this data, we will determine the effect of the roasting variables on the denaturation and detection of the allergenic proteins in these samples. (Faculty Sponsor: Dr. Shanil Juma)

Supported by TWU Experiential Student Scholars Program.

12. HAIR BIAS AGAINST BLACK WOMEN IN COURTROOM SETTINGS. I. Almanza. Social Work, Psychology, and Philosophy

This proposal examines how textured hair stereotypes influence evaluations of Black women defendants in courtroom contexts. Although racial disparities in sentencing are well documented, little research has explored hairstyle as a distinct racialized cue in legal decision-making. Drawing on social psychological research on implicit bias and intersectionality, this study conceptualizes natural and protective hairstyles as race- conditional norm violations within White-coded institutional spaces. In a controlled experimental design, adult participants will evaluate a female defendant depicted in a case vignette that varies by race and hairstyle. Participants will assess credibility, culpability, and sentencing recommendations. This research seeks to extend hair bias scholarship beyond workplace settings and into judicial contexts, offering insight into how racialized presentation cues may contribute to inequities in courtroom evaluations of Black women. (Faculty Sponsor: Dr. Gabrielle Smith

13. HEAT-READY SCHOOLS: A HERMENEUTIC PHENOMENOLOGICAL STUDY OF EXTREME HEAT IN ELEMENTARY SCHOOL COMMUNITIES. A. Taylor. Teacher Education

Extreme heat events are increasing across North Texas, yet limited research has examined how heat is experienced within the daily life of elementary schools. Existing studies emphasize physiological risk and student performance, but less is known about how educators interpret and navigate teaching during prolonged heat exposure within complex school systems. This proposed hermeneutic phenomenological study explores how extreme heat is experienced during the school day in a North Texas elementary school. The primary focus centers on classroom educators' lived experiences, including how heat is physically felt, emotionally processed, and cognitively navigated, and how these experiences shape instructional routines, student engagement, decision-making, and perceived teaching capacity. To situate these experiences ecologically, the study incorporates school leaders, staff, and caregivers as contextual layers. Guided by Ecological Systems Theory, this research contributes to conversations on climate resilience, educator well-being, and leadership practices necessary for developing heat-ready schools. (Faculty Sponsor: Dr. Laura Trujillo-Jenks)

14. INDUSTRIALIZATION AND ISOLATION: THE REVIVAL OF DAOISM'S PURPOSEFUL SOLITUDE THROUGH EUROPEAN & AMERICAN WRITINGS. J. LeSueur. Language, Culture, and Gender Studies

This literature review aimed to evaluate meaningful connections between Eastern religious thought, German philosophy and American writing during industrialization. Exploration of German philosophy and American writing throughout the age of industrialization, reveal the revival of Daoist preference for purposeful solitude emerges as a modulator for the new-found isolating experience. Daoist teachings encourage reconnection with Dao, the ultimate and balanced reality, through relinquishment of worldly perspectives and understanding. German philosophers, Martin Heiddeger and Soran Kierkegaard, alongside American writer, Emily Dickinson, reinforce the separation of self from the world to transcend the human experience. This paper analyzes Dickinson's I See Thee Better In the Dark under the scope of Doaist teaching to offer perspectives to transform isolation into purposeful solitude. (Faculty Sponsor: Dr. Brian Fehler)

15. INTIMATE PARTNER VIOLENCE AND HIRING DECISIONS. R. Henderson Lal, G. Smith, U. Mars Williams. Social Work, Psychology, and Philosophy

Victims of Intimate Partner Violence (IPV) frequently experience employment disruptions that may signal instability to employers during the hiring process. Drawing on stigma and attribution theory, this proposed experimental study examines how explicit and covert signals of IPV victimization in hiring materials shape employer evaluations. Participants will review a standardized candidate packet (resume, interview excerpt, and reference call) that either explicitly signals IPV, covertly signals IPV, or does not signal IPV. The study will assess the candidate for hirability, promotability, and perceived commitment and stability. It is hypothesized that the IPV condition will yield lower hirability and promotability scores than the other conditions, and perceived stability and commitment will mediate these effects. This project advances theoretical understanding of how trauma-related disclosures shape organizational decision-making. (Faculty Sponsor: Dr. Gabrielle Smith

16. ISOLATION AND IDENTIFICATION OF FUNGAL ENDOPHYTES FROM EUPHORBIA BICOLOR (EUPHORBIACEAE). R. Crane, S. Mehebub, K. Pollok, L. Hanson, J. Saldana, C. Pislariu, C. Maier. Sciences – Biology

Endophytic fungi are organisms that inhabit plant bodies. Euphorbia species have symbiotic relationships with endophytic fungi. Our research goal is to identify the endophytic fungi of E. bicolor, a native species not studied before, and determine the secondary metabolites they produce, since pharmacological studies show endophytic fungi are potential sources for bioactive metabolites. E. bicolor endophyte cultures were obtained on V8 agar medium. Microscopic studies identified Alternaria, Fusarium, Cladosporium, Phoma, and Nigrospora as endophytic fungal species. Genetic testing using ITS1 and ITS4 primers confirmed the species of fungal endophytes. Future studies will focus on

identifying medicinal chemicals synthesized by endophytes to be compared with secondary metabolites of plant, thus getting deeper insight into the symbiotic relationship between E. bicolor and its endophytes. This study has both scientific and practical applications and could lead to the discovery of new pharmacologically active chemicals to treat pain and cancer. (Faculty Sponsor: Dr. Camelia Maier)

17. KNOWLEDGE, MISCONCEPTIONS, AND BARRIERS TO PROBIOTIC AND PREBIOTIC USE IN MANAGING BACTERIAL VAGINOSIS: A CROSS-SECTIONAL SURVEY. L. Aschenberg, S. Juma. Nutrition and Food Sciences - Denton

Bacterial vaginosis (BV) is the most common vaginal infection among women of reproductive age, yet misconceptions about its causes and management remain widespread. This cross-sectional survey examined women's knowledge, beliefs, and perceived barriers related to BV and the use of probiotic and prebiotic therapies. A 37-item Qualtrics-based questionnaire was completed by 375 premenopausal women aged 18–45 years. The primary objectives were to assess understanding of BV etiology, symptoms, and risk factors; identify common misconceptions; evaluate awareness and perceived effectiveness of probiotic and prebiotic treatments; and explore barriers to their use. Descriptive and inferential analyses of the survey data are currently underway. Findings will inform the design of targeted probiotic interventions for BV management and support the development of educational strategies aimed to enhance evidence-based decision-making in women's health. (Faculty Sponsor: Dr. Shanil Juma)

Supported by TWU Quality Enhancement Plan (QEP) and TWU Jane Nelson Institute for Women's Leadership.

18. LONGITUDINAL ANALYSIS OF TWU/AFA CYBERCAMP IMPACT: A DECADE OF STEM EDUCATION OUTCOMES. S. Chhuon. Sciences – Computer Sciences

This study evaluates the educational impact of the TWU/AFA CyberCamp by analyzing ten years of matched pre- and post-survey data that measure student knowledge, confidence, and skill development in cybersecurity and STEM. CyberCamp delivers a week-long, hands-on program that introduces middle and high school students to cybersecurity concepts, technical training, and career pathways. Using S-STEM surveys, knowledge assessments, and demographic data, the study examines how short-term instruction influences self-efficacy, learning gains, and interest in STEM fields. The analysis compares responses across four instruments to measure growth in network security, password management, virtual machines, online safety, math and science confidence, 21st-century skills, and career readiness. Because participants represent diverse districts and backgrounds, the study also explores how demographic and educational factors affect outcomes. Findings will identify instructional strategies that most effectively increase engagement and understanding, inform program design, and support evidence-based approaches to strengthening early cybersecurity education and workforce pipelines. (Faculty Sponsor: Dr. Jonathan Gratch)

19. MICROPLASTIC CONTAMINATION FROM PLASTIC FOOD CONTAINERS. O. Barclay. Sciences – Chemistry and Biochemistry

Ingestion of microplastics poses a significant threat to human health and the environment. One route of ingestion is through adhesion to fingers, especially when handling food that has been cooked and packaged in plastic containers. Plastic food storage containers are commonly used to store food for extended periods of time and are also popular for eating on the go. When these containers are microwaved, microplastics can shed and adhere to the food or leach into any liquids inside. Polyethylene and polystyrene are the most common compounds used to make plastics and can easily be detected through IR (infrared) analysis. These materials show strong absorbance in IR, which can be used to distinguish them from other compounds. This research uses the iN10 IR microscope to analyze fingerprints and dried water samples for microplastic contamination from plastic food storage containers. (Faculty Sponsor: Dr. John Beatty)

Supported by Robert A. Welch Foundation.

20. MITIGATION OF MUSCLE ATROPHY IN THE LOWER EXTREMITIES DURING LONG- DURATION SPACEFLIGHT. G. Powell, C. Fidalgo Garcia, N. Vogel, A. Travis, H. Alvis, B. Rigby, S. Huang. Kinesiology

Long-duration spaceflight induces microgravity-related muscle atrophy in astronauts' lower extremities, which can negatively impact their mission performance. To attenuate this decline, this project aims to design and advance a functional plantar-stimulation device by refining an existing prototype that delivers targeted mechanical loading to specific regions of the foot sole. With optimization of the location, intensity, and distribution of plantar inputs to engage key mechanoreceptors, this work seeks to enhance neuromuscular activation and help preserve lower-limb function. The prototype's effectiveness will be tested using electromyography (EMG) of the soleus muscle during stimulation. Device longevity will be tested using a finite element analysis (FEA) in SolidWorks, which is a software widely used by engineers and designers for three-dimensional (3D) modeling and stress testing mechanical prototypes. Following validation, the EMG and FEA results will be analyzed to assess the capability of the device to prevent muscular decline in astronauts during long-duration spaceflight. (Faculty Sponsor: Dr. Shaochen Huang)

Supported by TWU Center for Student Research.

21. MUTATIONAL STUDIES OF THE B SUBUNIT: UNDERSTANDING PERIPHERAL STALK INTERACTIONS IN ATP SYNTHASE. R. Dominguez, N. Caracena, A. Landeros. Sciences – Chemistry and Biochemistry

ATP synthase is a crucial enzyme in cellular energy production, catalyzing ATP synthesis through rotational catalysis. In this study, we aim to further understand the functions of the peripheral stalks (the b subunit dimer) in ATP synthase. Our hypothesis is that we are able to conduct mutational studies

to locate the essential dimerization area of the b subunit. Experimentally, the enzymatic performance of nine enzyme variants were assessed, including ATPase activity and proton pumping strength. Our results may indicate that the dimerization between b90–140 is critical for maintaining proper functions of ATP synthase. In the future work, we will further analyze the assembly and energy coupling efficiency to promote the understanding of the interactions among subunits in the peripheral stalks. These findings should provide insights into ATP synthase mechanics, with potential implications for bioenergetics andenzyme engineering. (Faculty Sponsor: Dr. Yunxiang Li)

Supported by TWU Center for Student Research, NSF Award 1953448 (PRIME), TWU TARGET grant, and TWU Jane Nelson Institute for Women's Leadership.

22. RELATIVELY PRIME NUMBERS AND PROPERTIES. O. Watson. Sciences – Mathematics

In this work, we highlight various properties of relatively prime numbers. Relatively prime numbers are used in a variety of ways, ranging from simplifying fractions to preventing computer hacking. We describe a barrier to numbers being relatively prime and then prove a method to generate an infinite amount of numbers relatively prime to any given number. (Faculty Sponsor: Dr. Alexis Hardesty)

23. STUDENT-LED IMPROVEMENT SCIENCE IN CAMPUS WELLBEING: A PEER WELLNESS COACHING MODEL. J. Liu, H. Wooten, N. Thomas, K. Mehta, O. Adefiranye, C. Kurian, T. Freeman, F. Brito-Silva. Other

To strengthen student wellbeing and self-efficacy, the Peer Wellness Ambassadors program offers structured, one-on-one peer wellness coaching grounded in motivational interviewing and behavior change principles. Trained peer coaches complete initial and ongoing training in coaching techniques, peer education, and supervised practice. Students begin with a wellness intake form and participate in individualized coaching sessions focused on identifying challenges, setting meaningful goals, and developing sustainable action plans. Progress is documented after each session, and follow-up meetings support accountability and skill development. During Fall 2025, 18 students engaged in coaching, attending one to twelve sessions. Through this model, peer coaches strengthened leadership, ethical decision-making, communication, and goal-setting skills while supporting peers in behavioral change. Program refinements, including caseload limits and defined coaching timelines, aim to increase access and sustainability. These initiatives illustrate how student-led improvement science can operationalize wellbeing strategy within higher education settings. (Faculty Sponsor: Dr. Francilia Brito-Silva

Supported by Health and Wellbeing Initiative.

24. THE EFFECT OF ULTRAVIOLET B IRRADIATION ON THE LOCALIZATION OF THE ABCA4 RECEPTOR. C. VanBuren, H. Everts. Nutrition and Food Sciences - Denton

ATP-binding cassette sub-family A member 4 (ABCA4) performs an important role in the visual cycle by recycling vitamin A in the eye. Mutations in the ABCA4 gene result in Stargardt's disease, which is a form of juvenile macular dystrophy that causes progressive vision loss. Recently, researchers have found that ABCA4 is also active in skin and hair follicles. What is not known, however, is how ultraviolet B radiation, which damages vitamin A, affects the localization and quantity of ABCA4 in the skin. This work-in progress will examine previously collected skin samples from C57BL/6 mice to determine what changes occur following UVB exposure. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Center for Student Research.

25. THE HYPOTRIGONA ANTARCTICA; A CONCEPTUALIZED ANTARCTIC BEE AND ITS PROPOSED MORPHOLOGICAL ADAPTATIONS DUE TO CLIMATE FROM A GLOBAL PERSPECTIVE. W. Skidmore. Arts and Design – Visual Arts

Many existing discussions surrounding climate change and its effects on bees focus on the extinction of particular species, most of which fall under the genus Bombus. This current paper aims to take an in-depth look at six different native species of bees, one for each continent excluding Antarctica, and connect the adaptations of each species with its habitat. Antarctica has no known species of bees, and by conducting this research, conclusions can be made regarding what kinds of adaptations one would need to thrive in the climate. As climate change progresses, many bees fall victim to the increase in temperature and food scarcity. Looking at this extreme climate that favors colder temperatures unlike other biomes may not only provide a future habitat for current species but may also provide new possibilities where genetic engineering could fit into the ecosystems in Antarctica and furthering its support for life. (Faculty Sponsor: Professor Sheli Petersen)

26. WEARABLE TECHNOLOGY TO MITIGATE SHOULDER INJURIES IN ASTRONAUTS: A VALIDATION STUDY. H. Alvis, K. Mori, C. Clark, S. Chun, M. Hanks, S. Huang, Y. Kwon, R. Rigby. Kinesiology

Shoulder injuries are the second most common injury experienced by astronauts while performing extravehicular activities (EVAs). However, wearable garments infused with motion sensors may mitigate these injuries in microgravity environments. The purpose of this study is to validate the capability of the Shoulder and Labrum Evaluation Equipment for Vibrational Execution (SLEEVE) device to accurately and precisely measure shoulder motions in real-time. During data collection, participants will perform simulated EVAs while wearing the SLEEVE device and a total of seventeen retroreflective markers on the upper extremity. Shoulder motions (i.e., flexion/extension, abduction/adduction, horizontal abduction/adduction) will be collected and compared between the SLEEVE device and the gold standard of three-dimensional kinematic analyses, motion capture, through root mean square analyses and intra-class correlation analyses. The results of this study may provide an innovative solution to mitigating shoulder injuries in astronauts, thus

leading to significant improvements in future EVA performance and mission success. (Faculty Sponsor: Dr. Brandon (Rhett) Rigby)

Supported by Texas Space Grant Consortium.

Session 3. Tuesday, April 21, 6:00 pm – 7:20 pm
Student Union 2230 (Southwest Ballroom B)

1. A PILOT STUDY OF TEACHER PERCEPTIONS OF WELLNESS ROOMS AS A STRATEGY TO REDUCE STRESS AND BURNOUT. B. Afolabi. Literacy and Learning

Teacher stress and burnout continue to affect wellbeing and retention in primary education. This pilot study will explore teachers' perceptions of implementing a campus wellness room and whether such a space would reduce their stress levels. Using a survey design, PreK–5th grade teachers will report their views on the potential benefits of a dedicated wellness room and identify features they would find most helpful. It is anticipated that many teachers will perceive a wellness room as a supportive strategy for stress reduction. Participants are expected to express interest in a quiet, calming environment equipped with comfortable seating, aromatherapy, soft lighting, mindfulness tools, journals, coloring materials, and massage chairs. Findings will provide preliminary insight into the feasibility of wellness rooms as an intervention to support teacher wellbeing and may inform future large-scale research and implementation efforts. (Faculty Sponsor: Dr. Lin Moore)

2. BENDING TOWARDS BURNOUT: MUSCULOSKELETAL HEALTH AND DISORDER PREVENTION IN DENTISTRY. A. Duhon, K. Basiliadis, H. Burn, A. Currie, M. Williams. Communication Sciences and Oral Health

Musculoskeletal disorders are a common occupational hazard for dental hygienists due to repetitive movements, prolonged static postures, and precision tasks, which can lead to pain, reduced productivity, and shortened careers. Our question: Will the use of magnification loupes, targeted stretching programs, and ergonomic interventions, compared to standard clinical practices, reduce musculoskeletal strain and extend the professional longevity of dental hygienists? The review indicates that magnification loupes improve posture and reduce neck and shoulder strain by supporting neutral head positions. It showed that regular stretching enhances musculoskeletal endurance and decreases trauma risk, and ergonomic training can further minimize strain. Together, these interventions are associated with lower injury rates and may extend clinical careers. In conclusion, incorporating loupes, stretching routines, and ergonomic practices is essential for preserving musculoskeletal health and sustaining dental hygiene careers. Future research should focus on standardized protocols and long-term adherence to optimize occupational outcomes. (Faculty Sponsor: Dr. Yancy Ulbrich)

3. BENEATH THE SNORE: OBSTRUCTIVE SLEEP APNEA (OSA) IN CHILDREN. V. Reyna, Y. Perez, B. Hernandez, M. Hnem, J. Martinez. Communication Sciences and Oral Health

Sleep disordered breathing (SDB) in elementary aged children disrupts sleep and oxygen levels, affecting growth, cognition, and behavior. This literature review examines the effectiveness of non-surgical airway support therapies including continuous positive airway pressure (CPAP), mandibular advancement devices, and orthodontic appliances for children ages 5 to 11. The objective was to compare early, non invasive interventions with no treatment in improving physical and cognitive outcomes. Peer reviewed studies were analyzed for treatment effectiveness, adherence, and collaborative care practices. Evidence shows that non surgical therapies improve sleep quality, attention, and daytime behavior, with CPAP demonstrating the strongest short term results. However, adherence challenges and limited long term data remain concerns. The findings emphasize early detection through family education and routine screening in pediatric and dental settings. Integrated, family centered care is recommended, along with further longitudinal research to assess lasting developmental and behavioral outcomes. (Faculty Sponsor: Dr. Lindsey Phillips)

4. BOTULINUM TOXIN TYPE A THERAPY FOR TEMPOROMANDIBULAR DISORDERS: UNCLENCHING THE TRUTH. D. Anaya-Medina, K. Arriola, V. Miranda, R. Montiel, L. Rodriguez. Communication Sciences and Oral Health

Temporomandibular joint disorders (TMJD) cause pain, limited jaw movement, and a reduced quality of life. BoNT-A works by blocking acetylcholine at the neuromuscular junction, relaxing hyperactive muscles, and reducing pain. Studies show BoNT-A can relieve TMJD pain and improve function within six weeks, with results lasting up to four months. While it offers short- term benefits with minimal side effects, more research is needed to standardize doses and confirm long-term effectiveness. (Faculty Sponsor: Dr. Amy Teague)

5. COGNITIVE BIASES IN JURY DECISION MAKING AND IMPLICATIONS FOR LEGAL PRACTICE. A. Del Vecchio. Social Sciences and Historical Studies

This study examines how trial lawyers identify, manage, and mitigate juror biases in real trials, focusing on cognitive biases and their impact on verdicts. It explores strategies used during jury selection, voir dire, and trial presentation, as well as attorneys' perceptions of juror impartiality and trial fairness. Data will be collected through interviews with experienced attorneys, who will discuss how biases such as confirmation bias, anchoring, and implicit racial bias influence juror decision-making. Integrating insights from psychology and law, the study considers how evidence framing, attorney presentation styles, and juror social dynamics affect outcomes. Attorneys will reflect on methods for assessing jurors, addressing implicit bias, and adapting strategies during trial, including the use of pre-trial instructions and peremptory challenges. Drawing on existing literature, including work by Ingriselli, Kang et al., and Sommers and Norton, the research aims to provide practical insights into improving jury selection, trial strategies, and overall courtroom fairness. (Faculty Sponsor: Dr. Wouter VanErve)

6. ESTIMATING THERAPIST EFFECTS OF FAMILY THERAPY OUTCOMES. N. Ricks , M. McDowell, D. Ventura , A. Jones , C. Claire. Human Sciences

Research consistently shows variance in psychotherapists' effectiveness, called therapist effects, are stronger predictors of mental health outcomes than selected treatment models. Psychotherapy researchers have shifted their focus towards understanding contributors to discrepant client outcomes across therapists. However, the impact of therapist effects within family therapy remains understudied. Analyzing variances in therapist effectiveness becomes complex when exploring data from multiple family members. This poster examines therapist effects of licensed, systemically-trained, psychotherapists (n = 29) representing data from over 500 families in family therapy. Researchers collected client data from State-Funded treatment agencies providing family therapy services in community mental health, residential, and intensive out-patient settings. Valid measures of family functioning were administered to clients pre- and post-treatment. Therapist effectiveness variances will be calculated using multi-level modeling analysis. Therapist characteristics (experience, caseload, systemic-therapy training, etc.) will also be examined as potential level-one therapist effectiveness predictors. (Faculty Sponsor: Dr. Adam Jones)

Supported by TWU REP.

7. FEMALE SUFFERING AND HONOR: WOMEN'S ROLES IN EAST ASIAN HISTORICAL FICTION. M. Bull. Language, Culture, and Gender Studies

When discussing literature of the historical fiction genre, East Asian authors and narratives are frequently excluded. The perspectives of women from those cultures tend to be especially underrepresented, often because they present a nuanced perspective on gender roles, femininity, and female oppression that is unfamiliar and therefore uncomfortable for Western readers. In cultures and societies where patriarchy is so deeply ingrained, women tend to conform to and reflect oppressive values in ways that seem orthodox and counterproductive to change, yet they partake in subtle forms of resistance and rebellion that showcase a quiet strength and perseverance against unfavorable odds. Through a literary analysis of novels such as Lee Min Jin's Pachinko and Lisa See's Lady Tan's Circle of Women, which both feature resilient female protagonists who simultaneously conform to and resist their respective patriarchal cultures, as well as examining existing literature surrounding the study of gender roles in historical fiction, this presentation aims to provide a comprehensive analysis on women's roles in East Asian historical fiction and how it lends to modern Western feminism ideals. (Faculty Sponsor: Dr. Brian Fehler)

8. FROM PREVENTION TO PROTECTION: HUMAN PAPILLOMAVIRUS (HPV) EDUCATION STARTS IN THE DENTAL OFFICE. S. Wilkins, Y. Bailey, K. Fuller , M. Mason, K. Sauls. Communication Sciences and Oral Health

Research identifies human papillomavirus (HPV) as a leading cause of oropharyngeal cancers, highlighting the important role oral health professionals play in prevention through patient education and screening. This review examined 10 peer-reviewed studies published between 2021 and 2025 to evaluate dental professionals' knowledge, attitudes, and practices regarding HPV education, guided by a PICO question assessing whether patient education improves awareness and vaccine compliance. Findings show that while many providers understand the link between HPV and oral cancer, they often feel unprepared to discuss it with patients. Continuing education was found to improve provider knowledge, confidence, and frequency of HPV-related discussions. Studies also indicate that patients who receive HPV education during dental visits demonstrate increased awareness and greater willingness to receive the HPV vaccine. Integrating HPV and oral cancer education into dental hygiene practice, curricula, and continuing education may strengthen preventive efforts and improve vaccination uptake, ultimately supporting oral cancer prevention. (Faculty Sponsor: Dr. Charlene Dickinson)

9. GENETIC ENGINEERING ON EMBRYOS. C. Person. Social Work, Psychology, and Philosophy

In 1865 Gregor Mendel investigated the transmission of characters in pea plants; with this he establishes the Law of Inheritance and becomes known as the 'Father of Genetics'. Mendel's studies stimulated questions regarding how bacteria could be used as a model for studying genetics. Applications of genetic modification in human ES cells is also being researched by the University of Wisconsin-Madison. This research projects that modified human ES cells illuminate pathogenesis of genetic disorders, which help to identify therapeutic targets, and develop technology for more efficient stem cell maintenance. Human ES cells can produce almost any cell types in our body. With this knowledge, scientists believe that it could help cure many diseases that are affecting the central nervous system, such as the pancreas, heart, etc. Site directed gene modification in human ES cells has the ability correct genetic defects. (Faculty Sponsor: Dr. Monica Lindemann)

10. HELPING TUMORS HIDE. N. Khanna, D. Spencer, D. Griggs. Sciences – Biology

Human cytomegalovirus (HCMV) is a common virus that can remain in the body for life and influence immune function long after infection. In breast cancer, estrogen signaling plays a major role in how tumors grow and respond to treatment. Estrogen can also affect immune signals within the tumor environment, including interleukin- 10 (IL-10), a molecule that suppresses immune activity. While IL-10 normally helps prevent excessive inflammation, high levels of this signal in tumors can weaken the immune system's ability to recognize and attack cancer cells. This project examines whether HCMV infection alters estrogen- related signaling, stimulates IL-10 production, and whether, a virally encoded mimic, cmvIl-10, further enhances this immune-suppressive response. By studying how chronic viral infection and estrogen signaling interact to dampen immune defenses, this research aims to clarify mechanisms that may allow tumors to evade immune control and persist despite therapy. (Faculty Sponsor: Dr. Juliet Spencer

11. IMPACT OF ETHANOL ON THE STRUCTURE AND ABSORPTION OF DOUBLE-WALLED CARBON NANOTUBES. S. Burrows, M. Schwickert, N. Mirsaleh-Kohan. Sciences – Chemistry and Biochemistry

Carbon nanotubes (CNTs) are nanostructured materials with exceptional thermal, mechanical, and electronic properties. Double-walled carbon nanotubes (DWCNTs) consist of two concentric graphene cylinders forming a quasi-one-dimensional, porous structure. In this study, Raman spectroscopy was employed to investigate structural and vibrational changes in DWCNTs following ethanol exposure. Mixtures of ethanol and DWCNTs were prepared at 1:1 and 1:3 ratios, and Raman spectra were collected at laser powers of 2, 4, 6, and 8 mW. Spectral variations were analyzed to assess solvent- induced modifications in nanotube structure and absorption behavior. Future work will examine a 3:1 ethanol-to-DWCNT ratio and extend the study to additional solvents to further elucidate solvent–nanotube interactions. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan

Supported by Robert A. Welch Foundation and NSF Award 1953448 (PRIME).

12. IN SILICO CHARACTERIZATION OF NODULE-SPECIFIC CYSTEINE-RICH PEPTIDES: EVOLUTIONARY TRENDS AND FUNCTIONAL PREDICTIONS IN M. TRUNCATULA R108. E. Howard, M. Mehebub, C. Pislariu. Sciences – Biology

Nodule-specific Cysteine-Rich (NCR) peptides are essential regulators of symbiotic nitrogen fixation (SNF) in legumes, yet they remain under- characterized in the Medicago truncatula R108 ecotype compared to the A17 reference. This study employs a multi-faceted bioinformatic pipeline to bridge this knowledge gap. Using pBLAST, we identified novel homologous NCRs between A17 and R108 and constructed a phylogenetic tree to classify R108 peptides into distinct functional clades. Further analysis of antimicrobial motifs and isoelectric points revealed biochemical properties that diverge from established NCR models, suggesting untapped functional diversity within the R108 peptidome. These computational insights provide a systematic classification of the NCR landscape and challenge oversimplified assumptions regarding peptide activity. While these results identify high-priority candidates for regulating symbiosis, they highlight the critical need for future wet lab validation, including gene expression profiling and knockout studies, to confirm the biological roles of these predicted NCRs. (Faculty Sponsor: Dr. Catalina Pislariu)

13. LASER POWER–INDUCED SPECTRAL CHANGES IN MULTI-WALLED CARBON NANOTUBES: EXPERIMENTAL AND PRELIMINARY COMPUTATIONAL ANALYSIS. M. Schwickert, D. Woodring, S. Burrows, J. Beatty, S. Lin, N. Mirsaleh-Kohan. Sciences – Chemistry and Biochemistry

Carbon nanotubes (CNTs), composed of rolled graphene sheets, possess unique structural and electronic properties with broad applications in materials science, electronics, and environmental technologies. This study employs Raman scattering to study how varying laser power (2–10 mW) influences the spectral features of non-functionalized multi-walled (MW) CNTs. Understanding these spectral shifts is key to optimizing CNT performance, particularly for solvent adsorption applications, in this study we are dispersing MWCNT in ethanol. We analyze peak shifts, structural changes, and dispersion behaviors under different laser powers and solvent exposures. Our findings offer insights into tuning CNT properties for advanced functional applications. Furthermore, we are using Density Functional Theory to run preliminary computational analyses to better understand experimental results. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan

Supported by Robert A. Welch Foundation, TWU Center for Student Research, TWU Jane Nelson Institute for Women's Leadership, and NSF Award 1953448 (PRIME).

14. LINKING THE DISTRIBUTION OF GROUP CHARACTERISTICS TO SURVIVAL RATE. E. Arellano, M. Thornton. Sciences – Mathematics

Institutions of higher education are full of resources students take advantage of, or do not take advantage of. Project ACCESS at Texas Woman's University offers resources to graduate and undergraduate students; its survival is linked to how often students take advantage of them. Modeling after the relationship between the use of resources and survival of programs, we mathematically are seeking a relationship between the distribution of different characteristics and the survival of the group. Our goal is to synthesize data which resembles our collected data. From this simulation, we are seeking a method to identify trends. We propose several definitions of diversity of group characteristics within this poster and apply our mathematical model to the Project Access data. We apply the Bernoulli, Chi-squared, and Beta distribution to model diversity and link these to survival via regression. This opens the path to analyze group survival when dependent on a group's characteristic make up. (Faculty Sponsor: Dr. Micah Thornton)

15. MEMORY BY DESIGN: DO FONTS HELP WORDS STICK?. E. Mitchell, A. Babineau. Social Work, Psychology, and Philosophy

During learning, elements of the study materials can impact memory performance. Prior research indicates that meaningful factors, like relatedness, have a greater impact on performance as compared to less meaningful cues, like font size (Rhodes & Castel, 2008). The present project explored an intermediary factor: font style. Font style may be congruent or incongruent with the meaning of a word. This study examined whether semantic–visual congruence between a word and its font effected memory performance. Thirty-five undergraduate students viewed words presented in congruent or incongruent fonts (soft or sharp) using a within-subjects design. Participants completed a free recall task and a recognition font matching task. Results revealed that font style did not significantly impact recall performance. However, students performed well on the font matching task, suggesting that memory for font was potentially meaningful. Overall,

these outcomes suggest that word–font congruence has minimal impact on short-term memory. (Faculty Sponsor: Dr. Addison Babineau)

16. MODULATING THE MEVALONATE PATHWAY TO ALTER ALZHEIMER'S RELATED PATHOLOGY IN DOWN SYNDROME (TRISOMY 21). Z. Hussain, D. Hynds. Sciences – Biology

Trisomy 21 (Down syndrome) is associated with early-onset Alzheimer's disease due accelerated amyloid pathology, neuroinflammation, and metabolic dysfunction. Emerging evidence suggests that dysregulation of the mevalonate pathway, a central regulator of cholesterol biosynthesis, contributes to altered neuronal membrane composition, amyloid precursor protein processing, and neurodegenerative vulnerability in Trisomy 21. In this project, we investigate how chromosome 21 triplication alters the mevalonate pathway and cholesterol metabolism and evaluate whether pharmacologic modulation using statins or cholesterol supplementation can modify normal or Trisomy 21-associated Alzheimer's-like pathology in B35 neuroblastoma and neurons derived from normal and Trisomy 21 inducible pluripotent stem cells. In future experiments we will assess molecular changes in lipid metabolism, amyloid burden, neuroinflammation, and cognitive outcomes in Down syndrome and Alzheimer's disease transgenic mice. By defining how altering the mevalonate pathway modulates Trisomy 21 and Alzheimer's disease, we aim to identify novel therapeutic strategies to mitigate neurodegeneration. (Faculty Sponsor: Dr. Dianna Hynds)

Supported by TWU REP and Woodcock Institute.

17. MUSICAL AND PROSODIC PROCESSING IN THE DEVELOPING BRAIN: A SYSTEMATIC REVIEW OF IMPLICATIONS FOR EARLY LANGUAGE. K. Holmes. Communication Sciences and Oral Health

Early language acquisition is supported by a child's auditory, cognitive, and social experiences, and these experiences substantially overlap with musical processing in the brain. Research suggests that music and language share neural domains, like those involved in auditory perception and pattern recognition. This is especially true for regions of the auditory and prefrontal cortices. A key point of overlap is prosody, which encompasses the rhythm, stress, and intonation of speech. These features closely relate to the meter, pitch, and phrasing of music. Infants are naturally highly sensitive to prosodic cues, which aid their speech segmentation, phonological awareness, and pragmatic skills. Research indicates that exposure to music before birth and during infancy may strengthen foundational mechanisms and skills that correlate with higher language outcomes in many areas. (Faculty Sponsor: Dr. Kimberly Mory)

18. NATURES DOUBLE EDGED SWORD: THE SYNTHESIS OF VENOM AND ANTIVENOM. R. Gomez, K. Garcia, W. Gonzalez Romero. Sciences – Chemistry and Biochemistry

Venomous snakes intimidate many people, and while snake venom can be lethal, science has found a way to make it beneficial. The question of how snakes produce their toxins, the creation of antivenom, and the potential of snake venom for medical advancement are important for various reasons. Venom is made of a mixture of specialized molecules and lethal substances and can be used in medicines, alternative treatments, and antivenoms. Creating antivenom is a multi-stage process where there are many factors that can affect its efficacy. There have been advancements in the field of antivenom and its production. Snake venom, the very mechanism used to immobilize humans, is now being harnessed for the future of medicine. (Faculty Sponsor: Dr. Mary Anderson)

19. SELECTIVE CO BOND SCISSION ON BETA-MOLYBDENUM CARBIDE (B-MO 2 C). A. Ashrafian, S. Amagbor, A. Maruf, M. Khan, M. Dhungana, K. Sonnier, T. Golden, S. Ma, Jeffry Kelber. Sciences – Chemistry and Biochemistry

Polymer upcycling offers a sustainable pathway to mitigate plastic waste by transforming oxygenated polymers into fuels and high-value chemicals. A critical step in this process is selective C=O bond scission, which requires catalysts that balance activity and selectivity. In this work, β- molybdenum carbide (β-Mo_2C) thin films were synthesized via DC magnetron sputtering on Si substrates and structurally confirmed ashexagonal β-Mo_2C by X-ray diffraction. Ex situ X-ray photoelectron spectroscopy (XPS)revealed a Mo:C ratio of approximately 2, consistent with the stoichiometric phase. Catalytic testing with 2-pentanone, a model compound representing polymer functionalities such as those in polyethylene terephthalate (PET), was conducted in a constant-temperature mass spectrometry (CTMS) system from 150–400 °C. Results show optimal selective CO bond scission at 250 °C, with O_2 release and surface carbon accumulation confirmed by residual gas analysis and XPS. At higher temperatures, competing reactions reduced selectivity. These findings highlight β-Mo_2C's promise for targeted bond activation in polymer upcycling. (Faculty Sponsor: Dr. John Beatty)

Supported by NSF REU Program (CHE - 2447861), ACS Petroleum Research Fund, University of North Texas.

20. STUDENT-LED IMPROVEMENT SCIENCE IN CAMPUS WELLBEING: A THEORY- INFORMED PEER EDUCATION MODEL. M. Sener, K. Mehta, C. Miles, S. Thorahatula, T. Freeman, F. Brito-Silva. Other

To address gaps in student health literacy, the Health & Wellbeing Initiative's Peer Wellness Ambassador Presentation Team delivers peer-led Wellness Talks grounded in Social Learning Theory and the Health Belief Model. Training in Summer 2025 emphasized health promotion principles, presentation design, and student-centered communication. During Fall 2025, presenters developed and delivered sessions on nutrition, stress management, navigating health insurance, accessing campus health services, and physical activity. Using participant feedback and reflection, the team refined content and engagement strategies to increase relevance and clarity. Through this applied learning model, presenters strengthened

public speaking, leadership, teamwork, and evidence-informed communication skills while promoting accessible health information for their peers. Together, these initiatives illustrate how student-led improvement science can operationalize wellbeing strategy within higher education settings. (Faculty Sponsor: Dr. Francilia Brito-Silva

Supported by Health and Wellbeing Initiative.

21. STUDENT-LED IMPROVEMENT SCIENCE IN CAMPUS WELLBEING: STRENGTHENING BELONGING THROUGH PEER CONNECTION GROUPS (PICK ONE). S. Watkins, J. Rosas, T. Freeman, F. Brito-Silva. Other

In response to student-identified needs for connection and practical wellbeing skills, the Health & Wellbeing Initiative launched Peer Connection Groups using a student-driven improvement cycle. In Summer 2025, two student staff completed coaching and motivational interview training. In Fall 2025, students were surveyed to assess interest areas, informing three pilot groups: Grounded Gaming, Thriving on a Budget, and Self-Care Journaling. Using a Plan-Do-Study-Act framework, facilitators implemented sessions, reviewed attendance and feedback, and refined marketing, curriculum, and facilitation strategies throughout the year. Participants reported valuing interest-based spaces that supported both connection and skill-building. Through this process, peer facilitators developed leadership, communication, and data-informed decision-making skills. The program is now expanding to additional campuses and virtual delivery. Together, these initiatives illustrate how student-led improvement science can operationalize wellbeing strategy within higher education settings. (Faculty Sponsor: Dr. Francilia Brito-Silva

Supported by Health and Wellbeing Initiative.

22. STUDIES OF FUNGAL ENDOPHYTES AND CALLUS DEVELOPMENT OF EUPHORBIA TIRUCALLI. N. Barton, L. Hanson, C. Maier. Sciences – Biology

Euphorbia tirucalli (Euphorbiaceae) is a latex producing plant known for its anti-inflammatory, anti-pain, and anti-cancer properties which are induced by its triterpene secondary metabolites. Euphorbia species are known to contain fungal endophytes. For Euphorbia tirucalli there is a research gap in the endophyte identification. The goal of this study is to identify the fungal endophyte profile of E. tirucalli and obtain callus cultures. Cultured stem explants on V8 medium developed a variety of fungal endophytes, among them Alternaria, Nigrospora, Fusarium, and instances of mycoparasitism identified microscopically, based on characteristics of hyphae and spores. Fungicide addition to MS medium suppressed fungal development and callus was obtained. Future research will focus on metabolite comparison between callus and endophytic fungi to determine the origin of bioactive secondary metabolite profile to either plant tissues or endophytes. This research will improve our knowledge of symbiotic plant- endophytic fungi relationships. (Faculty Sponsor: Dr. Camelia Maier)

23. TEMPORAL AND FUNCTIONAL DYNAMICS OF CNS–PNS POLYTRAUMA: DISTINGUISHING REGENERATIVE GROWTH FROM MALADAPTIVE PLASTICITY IN PAIN REGULATION. L. Evans, T. Olaoluwa, D. Averitt, D. Hynds. Sciences – Biology

Building on our 2025 results that demonstrated an increased GAP-43 expression after sustaining a peripheral thermal injury, the 2026 segment of this project will further examine the temporal and functional dynamic between overlapping CNS/PNS injury models that contribute to pain regulation and axon regeneration. We will analyze how regenerative pathways inside the ipsilateral region of the spinal cord dorsal horn aligns with behavioral measures of both hyperalgesia and analgesia over a period of time. Additionally, we will determine markers of neural inflammation, synaptic remodeling, and glial activation utilizing immunohistochemical techniques. Together, these molecular and behavioral assessments strive to determine restorative growth from maladaptive plasticity that may lead to chronic pain. By defining how bidirectional CNS-PNS integration facilitates recovery after injury, this study aims to improve functional models of trauma-induced pain disorders to establish potential therapeutic interventions that target and promote recovery and long-term stabilization. (Faculty Sponsor: Dr. Dianna Hynds)

Supported by TWU REP.

24. THE EFFECTS OF EARLY LIFE ENRICHMENT ON STRESS, BEHAVIOR, AND PLASTICITY IN A MOUSE MODEL OF AUTISM SPECTRUM DISORDER. S. Pham, M. Ledezma. Social Work, Psychology, and Philosophy

Approximately 1 in 31 children in the United States is diagnosed with Autism Spectrum Disorder (ASD), a neurodevelopmental condition characterized by social communication deficits, repetitive behaviors, and increased anxiety. Current pharmacological treatments do not directly target underlying neural mechanisms. This study uses a MeCP2 knockout mouse model of ASD to investigate whether early environmental enrichment (EE) can mitigate behavioral and neural deficits. Mutations in Mecp2 are associated with cognitive, social, and motor impairments in mice. EE, which includes enhanced sensory, social, and cognitive stimulation during early development, is known to promote neural plasticity. Wildtype and MeCP2 knockout mice were assigned to EE or social isolation conditions and assessed using behavioral tests of learning, memory, and sociability. EE-exposed knockout mice demonstrated improved social interaction, increased hippocampal Brain-Derived Neurotrophic Factor (BDNF) levels, and altered dendritic morphology. These findings suggest that early environmental enrichment may reduce ASD-related symptoms by enhancing hippocampal synaptic plasticity. (Faculty Sponsor: Dr. Elisa Na)

Supported by TWU Experiential Student Scholars Program and TWU Woodcock Institute.

25. THE WEIGHT OF INFLAMMATION. T. Manivong, K. Corro, S. Orozco, E. Torres, I. Turner. Communication Sciences and Oral Health

Obesity and periodontal disease share overlapping inflammatory mechanisms and lifestyle risk factors. This poster examines whether adults with obesity (BMI ≥30) experience greater periodontal inflammation and more severe disease indicators than individuals with normal BMI. Behavioral factors such as inadequate oral hygiene, poor diet, and limited access to care may further influence disease severity. Overall, findings support obesity as a significant risk factor for periodontal disease and emphasize the importance of integrating systemic health and weight-related counseling into dental care. (Faculty Sponsor: Laurie Bricker)

26. TIME TO HANG UP THE LEAD APRON? A MODERN LOOK AT RADIATION PROTECTION. N. Cain, L. Alvarado, J. Barrios, A. Flores, S. Tefera. Communication Sciences and Oral Health

Recent advancements in dental radiography have greatly improved radiation safety. With the use of digital imaging, rectangular collimation, long positioning indicating devices (PIDs), copper (Cu) and aluminum (Al) filtration, and the "as low as reasonably achievable" ALARA principle, new research challenges the necessity of lead aprons. Findings show that these methods significantly reduce exposure without compromising diagnostic quality, and when implemented correctly, lead aprons offer minimal additional protection. However, gaps remain in clinician awareness and adherence to current guidelines. Overall, evidence supports discontinuing routine lead apron use and instead emphasizing education, updated training, and compliance with evidence-based safety standards to maintain optimal patient protection. (Faculty Sponsor: Ms. Deborah Testerman)

27. WHEN VIRUSES MEET HORMONES: UNDERSTANDING A HIDDEN INFLUENCE IN BREAST CANCER. S. Rubinstein, N. Griggs, J. Spencer. Sciences – Biology

Breast cancer remains a leading cause of cancer-related mortality among women worldwide. Estrogen receptor alpha (ERα) drives tumor growth in most cases and is the primary target of endocrine therapy, yet treatment resistance and recurrence remain persistent challenges. The contributions of estrogen receptor beta (ERβ) and the G protein–coupled estrogen receptor (GPER) to tumor behavior are less well defined, particularly in the context of tumor-associated infections. Human cytomegalovirus (HCMV), a ubiquitous herpesvirus detected in breast tumors, has been shown to reduce ERα expression, but its effects on ERβ and GPER are unknown. We used immunoblotting to examine how HCMV infection alters ERα, ERβ, and GPER expression across multiple breast cancer cell lines. Understanding how HCMV reshapes estrogen receptor profiles may reveal mechanisms contributing to tumor progression and therapeutic resistance. (Faculty Sponsor: Dr. Juliet Spencer

Session 4. Wednesday, April 22, 9:00 am – 10:20 am
Student Union 2230 (Southwest Ballroom B)

1. ANALYZING THE EFFECT OF UV ON THE EXPRESSION LEVELS OF P2RY6 AND SSTR4 TWO POSSIBLE REGULATORS OF A CALCIUM-DEPENDENT CHROMATIN COMPACTION AND DNA PROTECTION PATHWAY IN HUMAN MELANOCYTES. T. Ladell, M. Enriquez, R. Sinha-Roy, M. Bergel. Sciences – Biology

Skin cancer is the most common cancer. Exposure to ultraviolet (UV) radiation can damage cellular DNA, leading to mutations and increased skin cancer risk. We have shown that human cells, including melanocytes, protect the DNA from UV radiation by immediate and robust calcium-dependent chromatin compaction. This study investigates the involvement of P2RY6 and SSTR4 receptors in the calcium induced UV-dependent chromatin compaction. We have shown the involvement of P2RY6 in the calcium signaling following UV. We also demonstrated an increase in P2RY6 and SSTR4 transcription levels (based on RNA-sequencing). This increase can serve as a long-term potentiation of the cellular response to further UV assaults. Our goal is to corroborate the RNA-sequencing results by Western blotting and RT-qPCR. Our findings highlight the role of calcium-dependent pathways in maintaining DNA integrity, providing insights into potential skin cancer prevention strategies. (Faculty Sponsor: Dr. Michael Bergel)

2. ART CONSERVATION: THE ROLE OF CHEMISTRY IN THE PRESERVATION OF ART. I. LaBass, A. Carrillo, S. Estrada. Sciences – Chemistry and Biochemistry

Art conservationism is a crucial crossover of the arts and sciences, vital to preserving, maintaining, and restoring important and historical artworks. Common restorative practices include removing dirt, retouching, and repairing minor damages. More comprehensive restoration processes such as removing old over paintings and varnishes require a deeper chemical analysis and the usage of strong chemical solvents and various spectroscopic techniques. Tools such as X-radiology, IR reflexology, and Raman spectroscopy are used to identify the composition of pigments, binders, and to visualize the under-layers of the piece. With the usage of these microdestructive and non-destructive methods, art conservationists are able to analyze the background and chemical composition of historical pieces and develop unique plans to restore art pieces for generations to come. (Faculty Sponsor: Dr. Mary Anderson)

3. BLAST-INDUCED TRAUMATIC BRAIN INJURY POTENTIALLY DESTABILIZES NEURAL NETWORKS THROUGH THE GABAERGIC PATHWAY. N. Smith, S. Ayalavarapu, Z. Lybrand. Sciences – Biology

Primary blast overpressure effects on brain network dynamics remain poorly understood, limiting development of targeted rehabilitation strategies. Cerebral organoids, three-dimensional models that recapitulate human cortical architecture and physiology, provide a platform to study these mechanisms. Our lab previously developed an in vitro blast organoid model and showed that low-pressure waves induce acute neurophysiological changes and local network desynchronization (Silvosa). However, global network organization and state transitions after blast were not characterized. Here, we combined optogenetic stimulation with multi-electrode array recordings to assess network synchrony following blast exposure. Blast overpressure

fragmented organoid networks and reduced stability, whereas blue-light stimulation enhanced stability. Pharmacological blockade of glutamate, GABA, and action potentials revealed that inhibition of GABAergic signaling similarly increased fragmentation, implicating GABA in network stabilization and as a potential blast target. We identify three candidate mechanisms of disruption: GABAergic interneurons, astrocytes, and GABAA receptors. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by US Dept of Education Award P031M220022 (ACCESS) and TWU Center for Student Research.

4. CHARACTERISATION OF EXOPOLYSACCHARIDE (EPS) FROM VARIOUS LACTIC ACID BACTERIA. N. Davis. Nutrition and Food Sciences - Denton

Some lactic acid bacteria produce exopolysaccharides (EPS), polymers capable of enhancing food rheological properties and meeting the consumer demand for clean labels. This study aims to isolate and characterize EPS produced by Lactococcus lactis and several strains of Leuconostoc mesenteroides using Fourier transform infrared and Raman spectroscopy, thermogravimetric analysis, and differential scanning calorimetry. Non-fat dry milk solution (11%) was fermented by each LAB strain for 24-48 h. EPS was isolated from fermented milk after removal of protein with trichloroacetic acid and by precipitation with chilled acetone and dialysis. This resulted in a white, ropy-like EPS for Lactococcus lactis and dense sediments of heavy EPS precipitates for Leuconostoc strains with varied solubility and appearance for different strains with high purity. EPS was then characterized by advanced analytical instruments. This knowledge will help customize different EPS for specific food applications. (Faculty Sponsor: Dr. Danhui Wang

Supported by National Dairy Council, TWU REP.

5. CODE SEPSIS: MATERNAL WARD ESCAPE ROOM. S. Ong. Nursing - Dallas

Maternal sepsis is a leading cause of preventable maternal morbidity and mortality, underscoring the need for innovative educational strategies to improve early recognition and timely management among nursing students. This teaching project describes the implementation of a virtual escape room as an active learning strategy focused on maternal sepsis. The intervention begins with a brief didactic presentation addressing pathophysiology, risk factors, early warning signs, and initial management. Students then engage in a virtual escape room featuring interactive, case- based challenges requiring critical thinking, teamwork, and timely clinical decision-making. Knowledge acquisition and retention are evaluated using pre- and post-tests, while validated surveys assess student engagement and confidence. Preliminary findings suggest that combining concise instruction with gamified experiential learning enhances engagement, improves knowledge retention, and increases confidence in managing maternal sepsis. This project supports the use of virtual escape rooms as an effective, scalable, learner-centered teaching strategy in undergraduate nursing education. (Faculty Sponsor: Dr. Cecilia Wilson)

6. DEFINING HOW THE VIRAL RECEPTOR PUS27 IS TRAFFICKED INSIDE INFECTED CELLS. G. Connors, J. Spencer. Sciences – Biology

Human cytomegalovirus (HCMV) is a highly prevalent virus that establishes lifelong infection and can cause severe disease in immunocompromised individuals and newborns. HCMV encodes several viral G protein–coupled receptors (GPCRs) that alter host cell signaling to promote viral persistence. One such receptor, pUS27, has been shown to enhance signaling of host GPCRs, yet the mechanisms controlling its cellular trafficking remain poorly understood. In this study, we examined how host cell proteins regulate the movement of pUS27 to and from the cell surface during infection. Using infection-based assays, protein interaction analyses, and flow cytometry, we identified host factors that control distinct steps of pUS27 internalization and recycling. These regulatory interactions occur within virus-induced membrane compartments that coordinate protein trafficking in infected cells. Our findings define host pathways that govern pUS27 localization and suggest that regulated trafficking of this viral receptor may influence its ability to modulate host GPCR signaling. This work advances understanding of how HCMV reorganizes host cell machinery to support viral function and pathogenesis. (Faculty Sponsor: Dr. Juliet Spencer

Supported by TWU Graduate Research Grant and US Dept of Education Award P031M220022 (ACCESS).

7. DIFFERENTIAL SENSITIVITY OF DIFFERENTIATED AND UNDIFFERENTIATED 3T3- L1 CELLS TO A HISTONE ACETYLTRANSFERASE INHIBITOR (HATI). S. Ruiz, M. Bergel. Sciences – Biology

In our lab, a small-molecule inhibitor of a histone acetyltransferase, p300, has been associated with reduced adipose tissue mass in vivo. However, whether this effect is due to selective sensitivity of adipocytes remains unclear. The objective of this study is to determine the half- maximal growth inhibitory concentration (GI_{50}) of our HATi in differentiated and undifferentiated 3T3-L1 cells. 3T3-L1 preadipocytes were chemically induced to differentiate into adipocyte-like cells using insulin, dexamethasone, IBMX, and other adipogenic factors. Differentiated and undifferentiated cells were treated with increasing concentrations of a HATi and cell viability was assessed using an MTS assay to generate dose–response curves. We calculated GI_{50} values and compared them between cell states to determine whether mature adipocytes exhibit increased sensitivity to JJMB9. These findings will establish dosing parameters for downstream mechanistic studies and clarify whether adipose reduction observed in vivo may involve selective adipocyte vulnerability. (Faculty Sponsor: Dr. Michael Bergel)

8. DISPARITIES IN HOSPICE CARE: THE ROLE OF RACE AND DIVERSITY. R. Philipo. Social Work, Psychology, and Philosophy

This literature review will examine how diversity influences

the type and quality of care of patients in hospice settings, with particular attention to the role of race in shaping end-of-life experiences. According to the American Psychological Association (2019), the aging population in the United States continues to grow, increasing the need for equitable and culturally responsible hospice care. The APA emphasizes the importance of culture in palliative and end-of-life care, as identity, experience, and differences shape patient outcomes. This review will explore how racial and cultural differences may affect care delivery and patient/provider relationships. Peer-reviewed studies published since 2016 have been located via Texas Woman's University library databases and Google Scholar. Included study findings were thematically analyzed with findings focused on racial disparities in access, cultural competence, staff diversity, and quality of care. Findings aim to identify opportunities to promote more equitable care for the needs of diverse patients. (Faculty Sponsor: Dr. Brandi Felderhoff)

9. EXPLORING CHEMICAL COMPOUNDS TO MODULATE PROTEIN DEGRADATION. R. Islam, R. Dasgupta, C. Brower. Sciences – Biology

The N-degron pathway, a specialized pathway of the ubiquitin-proteasome system, degrades proteins based on their N-terminal residues. A key regulator of this pathway is arginylation, a post-translational modification in which arginyltransferase 1 (ATE1) catalyzes the conjugation of arginine to proteins with acidic N-terminal residues, promoting their degradation. Loss of ATE1 has been linked to disruptions in fat metabolism and the clearance of protein fragments associated with neurodegeneration. Thus, modulating ATE1 may offer therapeutic potential for neurological disorders and obesity. Here, we are investigating chemical compounds that may act as ATE1 modulator and evaluating their effects on protein degradation using reporter systems that directly measure ATE1 activity. (Faculty Sponsor: Dr. Christopher Brower)

10. EXPLORING THE EXPERIENCES OF FIRST-GENERATION COLLEGE STUDENTS WITHIN THE FIELD OF MUSIC THERAPY: A PHENOMENOLOGICAL RESEARCH STUDY. B. Bennett. Arts and Design – Music

The purpose of this phenomenological research study was to explore the lived experiences of first-generation college students (FGCS) within the field of music therapy while receiving their degree. The researcher aimed to uncover what, if any, challenges/barriers and protective factors participants experienced while earning their degree. The research process included interviewing 5 participants who have received at least a bachelor's degree or its equivalent in the field of music therapy, have obtained their board certification within the past 0-5 years, and are self- defined as a FGCS. At the time of this study, no research had explored the experiences of FGCS within the field of music therapy. The results of the study uncovered four themes: 1) Challenges and Barriers, 2) Challenges of Music Therapy Degree, 3) Personal Grit, and 4) Protective Support Systems. Although the participants faced significant challenges and barriers, they also demonstrate strong resilience, motivation, and creativity in finding ways to succeed. Discussion includes discovering ways that institutions, policymakers, and music therapy professionals can best support FGCS, leading to a more diverse and culturally-rich field. (Faculty Sponsor: Dr. Della Molloy-Daugherty)

11. EXPLORING THE RELATIONSHIP BETWEEN MIND-WANDERING HABITS, PSYCHOLOGICAL WELL-BEING, AND NEUROCOGNITIVE DIVERSITY. C. Broomfield, S. Rivers. Social Work, Psychology, and Philosophy

Prior research has identified correlations between spontaneous thought patterns and clinical conditions. Unintentional mind-wandering is frequently linked to post-traumatic stress disorder, obsessive-compulsive disorder, and attention deficit hyperactivity disorder. Conversely, intentional mind-wandering has been associated with high levels of openness as a personality trait. This study sought to expand upon these findings by investigating the relationship between these internal cognitive signatures and a broader spectrum of 40 neurological states. Researchers used an online survey on the SONA platform via a Qualtrics link to collect data from respondents in introductory psychology courses at Texas Woman's University (n = 405). The primary objective was to identify how off-task thinking varies across diverse neurodivergent profiles and to determine its impact on daily life and mental health. The findings may offer participants greater self-awareness and metacognition about their internal perspectives while contributing to a more comprehensive scientific framework for cognitive diversity and psychological well-being. (Faculty Sponsor: Dr. Alannah Shelby Rivers)

12. EXTREME FLOODING AND BLUE-GREEN INFRASTRUCTURE IN HOUSTON, TEXAS. A. Krenek-Sandoval. Sciences – Environmental Science

Houston, Texas is a city where extreme flooding events are incredibly common, which often leaves the area in distress as the current infrastructure is unable to handle these disasters. Blue-Green Infrastructure could be implemented in Houston, Texas to better deal with the severe flooding and help protect all communities affected. To study how best to implement Blue-Green Infrastructure, an examination was conducted through the One Water approach from the Texas Living Waters organization. Utilizing Geographic Information Systems (GIS) and a variety of literature and data from sources like Rice University's Kinder Institute for Urban Research, Harris County, and others, a simple plan was constructed for Houston, Texas based on Austin, Texas Water Forward plan designed by Texas Living Waters. In conclusion, Blue-Green Infrastructure has its place in Houston, Texas if the One water approach is implemented, and putting it into practice could alleviate problems from extreme flooding in the city. (Faculty Sponsor: Dr. Kelly Albus)

13. INCREASING LIPID DROPLET CONTENT IN PLANTS USING POLIOVIRUS PROTEIN 2B OR 2C FOR SUSTAINABLE PLANT-BASED BIOENERGY PRODUCTION. N. Ekanayake, L. Faure.

Sciences – Biology

Lipid droplets are organelles made of a monolayer of phospholipids with various proteins and a core of triacylglycerols. In plants, they play critical roles in energy metabolism, stress responses, and pathogen defense. Lipid droplets are mainly found in seeds. In animals, viral proteins, such as the poliovirus proteins 2B and 2C, can remodel lipid metabolism. This project will determine whether these human viral proteins can increase lipid droplet content in plants. Transient expression of proteins 2B and 2C in *Nicotiana benthamiana* increases the amount of lipid droplets. These results led to the development of stable homozygous *Arabidopsis thaliana* lines for deeper analysis. Current efforts focus on confirming these transgenic lines by PCR, evaluating protein expression, and quantifying changes in lipid content using gas chromatography-mass spectrometry. This study pioneers the use of animal viral proteins to revolutionize lipid production in plants, unlocking a transformative new frontier for sustainable plant-based bioenergy. (Faculty Sponsor: Dr. Lionel Faure)

Supported by TWU Center for Student Research.

14. INVESTIGATING THE COMPATIBILITY OF PROBIOTICS WITH STARTER CULTURES AND THE EFFECTS OF PROBIOTICS ON THE PHYSIOCHEMICAL PROPERTIES OF YOGURT. I. Garza. Nutrition and Food Sciences - Denton

Probiotics offer health benefits to probiotic yogurt but the impact of probiotics on the yogurt quality is unknown. The overall goal of this study is to investigate the compatibility of starter culture with various species of probiotics Lactobacillus and the impact of probiotics on the physiochemical properties of yogurt. The interaction between starter culture and probiotics were investigated by well diffusion agar assay, growth kinetics study, and selective enumeration. The physicochemical properties of yogurt added with probiotics were monitored for physical appearance, pH, water holding capacity, and titratable acidity at weekly intervals over two months. These results showed that three Lactobacillus species did not interact with the starter cultures but slightly decreased the pH of yogurt. This research will contribute to the development of probiotic dairy products with desired quality for the dairy industry. (Faculty Sponsor: Dr. Danhui Wang

15. MTORC2 HYPERACTIVATION DISRUPTS NEUREXIN-1 TRANSPORT THROUGH GTPASE-MEDIATED CYTOSKELETAL AND VESICULAR DYSREGULATION. E. Swensen, M. Hutton, D. Hynds. Sciences – Biology

Autism Spectrum Disorder (ASD) involves disrupted synaptic connectivity linked to Neurexin-1 (NRX1) dysfunction. NRX1 is important for mediating synaptic function and development. NRX1 depends on a complex interplay of GTPases (RhoA, Rab3A/27A/37) and kinesin motors (e.g. KIF1A). mTORopathy is central to ASD neuropathology, however, the impact on regulated transport of NRX1 remains unknown. To test this, we investigate how mTORC2 hyperactivation disrupts NRX1 delivery by dysregulating the interplay between vesicle transport (Rabs) and cytoskeletal dynamics (Rhos). Using neuronal systems, we induced mTORC2 hyperactivation through insulin stimulation (100nM/30-minutes) confirmed by p-AKT levels. NRX1 colocalizes with Rab3A/37 and KIF1A during normal trafficking, but excessive mTORC2 activity triggers RhoA-mediated cytoskeletal remodeling that impairs this delivery. This suggests that mTORC2 hyperactivation destabilizes microtubule/actin architecture required for regulated NRX1 trafficking, which could establish a mechanistic link between mTORopathy-driven RhoA/Rab signaling imbalances and the presynaptic deficits observed in ASD. (Faculty Sponsor: Dr. Dianna Hynds)

Supported by TWU Jane Nelson Institute for Women's Leadership, TWU Quality Enhancement Plan (QEP), and US Dept of Education Award P031M220022 (ACCESS).

16. NATIVE TEXAS PLANTS IN RAIN GARDENS: A GUIDE. L. Alvarado. Sciences – Environmental Science

Urbanization is accelerating alongside the challenges of climate change. Multiple areas have become more vulnerable to flash flooding than before, requiring effective solutions. Green infrastructure offers various ways to manage the impacts of urbanization and stormwater runoff. Research shows that rain gardens provide ecosystem services such as improved water quality, enhanced water retention, and increased biodiversity. This paper reviews studies on the function and design of rain gardens, with a focus on native plants suitable for rain gardens in Texas. To make this knowledge accessible to younger audiences, the process of choosing plants is simplified to an easy-to-use worksheet. Using multiple native plant databases, the plants are organized into categories based on their needs. This nature-based solution combines functionality and aesthetics. However, the long-term performance of gardens in extreme flooding remains uncertain, highlighting the need for further research on flood management strategies. (Faculty Sponsor: Dr. Kelly Albus)

17. NURTURING CREATIVE MUSICIANSHIP: IMPROVISATION RESOURCES FOR THE PIANO STUDIO. E. Fernandez. Arts and Design – Music

This poster advocates for the intentional integration of improvisation into piano pedagogy by compiling, analyzing, and developing resources that underscore its pedagogical value. In addition to a curated overview of existing scholarship and practices, the project will present samples from an original teaching resource designed to support practical implementation. Together, these materials function as both a pedagogical framework and a creative toolkit, equipping teachers with accessible strategies to incorporate improvisation in ways that foster creativity, individual voice, and student ownership of the learning process. The resources are intentionally versatile, appropriate for private studio instruction, adaptable to group or classroom settings, and approachable for students at varying levels, including amateur musicians. The primary goal of this project is to elevate improvisation as a respected and essential component of piano education while providing colleagues and students with

practical, engaging, and meaningful tools that cultivate creativity, connection, and confidence within the music studio environment. (Faculty Sponsor: Dr. Fanarelia Guerrero-Lopez)

18. PFAS " THE FOREVER CHEMICAL". N. Smith. Sciences – Chemistry and Biochemistry

Per- and polyfluoroalkyl substances (PFAS) are a persistent class of synthetic fluorinated chemicals increasingly detected in soil, groundwater, surface water, and even rainfall. Their exceptional chemical stability, driven by strong carbon-fluorine bonds, prevents natural degradation, allowing PFAS to accumulate and spread through environmental systems. As a result, PFAS contamination has become a global concern, affecting drinking- water supplies, agricultural ecosystems, and wildlife. The poster examines the environmental behavior of PFAS, including their mobility, bioaccumulation, and long-range transport. Current research on ecological impacts highlights disruptions to aquatic organisms, reduced biodiversity, and potential trophic-level magnification. Emerging remediation strategies such as adsorption, ion-exchange, advanced oxidation, and plasma-based destruction are evaluated for their effectiveness in reducing PFAS concentrations in contaminated environments. Understanding PFAS persistence and environmental fate is essential for developing sustainable migration approaches and protecting long-term ecosystem health. (Faculty Sponsor: Dr. Ting Han)

19. PROPENSITY-LIKE WEIGHTING FOR DISEASE OUTCOME STATUSES. A. Reed. Sciences – Mathematics

For this project, we explore the dependency relationship between major adverse events and characteristics of treated patients. By utilizing propensity score matching techniques, we estimate the possibility of a future adverse event occurring depending on the specific set of characteristics of a patient. In this case, the patients are split between two cardiovascular treatment methods: Endovascular or open repair. A patient is selected from one of the treatment methods, and their data is compared to every patient of the opposing treatment dataset in order to find a “match” patient with similar characteristics. By matching for characteristics and observing the occurrence of adverse events, a list of dangerous characteristics for a treatment type can be identified. This method of matching could be utilized to construct a “major adverse event calculator”, which would greatly assist in determining the safest method of treatment for treating a patient given their unique set of characteristics. (Faculty Sponsor: Dr. Micah Thornton)

20. SKILLS SIMULATION WORKSHOP FOR TRANSITION TO PRACTICE. P. Dao. Nursing - Dallas

New graduate nurses often experience difficulty transitioning from the student role to registered nurse, which can contribute to stress, decreased confidence, and high turnover. This project is a work in progress and will implement a workshop series designed to support Senior 1 nursing students as they prepare to enter their final semester of the nursing program and join the nursing workforce. The workshop will focus on preparing students and increasing confidence through interview preparation, time management, interprofessional communication, and professional role development. Effectiveness will be evaluated using a postworkshop survey to measure students’ confidence in transitioning to practice. By addressing transition challenges prior to graduation, this implementation project aims to ease transition shock, improve new graduate nurse retention, and increase confidence in professional identity. (Faculty Sponsor: Dr. Cecilia Wilson)

21. TESTING HDAC INHIBITORS POTENCY TO INHIBIT CORE HISTONE ACETYLATION IN PRIMARY HUMAN EPIDERMAL MELANOCYTES AS A PREPARATION FOR TESTING THEIR INVOLVEMENT IN UV-ASSOCIATED CHROMATIN COMPACTION. J. Khanum, M. Bergel. Sciences – Biology

UV radiation triggers chromatin compaction that protects DNA from further damage. The short-term compaction is triggered by calcium influx. This study explores the role of HDACs in the long-term chromatin compaction following UV radiation. Primary Human Epidermal Melanocytes (HEMs) were treated with HDAC inhibitors at different time points and concentrations. Cell viability was assessed using the MTS assay, and the optimal inhibitor concentration and incubation time for maximal acetylation were determined by Western blotting. Following this, HDAC inhibitor-treated HEM cells will be UV-B irradiated to examine UV-induced chromatin compaction in the absence of HDAC activity. Compaction will be assessed by Hoechst staining, confocal microscopy, and Cytation imaging. A combination of multiple inhibitors will also be tested on HEM cells to determine the effect of different classes of HADACs separately and together. (Faculty Sponsor: Dr. Michael Bergel)

22. THE CHEMISTRY OF SUNSCREEN. N. Smith. Sciences – Chemistry and Biochemistry

Sunscreen assists in minimizing UV-induced DNA damage, oxidative stress, inflammation, and long-term photoaging. Their effectiveness depends on the chemistry of the UV-filtering molecules they contain. This literature examines the molecular mechanisms by which organic (chemical) and inorganic (mineral) UV filters protect skin, focusing on UV absorption, excited- state relaxation, and photostability. Organic filters such as avobenzone, oxybenzone, and octocrylene absorb ultraviolet radiation through conjugated pi-systems and disperse the energy as heat. However, some suffer photodegradation, which reduces protection and may generate reactive intermediates. Inorganic filters, such as zinc oxide and titanium dioxide function through a combination of scattering, reflection, and semiconductor band-gap absorption to offer sustained broad-spectrum coverage. Findings indicate how formulation techniques, such as filter combinations, stabilizers, antioxidants, and surface-coated nanoparticles, enhance SPF efficacy and stability. Understanding the chemical principles behind sunscreens contributes to developing effective UV-filtering products for consumers, with broad-spectrum protection. (Faculty Sponsor: Dr. Mary Anderson)

23. THE DISTRIBUTION, TOXICITY, AND EFFICACY OF SURFACE FUNCTIONALIZED NANOPARTICLES DERIVATIZED WITH BRAIN-DERIVED NEUROTROPHIC FACTOR AFTER SPINAL CORD INJURY IN VIVO. P. Chiu, S. Ghosh, D. Hynds. Sciences – Biology

Axon regeneration is a crucial element in facilitating functional recovery from central nervous system injuries. Ras homolog family member A (RhoA) inhibits axon growth by pausing axon initiation. By inhibiting RhoA, the growth rate of the axons can be optimized. One of the greatest challenges for delivering therapeutics to the CNS is to cross the blood-brain barrier (BBB)- a semi-permeable membrane between the interstitium of the brain and the blood. Our approach utilizes lipophilic nanoparticles that can be used to cross the BBB to release C3 transferase- a therapeutic which inhibits RhoA irreversibly. Previously, our lab used surface functionalized nanoparticles with brain-derived neurotrophic factor with C3 transferase to inhibit RhoA to increase axon growth in vitro. In this study, our research objective is to investigate the efficacy, distribution, and toxicity of the surface functionalized nanoparticles encouraging axon regeneration after CNS injury using a spinal cord injury rat model. (Faculty Sponsor: Dr. Dianna Hynds)

24. THE PUZZLE OF MORAL LUCK: RELIGIOSITY AND FAMILY STRUCTURE. Z. Hutton, A. Rivers. Social Work, Psychology, and Philosophy

This study examines whether religiosity and family structure (sibling amount) relate to empathy and moral judgment in scenarios involving moral luck. We replicated Kneer and Machery (2019), which tested whether morally lucky and unlucky parents are judged differently in terms of wrongness, blame, permissibility, and punishment. A total of 150 participants completed measures of empathy, religiosity, sibling count, and a moral luck vignette. Consistent with the original findings, a repeated-measures ANOVA revealed significant differences across the four moral judgment measures. However, Pearson correlations showed no significant relationship between religiosity and empathy, nor between sibling count and empathy. Although slight positive trends emerged, these associations were not statistically significant, and neither hypothesis was supported. Overall, the findings suggest that religiosity and number of siblings are not reliable predictors of empathy in moral luck contexts. Limitations include limited sample size and demographic diversity. Future directions should recruit more gender-balanced and age-diverse samples. (Faculty Sponsor: Dr. Alannah Shelby Rivers)

Supported by CloudResearch Spark Funding.

25. TMEM45B IS UPREGULATED IN A RAT MODEL OF STRESS-EXACERBATED OROFACIAL PAIN. K. Logan, B. Islam, D. Averitt. Sciences – Biology

Orofacial pain occurs 2-4x more frequently in females. The reason behind the sex differences is not completely understood yet. Previously, our lab identified pain-related genes expressed differently between the sexes in stress-exacerbated orofacial pain. Transmembrane protein 45B(TMEM45B) was upregulated in stressed females compared to males, and higher Tmem45b cDNA was confirmed in females in the stress-only group. We investigated the expression of TMEM45B and TRPV1, a nociceptive neuron marker, in the trigeminal ganglia (TG) of maleand female rats using immunohistochemistry (IHC). We hypothesized that the expression of TMEM45B is higher in females than in males. Rats underwent three days of forced swim stress before perfusion fixation, TG sectioning, and IHC. Preliminary data reveal minimal TMEM45B andTRPV1 co-expression, with TMEM45B localized to larger neurons. To further define the large neuron population, we will perform IHC with TMEM45B and NF200, a marker of myelinated Aβ fibers. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NIDCR R15 DE025970, TWU Center for Student Research, and NSF Award 1953448 (PRIME).

26. TRENDS IN DENTAL EMERGENCY DEPARTMENT UTILIZATION ACROSS MAJOR TEXAS CITIES AND BORDER COMMUNITIES: THE IMPACT OF ACCESS BARRIERS. G. DeMaagd, R. Ramos, R. Delgado. Health Care Administration

Dental-related emergency department (ED) visits are a costly alternative to preventative dental care. In Texas, this may disproportionately affect border communities due to access to dental care, insurance status, and socioeconomic constraints. This study aims to examine trends in dental- related ED utilization across Texas and evaluate the differences between Border (US-Mexico) and non-border communities. Our data analysis includes multivariate regression models controlling for comorbidities at the time of emergency dental care and social determinants of health including zip code-specific provider density and social vulnerability index. We will also assess how proximity to the US-Mexico border affects the incidence of emergency dental care. This study supports the current CMS priority of oral health engagement. Oral health is a critical component of overall health, especially among those with chronic disease. We believe our findings will support the need to include preventive dental care as part of health insurance policies in the US. (Faculty Sponsor: Dr. Rigoberto Delgado)

27. UNDERSTANDING AND ADDRESSING CULTURAL CONCEALMENT IN SCHOOLS. M. Do, S. Herard, E. Srisarajivakul, M. Washington, A. Goforth , G. Tsosie. Social Work, Psychology, and Philosophy

Adolescents from diverse cultural backgrounds often experience pressure to minimize or conceal aspects of their identities in order to avoid bias, stereotyping, or social exclusion in school settings. The study examines the lived experiences of students who engage in cultural concealment and examines the emotional, social, and academic impacts of these choices. Drawing on qualitative research, we explore how peer dynamics, educator response, and school climate shape these behaviors. (Faculty Sponsor: Dr. Samuel Kim

Supported by TWU Center for Student Research.

Session 5. Wednesday, April 22, 2:40 pm – 4:00 pm
Student Union 2230 (Southwest Ballroom B)

1. A NOVEL METHOD TO MEASURE RANGE OF MOTION OF HIP ROTATION: A RELIABILITY STUDY. D. Chen, A. Thies, E. Bergman, S. Wang-Price, J. Price. Physical Therapy - Dallas

Standard goniometry for hip rotation measurements uses the knee as an axis, potentially decreasing accuracy due to hip and knee laxity. This study aimed to examine the within-day and between-day reliability of a novel method to measure passive hip rotation in supine with the knee extended (i.e., log roll). A customized instrument, consisting of a 3D-printed mounting device and a digital inclinometer, was placed above the patella during measurement. This study also compared this method against two traditional knee-axis techniques (supine and prone with 90° flexion). Results showed good reliability for the novel method (ICC = 0.75-0.76) and for the two traditional methods (ICC = 0.76–0.98). Furthermore, the ROM assessed using this novel method was significantly lower than that measured using the other two methods. Therefore, the novel method may better isolate the hip joint and provide a more accurate representation of available ROM in the hip joint. (Faculty Sponsor: Dr. Sharon Wang-Price

Supported by TWU Center for Student Research.

2. A SUSTAINABILITY-FOCUSED REDESIGN PROPOSAL FOR QUAKERTOWN PARK IN DENTON, TEXAS. A. Mitchell, R. Hastings, I. Morales. Sciences – Chemistry and Biochemistry

A team of Texas Woman's University students developed and presented a sustainability-focused redesign proposal for Quakertown Park in Denton, Texas, to the City of Denton Planning Department. The proposal was guided by the United Nations definition of sustainable development and emphasized environmental, social, economic, and cultural sustainability while acknowledging Quakertown's history as a freedmen's settlement established in the 1870s. This initiative represented an interdisciplinary collaborative effort among students with shared interests in creating a more sustainable future. Proposed improvements included pollinator gardens, no-mow zones, native grasses and culturally significant plants, rain gardens, permeable pavement, rain barrels, and a rooftop community garden. The plan also prioritized education, accessibility, community engagement, and memorial design elements. The final project was presented to the Denton City Council and other local leaders, and this presentation outlines the project's final outcomes. (Faculty Sponsor: Dr. Alana Taylor)

3. APPLYING THE THEORY OF GROEBNER BASES TO SUDOKU PUZZLES. R. Diaz, A. Hardesty, C. McKinney. Sciences – Mathematics

In this project, we analyze different Sudoku puzzles to determine if the puzzle has no solution, one solution, or multiple solutions. We determine how many different solutions a Sudoku puzzle has based on the number of initial clues. To complete this work, we implemented a Groebner basis algorithm in Python that can solve any given 4x4 Sudoku puzzle. (Faculty Sponsor: Dr. Alexis Hardesty)

Supported by TWU Experiential Student Scholars Program and NSF Award 1953448 (PRIME).

4. ASSOCIATION BETWEEN SUBSTANCE ABUSE AND HOMELESSNESS: A LITERATURE REVIEW. M. Raygoza, S. Jordnan , A. Jenkins. Social Work, Psychology, and Philosophy

Individuals experiencing substance use disorder (SUD), particularly those facing homelessness, face significant barriers to recovery. Research shows that substance use rates are notably higher among homeless populations compared to the general population (Arford, 2022). This literature review examines the relationship between substance use and homelessness. The study is a part of our Social Research course project. It analyzes nine quantitative research articles addressing prevalence, risk factors, and outcomes related to substance use among individuals experiencing homelessness. By synthesizing existing empirical findings, this review aims to gain a deeper understanding of how these two social problems intersect. The results will inform social work practice, public health strategies, and policy efforts aimed at supporting vulnerable populations. (Faculty Sponsor: Dr. Shamsun Nahar)

5. BEYOND THE TEST: REIMAGINING HOLISTIC BILITERACY ASSESSMENTS FOR EMERGENT BILINGUAL STUDENTS. A. Munoz. Literacy and Learning

This qualitative study examines how emergent bilingual students in grades 3–6 enrolled in bilingual education programs in Texas experience and navigate assessments. Through semi-structured interviews, classroom observations, and analysis of student artifacts in both English and Spanish, I analyze how assessment conditions shape what is recognized as academic knowledge. Preliminary findings suggest that English-only assessment contexts restrict students' opportunities to demonstrate content understanding. In contrast, assessments that acknowledge bilingual meaning-making and multiple modes of expression holistically reveal students' reasoning and biliteracy practices. Drawing on holistic bilingualism, holistic biliteracy, and translanguaging frameworks, this research positions bilingual students' linguistic repertoires as valuable resources and highlights the need for assessment practices that accurately represent students' academic learning. As an ongoing project, this study contributes to current discussions on equitable and culturally sustaining assessment for emergent bilingual learners. (Faculty Sponsor: Dr. Mary Amanda Stewart)

Supported by TWU Experiential Student Scholars Program, TWU Quality Enhancement Plan (QEP), TWU Center for Student Research.

6. EFFECTS OF WILD BLUEBERRY POLYPHENOL ON HUMAN OSTEOBLAST PROLIFERATION AND OSTEOGENIC MARKERS. G. Rodriguez, K. Aryal. Nutrition and Food Sciences - Denton

Dietary polyphenols exert diverse actions on osteoblasts, including modulation of proliferation, differentiation, and survival pathways that collectively influence bone formation. Wild blueberry polyphenols (WBP) exhibit potent antioxidant activity, yet their direct effects on bone formation remain incompletely defined. This study examined whether WBP enhances osteoblast production in hFOB 1.19. Cell proliferation assays were used to assess WBP-driven osteoblastic growth, while osteogenic differentiation and mineralization were evaluated by Alizarin Red S staining to detect calcium deposits. Alkaline phosphatase (ALP) activity, an early marker of bone formation, was measured to determine changes in osteoblastic function. Nitric oxide production was quantified using the Griess assay, performed with and without cell lysis, to distinguish extracellular from total nitrite levels associated with bone activity. Overall, WBP modulated markers of osteoblast proliferation and mineralization, supporting a potential role in promoting bone formation. These findings suggest that WBPs may enhance osteoblastic activity and support bone health. (Faculty Sponsor: Dr. Shanil Juma)

Supported by NSF Award 1953448 (PRIME).

7. Withdrawn

8. EVALUATING THE VIABILITY OF PROBIOTICS IN COMMERCIAL YOGURT PRODUCTS. Z. Venglarik, D. Wang Nutrition and Food Sciences - Denton

Probiotics are beneficial bacteria that, when consumed at an adequate dose, may confer health benefits. Commercial probiotic foods have risen in popularity; however, it is uncertain whether these products confer adequate viable probiotic counts for desirable health benefits. The overall goal of this project is to investigate the changes of probiotics in commercial probiotic yogurt products during the storage. Probiotics including Bifidobacterium and Lactobacillus were enumerated on selective and differential medium at one-week interval during 2 months for products stored at 4 ℃ and two-day interval during 1 week for products stored at 22 ℃, respectively. The physical appearance, pH, and TA were also monitored during the storage. The results indicate that many commercially available yogurt/kefir products did not contain viable probiotic bacteria at a concentration sufficient for health benefits and that their probiotic counts slightly increased over the storage period. (Faculty Sponsor: Dr. Danhui Wang)

Supported by TWU Center for Student Research.

9. GENERALIZING PHYSICS-BASED INPUT REDUCTION TO POSE ESTIMATION FOR MARKERLESS GRF ESTIMATION IN GOLF. K. Mori, Y. Kwon. Kinesiology

Ground reaction force (GRF) estimation is essential for golf swing analysis and can be achieved using AI-based approaches. However, AI-based methods typically require large amounts of motion data, which increases computational load. This study examined whether a physics-based three-step input reduction method, previously validated with marker-based motion capture data, can be applied to pose-estimation-compatible landmarks to reduce computational demands. Swing data from 360 golfers were analyzed using a 19-landmark set. Systematic input reduction was performed using correlation, variance, and output relevance filtering, and models were trained with bidirectional LSTM networks. Results showed that landmark variance remained the dominant predictor of estimation accuracy across datasets. Critical point analysis identified eight landmarks as an effective balance between accuracy and practicality, achieving high agreement with measured GRFs. These findings support practical GRF estimation using low-cost hardware or smartphones and enable accessible field-based golf biomechanics analysis. (Faculty Sponsor: Dr. Young-Hoo Kwon)

10. IDENTIFYING SENSORY MOTOR COORDINATION DEFICITS USING ELECTROENCEPHALOGRAM (EEG) IN STROKE SURVIVORS.. C. Martinez, H. Goh, S. Huang. Kinesiology

Stroke survivors commonly experience fatigue and perceptual dysfunction, even when motor coordination is almost fully recovered. The purpose of this study is to examine the deficits experienced in motor coordination, associate changes occurring in the brain networks, and to ascertain if the motor coordination deficits are related to post-stroke fatigue. Twenty-one stroke patients and healthy adults matched by age and gender will be recruited to execute motor tasks while the brain activity will be recorded using an electroencephalograph (EEG). The measurements will include the sensory thresholds to visual stimuli, performance of motor pattern, the network activity of the brain, and self-reported fatigue and exertion. We hypothesize that stroke survivors exhibit higher sensory threshold, reduced motor steadiness, and altered neural networks patterns compared to controls. Additionally, higher levels of fatigue and exertion are expected to be associated with larger perceptual and motor deficits. (Faculty Sponsor: Dr. Shaochen Huang)

Supported by TWU REP.

11. INVESTIGATE THE PHYSICOCHEMICAL PROPERTIES OF PEA PROTEIN AFTER THE FERMENTATION PROCESS WITH VARIOUS STRAINS OF LACTIC ACID BACTERIA. B. K C, D. Wang. Nutrition and Food Sciences - Denton

Global demand for plant-based proteins has increased in recent years owing to their nutritional benefits. However, their use is limited by their low functional properties. This study investigated the fermentation of pea protein under optimized conditions with 1% inoculation of lactic acid bacteria (LAB) strains, specifically Lactobacillus plantarum and Leuconostoc mesenteroides. The physicochemical properties evaluated included pH, titratable acidity (TA), water-holding capacity (WHC), total soluble content, and texture. Fermented sample with LAB showed a decrease in pH and total soluble

content, along with an increase in TA. Fermenting the samples resulted in improved WHC and texture compared with the unfermented control samples. Exopolysaccharide (EPS)-producing Leuconostoc mesenteroides strains yielded better results than Lactobacillus plantarum strains. Overall, these findings demonstrate that LAB fermentation is a promising method for enhancing the functional properties and improving plant-based products in the food industry. (Faculty Sponsor: Dr. Danhui Wang)

Supported by TWU REP.

12. INVESTIGATING THE IMPACT OF DIFFERENT EXOPOLYSACCHARIDE-PRODUCING LACTIC ACID BACTERIA ON THE PHYSICOCHEMICAL PROPERTIES OF FERMENTED MILK. M. Sener, D. Wang. Nutrition and Food Sciences - Denton

Exopolysaccharide (EPS)-producing lactic acid bacteria are widely used in the dairy industry to improve the physicochemical properties and texture of fermented milk. The aim of the research is to evaluate the physicochemical properties of fermented milk after fermentation with the screened EPS- producing strains of Lactococcus lactis and Leuconostoc mesenteroides. Samples were analyzed for pH, titratable acidity, total soluble solids, water-holding capacity and texture properties. Lactococcus lactis significantly reduced the pH to 4.3, along with improved texture profile. Leconostoc mesenteriodes strains also lower the pH to 4.9 and confirm strong acidification. These results demonstrate that the EPS-producing strain Lactococcus lactis and Leuconostoc mesenteroides strains enhance the physicochemical properties of fermented milk by lowering the pH, increasing acidity, and improving texture. These results demonstrate that the EPS-producing strains have the potential for developing clean-label dairy products with improved functional properties. (Faculty Sponsor: Dr. Danhui Wang)

Supported by National Dairy Council, TWU REP.

13. INVESTIGATING THE ROLE OF P2RY8 IN HUMAN T CELLS. D. Costa, X. Rodriguez, M. Park, E. De LaRosa, S. Rodriguez, S. Sinha. Sciences – Biology

P2RY8 (Purinergic Receptor P2Y, G-Protein Coupled, 8) is a human G protein- coupled receptor (GPCR) which is expressed on immune cells, including T cells and B cells. Reduced P2RY8 expression enhance Akt and ERK signaling pathways in both B and T cells. These pathways promote immune activation and inflammatory cytokine production in B and T cells. While P2RY8 has been well studied in B cells, its role in T cells remains largely unexplored. Our data show that there is a trend toward higher P2RY8 expression with age. Our data also show expression of P2RY8 on female T cell is comparable but on male T cell P2RY8 expression is significantly high on CD4 T cells, suggesting a sex dependent regulatory pattern. Future studies will determine P2RY8 mediated regulation of human T cell function. (Faculty Sponsor: Dr. Sushmita Sinha)

Supported by NIH NIAID R15 AI169400 and TWU REP.

14. MECHANOCHEMICAL VERSUS SOLVENT-BASED STRATEGIES FOR THE PREPARATION OF (COPPER CHLORIDE-NIACINAMIDE) COORDINATION COMPOUNDS. M. Muleta, P. Babu, A. Tantish. Sciences – Chemistry and Biochemistry

Coinage metal complexes are gaining attention as versatile materials with significant potential in catalysis, and optoelectronic applications. Among them, copper halides are particularly attractive due to copper's earth abundance, cost-effectiveness, and rich structure. This work presents the synthesis and characterization of copper chloride (CuCl) complexed with the ligand niacinamide (Vitamin B3), emphasizing environmentally friendly, green chemistry approaches. Utilizing solvent-mediated and solvent-free mechanochemical methods, the formation of these complexes was achieved, highlighting their potential applications in catalysis, optoelectronics, and sensor technology. Techniques such as UV-Vis spectroscopy, FTIR ,and Grinding confirmed the successful coordination between CuCl and B3, revealing insights into their structural and thermal properties. The resulting complexes exhibited luminescent behavior and functional group modifications indicative of effective ligand binding. This research highlights the environmental benefits of mechanochemical synthesis and shows the promising functional attributes of CuCl-B3 complexes for innovations in bio-related applications. (Faculty Sponsor: Dr. Manal Omary)

15. PRACTICAL APPLICATIONS OF GREEN CHEMISTRY IN UNDERGRADUATE LABS: A PATH TO SUSTAINABILITY. K. Shaw, C. Deleon. Sciences – Chemistry and Biochemistry

Green Chemistry is a philosophy of Chemistry that focuses on reducing waste, eliminating hazardous reagents, and promoting sustainability in reactions and chemical production. Focusing on Green Chemistry in undergraduate chemistry courses enables the next generation of chemists to innovate sustainable research, development, and industry methods. Furthermore, undergraduate lab instruction is an important resource in achieving a practical understanding of Green Chemistry principles and should promote alternative experimental lab procedures that follow the tenants of Green Chemistry. This presentation will serve as a survey of Green Chemistry in the undergraduate laboratory focusing on the use of less hazardous and more sustainable solvents, reaction efficiency, and the minimization of waste. We will propose a plan for implementing Green Chemistry practices in lab procedures performed in undergraduate organic chemistry labs. We will also discuss the pros and cons of such an undertaking and what challenges we foresee in its implementation. (Faculty Sponsor: Dr. Manal Omary)

16. SOURDOUGH AND YOUR GUT. I. Silva, T. Hall, A. Simmons, C. Massey, J. Lujan, M. Anderson. Sciences – Chemistry and Biochemistry

Sourdough, also known as naturally leavened bread, has its roots in ancient Egypt but is still just as prevalent in the modern world. Sourdough consists of flour, water, salt, and sourdough starter. The sourdough starter is classified as a symbiotic culture of bacteria and yeast, also known as a SCOBY. A SCOBY is a living mixture of yeasts and bacteria from the flour and the air. The starter is actually alive, and it is kept alive through constant feedings and discards. Sourdough bread making increased during the COVID pandemic, due to yeast in bread being sold out. However, the sour dough making "trend" was not solely due to this, rather people explored the benefits of the bread. Each sourdough is unique with different microbes and fermentation processes. Our aim is to explore how beneficial sourdough is to our gut health and what types of microorganism are present. (Faculty Sponsor: Dr. Mary Anderson)

17. STORIES ON THE SCREEN, DECOLONIZING THE SELF: CINEMATHERAPY AND CULTURAL RECONNECTION FOR LATER-GENERATION CHICANAS. C. Lopez. Human Sciences

Later-generation Chicanas in the United States often experience cultural disconnection linked to language loss, racism, and generational trauma, which can undermine identity, belonging, and mental health. This proposed phenomenological study examines how a culturally grounded cinematherapy group can support cultural reconnection and identity development among later-generation Chicanas. Guided by Chicana feminist epistemology and narrative identity theory, 8–12 self-identified later-generation Chicanas will participate in 6–8 group cinematherapy sessions using films that center Chicana/Latina experiences, followed by semi-structured interviews and group discussions. Interpretative phenomenological analysis will explore how participants describe cultural disconnection, which film themes resonate, and how insights from cinematherapy shape their sense of belonging and cultural pride. Findings are expected to inform decolonizing, culturally responsive mental health interventions and offer practical guidance for integrating cinematherapy into work with Chicana and Latina clients. (Faculty Sponsor: Dr. Catherine Dutton)

18. STRESS IS CONTAGIOUS: THE CELLULAR TRANSFER OF A STRESS RESPONSE. M. Mendez, L. Hanson. Sciences – Biology

There are numerous responses that cells have to being under stress. One example is that stressed cells may tightly condense their DNA to protect it. Our group recently found that stressed cells also release something(s) that causes unstressed cells to compact their DNA. We hypothesize that heat-shock proteins released by stressed cells may be what is inducing the response. This was tested by putting cells at 40°C for 24 hours, harvesting the media, and boiling replicate samples of conditioned media before applying to unstressed cells. This reduced the DNA compaction relative to unboiled conditioned media, supporting the hypothesis. To narrow the release timeframe for the unknown protein(s), which could help in identification, the experiment is being reproduced with media from cells stressed for 3 or 6 hours, as well as the previous 24 hours. (Faculty Sponsor: Dr. Laura Hanson)

19. SUSTAINABLE DESIGN OF LUMINESCENT CU(I) HALIDE COMPLEXES: SYNTHETIC CONTROL OF STRUCTURE AND PHOTOPHYSICAL PROPERTIES. K. Branch, A. Johnson, H. Kouadio, M. Omary. Sciences – Chemistry and Biochemistry

Coinage metal complexes have emerged with promising applications in catalysis, sensing, energy harvesting, and optoelectronics. Among them, copper (I) halide systems are particularly attractive due to copper's abundance, lower cost, and structural and photophysical diversity. This positions copper complexes as sustainable alternatives to precious metal based materials in technologies such as organic light emitting diodes (OLEDs) and volatile organic compound (VOC) sensors. This work presents the synthesis and characterization of new Copper (I) Iodide complexes, incorporating Niacinamide (vitamin B3) as a coordinating ligand. It emphasizes how synthetic methodology and reaction parameters govern structure and luminescent behavior. Investigations were conducted using solvent-mediated synthesis under an inert nitrogen atmosphere and solvent-free mechanochemical and thermally induced approaches. The photoluminescence spectra of resulting copper complexes will be examined alongside structural data, including X-ray crystallography, FT-IR, NMR, and UV-Vis spectroscopy to correlate the photophysical, structural, and thermal properties and the underlying synthetic factors. (Faculty Sponsor: Dr. Manal Omary)

Supported by Robert A. Welch Foundation, NSF Award 1953448 (PRIME), TWU Division of Chemistry and Biochemistry.

20. TARGETING DRUG RESISTANCE FOR AN ANTICANCER P300 INHIBITOR IN MCF-7 HUMAN BREAST ADENOCARCINOMA CELLS. C. Golly, B. Bullock, T. St. Martin, M. Enriquez, S. Porter, R. Petros, M. Bergel. Sciences – Biology

Acquired drug resistance remains a major obstacle in the effective treatment of breast cancer. In this study, we investigated mechanisms of resistance to JJMB9, a novel anticancer, p300 inhibitor, bisamidoxime synthesized in our laboratory, using JJMB9-resistant MCF-7 breast adenocarcinoma cells (MCF-7R). RNA sequencing revealed significant upregulation of the drug transporter ABCB1, the detoxification enzyme GSTT2B, and the gap junction protein GJB6 in MCF-7R cells, which was validated by RT-qPCR and Immunoblotting. Functional targeting of these resistance-associated proteins was performed using chemical inhibitors and CRISPR-Cas9 population knockouts. Pharmacologic inhibition of ABCB1 with elacridar fully restored JJMB9 sensitivity to parental levels, whereas inhibition of GSTT2B with ethacrynic acid had no effect. Consistently, CRISPR-mediated knockout of ABCB1 and GJB6 (>80% efficiency) significantly enhanced chemosensitivity, while GSTT2B

knockout did not. These findings identify ABCB1 and GJB6 as key mediators of resistance to the p300 inhibitor JJMB9 and as potential therapeutic targets in breast cancer. (Faculty Sponsor: Dr. Michael Bergel)

Supported by NSF Award 1953448 (PRIME).

21. TARGETING HIPPO PATHWAY IN ADIPOGENESIS AND ADIPOSITY. C. Jin. Nutrition and Food Sciences - Denton

Obesity is a chronic metabolic disorder caused by sustained positive energy balance, leading to excessive adipose tissue accumulation and increased risk for metabolic diseases. Among the signaling pathways regulating adipocyte function, the Hippo pathway and its downstream transcriptional coactivators, Yes-associated protein (YAP) and transcriptional coactivator with PDZ-binding motif (TAZ), have emerged as key regulatory nodes. The activation of Hippo pathway would lead to YAP/TAZ translocation into the cytoplasm from the nucleus, and loss their transcriptional regulation. Here, we found out that Hippo pathway is activated during adipogenesis, in line with downregulation of YAP/TAZ target genes. Furthermore, we show that both 1μM dasatinib and 1μM verteporfin could inhibit lipid droplet accumulation. Mechanistically, both treatments could significantly upregulate the downstream genes of YAP/TAZ, which is consistent with suppression of adipogenesis and lipid accumulation in adipocytes. The findings would elucidate new mechanisms around adipogenesis and could potentially provide reference for targeting obesity and metabolic syndrome. (Faculty Sponsor: Dr. Zhipeng Tao)

Supported by TWU Center for Student Research.

22. TEMPORAL DYNAMICS OF LOCALIZATION OF MACROPHAGES TO THE SENSORY GANGLIA DURING OROFACIAL INFLAMMATION. A. Acayan, Z. Gonzalez A. Basnet, D. Averitt. Sciences – Biology

Chronic orofacial pain affects approximately 10% of adults, with women of reproductive age seeking treatment nearly twice as often as men. Despite this, the neuroimmune mechanisms driving these sex differences are not well understood. We hypothesized that macrophages, key immune cells within the trigeminal ganglia (TG), respond to inflammation and contribute to sex differences in orofacial pain. Inflammation was induced by injecting Complete Freund's Adjuvant (CFA) into the masseter muscle of male and female Sprague-Dawley rats. TG were collected at 1, 3, 5, 7, 10, and 14 days post-injection, cryosectioned, and processed by immunohistochemistry with F4/80 antibody to quantify macrophage density, and NeuN to label neurons. Current flow cytometry data in our lab indicate that macrophage numbers in the TG increase over time in females. Immunohistochemistry findings confirm that macrophages localize within the TG and may contribute a role in neuron-macrophage communication in differential susceptibility to orofacial pain. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NIDCR R15 DE025970 and NSF Award 1953448 (PRIME).

23. THE ASSOCIATION BETWEEN FOOD INSECURITY AND ADVERSE MENTAL HEALTH OUTCOMES: A QUANTITATIVE LITERATURE REVIEW. C. Allen, L. Fraire. Social Work, Psychology, and Philosophy

According to the U.S. Department of Agriculture (USDA), 13.7 percent (18.3 million) of U.S. households were food insecure at some point in 2024. Food insecurity remains a significant public health concern in the United States and has consistently been linked to mental health outcomes such as anxiety and depression. This literature review examines quantitative studies on the association between food insecurity and adverse mental health outcomes. Across multiple cross-sectional surveys, studies, and screenings, it was evident that the presence of food insecurity was linked to increased rates of anxiety, depression, and other forms of psychological distress amongst participants. These findings highlight the critical importance of social work in addressing food insecurity as both a structural and mental health concern. It further emphasizes the need for crisis intervention, advocacy, and increased access to mental health services for food-insecure households and individuals. (Faculty Sponsor: Dr. Shamsun Nahar)

24. THE DOSE-DEPENDENT EFFECTS OF VITAMIN A IN HAIR CYCLING. R. Newman, Christine VanBuren, NFS, Doctoral student, cvanburen@twu.edu; Helen B Everts, NFS, Faculty, heverts@twu.edu. Nutrition and Food Sciences - Denton

Vitamin A regulates epithelial differentiation and hair follicle cycling, yet dose-dependent and sex-specific effects remain unclear. This study evaluated the effects of dietary vitamin A on the hair cycle in C57BL/6 mice (n = 120; 60 males, 60 females). Mice were assigned to diets containing 1.35, 4.0, 28, or 250 IU vitamin A/kg (n = 15/sex/group). Postnatal day of anagen initiation, duration of anagen, and anagen exit were analyzed using ANOVA ($\alpha = 0.05$).Dietary vitamin A did not affect anagen timing or duration in males. In females, diet significantly influenced anagen initiation ($p < 0.001$) and exit ($p = 0.004$). Females consuming 250 IU/kg entered and exited anagen earlier than those on lower vitamin A diets, while anagen duration remained unchanged. These findings indicate high dietary vitamin A shifts the window of anagen in females without altering its length, indicating a sex-specific effect on hair cycle regulation. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Center for Student Research.

25. WHERE WOMEN WIN: EXAMINING LOCAL GOVERNMENTS IN TEXAS. K. Flores, A. Friesenhahn. Social Sciences and Historical Studies

Recent studies examining the rates of women elected to congressional offices have suggested that women are more likely to be elected in larger- population districts (Palmer and Simon 2008). Adapting this literature for local politics, this

project examines the rates of women elected to county and city government offices in Texas in the time period from 2012 to 2024. Using data from the Center for Women in Government and the HerDataTX initiative of the Jane Nelson Institute for Women's Leadership, we ask whether women are more likely to be elected in more populous counties and cities. Preliminary findings suggest that women have made significant overall gains, doubling the number of women in local offices between 2012 and 2024. Ultimately, we expect to find more women local officials in parts of Texas with greater populations compared to rural counties and cities. (Faculty Sponsor: Dr. Amy Friesenhahn)

Supported by TWU Jane Nelson Institute for Women's Leadership.

Session 6. Wednesday, April 22, 6:00 pm – 7:20 pm
Student Union 2230 (Southwest Ballroom B)

1. ANALYZING QUALITY OF DIETS PRESENTED IN #WHATIEATINADAY VIDEOS ON TIKTOK: AN EXPLORATORY PILOT STUDY. B. Stein, M. Massey-Stokes. Health Studies

Short-form social media influences how health information is accessed and impacts health-related attitudes and behaviors. What I Eat In A Day (WIEIAD) videos are popular, short-form vlogs on TikTok and other social media platforms where creators document their daily meals, snacks, and drinks. These videos are widely viewed and may shape viewers' perceptions of "normal" eating patterns, yet the dietary quality in the videos and how this varies across content creators is understudied. This exploratory pilot study used the Healthy Eating Index to analyze the diet quality of 60 WIEIAD videos on TikTok from three different creator types: lay individuals, self-identified nutritionists, and registered dietitians. Analyses compared dietary quality, engagement metrics (views, likes, comments, shares, saves), and creator type. Findings provide preliminary insight into nutrition-related messages within popular social media content and can help inform initiatives aimed at enhancing digital literacy and strengthening public health guidance for digital health information. (Faculty Sponsor: Dr. Marilyn Massey-Stokes

Supported by TWU Experiential Student Scholars Program.

2. ASSESSMENT OF HEAVY METAL CONTAMINATION IN NORTH TEXAS RESERVOIRS USING X-RAY FLUORESCENCE (XRF) SPECTROMETRY. J. Tiner, J. Beatty. Sciences – Chemistry and Biochemistry

Heavy metal contamination in drinking water poses a severe threat to public health due to their persistent, non-biodegradable nature. These metals can bioaccumulate and pose risks to aquatic ecosystems and human health. This study aims to determine the concentration of heavy metals, specifically Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Nickel (Ni), Manganese (Mn), and Mercury (Hg), in the water column of Lake Lewisville and Lake Ray Roberts. Utilizing X-Ray Fluorescence (XRF) spectrometry, we assessed elemental profiles in water samples collected from reservoirs since they are sources of drinking water for area cities. Water samples were evaporated to dryness, and the resulting solid residues were prepared for XRF analysis using a multi-step protocol. The preliminary results will demonstrate the use of XRF as a high-throughput screening tool for environmental monitoring in the Dallas-Fort Worth metroplex and provide a baseline for future studies in North Texas watersheds. (Faculty Sponsor: Dr. John Beatty)

Supported by Mary Ramona Jamison Scholarship Endowment, NSF Award 1953448 (PRIME), and Robert A. Welch Foundation.

3. BIBLE COOKING CLASS. A. Sam. Nutrition and Food Sciences - Denton

The Bible Study Cooking Class blends biblical teachings with practical nutrition education to support both spiritual and physical well-being. One interactive session was held for college students (18+) in the Dallas-Fort Worth area, with a total of 9 participants. Attendees learned how to prepare an açaí bowl (appetizer), chicken fried rice (entrée), and Dubai chocolate potato brownies (dessert) which are all chosen and modified for health benefits. Each dish will first be demonstrated in the kitchen and connected to a biblical lesson, after which participants will have the opportunity to cook with partner groups. By the end of the session, participants will gain hands-on culinary skills, nutrition knowledge, and a faith-centered perspective on food. This project promotes healthier eating habits through an interactive and spiritually meaningful learning experience. (Faculty Sponsor: Professor Angela Griffin)

Supported by TWU Honors Program and TWU Experiential Student Scholars Program.

4. BRIDGES, NOT BATTLE FIELDS: PARENTING AFTER DIVORCE. C. Juarez, N. Barrios, J. Smith, A. Saucedo. Human Sciences

Parenting can be challenging in itself, but adding life changes such as divorce can negatively influence the journey in ways not always considered. Bridges, Not Battle Fields is a program developed to provide parents of children under age 18 with a plan for navigating parenthood after divorce. This program aims to help parents with strategies for co-parenting, steps for setting boundaries, and tips for maintaining structure. (Faculty Sponsor: Dr. Tamyra LaFrance)

5. BRIDGING CARE AND COMMUNICATION: UNDERSTANDING THE ETHICS OF MEDICAL INTERPRETING. D. Lampieri Cuervo, A. Hernandez. Language, Culture, and Gender Studies

This poster presentation introduces the nine core codes of ethics in professional interpreting, with a specific focus on medical settings. Designed as an educational and advocacy tool, the project highlights what healthcare providers should understand about the role, responsibilities, and ethical boundaries of medical interpreters to ensure effective

communication during clinical consultations. By clarifying principles such as confidentiality, accuracy, impartiality, and professional conduct, the poster addresses common misconceptions that can negatively affect patient care. As the demand for qualified medical interpreters continues to grow in Texas and across the United States, this project emphasizes interpreting as a critical and emerging profession within healthcare systems. Ultimately, the poster advocates for stronger collaboration between medical providers and interpreters to improve patient safety, access to care, and health outcomes for linguistically diverse communities. (Faculty Sponsor: Dr. Angela Mooney)

6. CHARACTERIZING CARBOPLATIN-DNA INTERACTIONS USING NMR AND HPLC-MS WITH GUANOSINE MONOPHOSPHATE MODELS. M. Rodriguez, J. Paniagua, J. Carvajal De Luna, N. Mirsaleh-Kohan, J. Beatty. Sciences – Chemistry and Biochemistry

Platinum based drugs are used as a form of chemotherapy against cancer. Although effective at producing anti-cancer mechanisms, these platinum coordination complexes are not selective at only targeting cancer cells. Due to this lack of selectivity, understanding the reaction pathways that take place between DNA and platinum drugs is crucial. Cisplatin has previously demonstrated preference in forming cross-links at guanine- guanine sites in the DNA of cells. In this study, 2'-Deoxyguanosine 5'- monophosphate disodium salt hydrate is used as a simpler scale of the DNA dimer, guanine-guanine, to assess the reaction that takes place when the purine base is introduced to the platinum analogue, Carboplatin. Nuclear Magnetic Resonance (NMR) and High-Performance Liquid Chromatography (HPLC) combined with Mass Spectrometry (MS) is used to analyze the interactions between platinum-based drugs and 2'-Deoxyguanosine 5'-monophosphate disodium salt hydrate under various conditions. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan

Supported by TWU Jane Nelson Institute for Women's Leadership and The Robert A. Welch Foundation.

7. CHILDHOOD EXPERIENCES, ATTITUDES TOWARD AUTHORITY, AND ADJUSTMENT. J. Smith. Social Work, Psychology, and Philosophy

This is a research study looking at how childhood parentification correlates to attitudes towards authority as an adult with internalizing behaviors. Participation in this research study is completely voluntary. Participants will answer question on their role in their family dynamic as a child. "I did a lot of the shopping.", "I often felt like a referee in my family.", and "Sometimes it seemed that I was more responsible than my parents were.". They will then answer questions about their thoughts about authority and internalizing behaviors they have experienced "Do you listen attentively to what older people say about how you should behave?", "Do you sympathize with rebels?", and "Do you show respect for people in high positions?". Also internalizing behaviors, "Have you had a period in life where you were affected by depression?" and "How affected have you been by anxiety in the past 30 days?". (Faculty Sponsor: Dr. Lisa Rosen)

8. CYCLIC MANUFACTURING OF DYES/PIGMENTS FROM SINGLE-USE BIOPLASTIC STRAWS AS A TWO-PART ALTERNATIVE TO FOSSIL FUEL-BASED MATERIALS. J. Leija, G. Salazar. Sciences – Chemistry and Biochemistry

Fossil fuel-based materials and alternatives have the same fate – becoming trash. This unfortunate result is absolute, and as such, a method of creating functional materials from biomass is relevant. Bioplastic single use straws have emerged as a possible alternative to current fossil fuel- based counterpart. In here, I propose degrading bioplastics to produce novel dye/pigment. The aspiration for this material is to rival the vivid hues of azo dyes while challenging the harmful consequences of synthetic dyes. The result of this cyclic manufacturing will continue current efforts to produce disposable drinking straw alternatives while reinforcing the goal of these alternatives by creating an alternate choice to fossil fuel- based dyes. (Faculty Sponsor: Dr. Gustavo Salazar

Supported by Robert A. Welch Foundation.

9. DECIPHERING WHEY PROTEIN-FLAVOR INTERACTIONS: A COMPUTATIONAL APPROACH. L. Ziebart, X. Du, S. Lin. Nutrition and Food Sciences - Denton

Despite persistent flavor issues due to the high reactivity of whey proteins with aroma volatiles, these interactions are incompletely understood, and computational methods of analysis have not been fully explored. Thus, this research aimed to fill these gaps by employing molecular docking and molecular dynamics techniques towards elucidating the interactions between two proteins in whey (β-lactoglobulin and α- lactalbumin) in native and denatured states with an assortment of aroma volatiles. AutoDock Vina was used to ascertain aroma volatile binding affinities and binding sites, and six aroma volatiles were evaluated with GROningen MAchine for Chemical Simulations (GROMACS) to simulate interactions over time in solvent. The results revealed higher affinity overall for the denatured proteins, and interaction mechanisms and binding affinities varied according to aroma volatile structure-function relationship, particularly relating to degree of hydrophobicity. Thus, this study demonstrated the applicability of computational analysis by uncovering key factors governing whey protein-volatile interactions. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by BUILD Dairy Grant No. 1338145484.

10. DETERMINING SMAD4 VARIANT FUNCTION IN MYHRE SYNDROME USING C. ELEGANS. P. Khaghani, T. Gumienny. Sciences – Biology

Myhre syndrome is a rare developmental disorder characterized by short stature, distinctive facial features, and connective tissue abnormalities among others. Mutations at

R496 or Ile500 in SMAD4 protein have been identified in affected individuals. SMAD4 is a central mediator of Transforming Growth Factor–β (TGF-β) cell signaling pathways, essential for normal development. Although SMAD4 is crucial for TGF-β cell signaling, it remains unclear whether Myhre syndrome–associated variants cause gain or loss of protein function, vital information for therapy development. Our lab created Caenorhabditis elegans models to investigate Myhre syndrome. A C. elegans homolog of SMAD4, sma-4, plays a similar role in the DBL-1/TGF-β signaling pathway. This pathway exhibits well-defined gain and loss of function phenotypes, providing a reliable system to assess SMAD4-related signaling effects. We will evaluate sma-4(MS) phenotypes and will determine if these variants affect TGF-β cell signaling activity by disrupting or enhancing interactions with other pathway components. (Faculty Sponsor: Dr. Tina Gumienny)

Supported by NIH NIAID Subaward.

11. EVALUATING THE NATIONAL GEOGRAPHIC SLINGSHOT CHALLENGE AS A TOOL FOR ENVIRONMENTAL SCIENCE PERCEPTIONS AND PARTICIPATION. J. Strode, K. Albus. Sciences – Environmental Science

Many youth today are aware of their surroundings, but fewer see themselves as involved in protecting their communities. The National Geographic Slingshot Challenge encourages youth ages 13–18 to submit a one-minute video outlining how they can improve environmental conditions in their own community. While this empowers youth to view environmental science through a creative lens, its broader impact depends on whether it changes their perception of the field through involvement. Research shows that students' early beliefs about who can succeed in science, whether the field feels accessible, and whether environmental issues feel personally relevant influence their willingness to pursue environmental studies or take action. To evaluate the program's impact, we designed surveys for students and mentors, administered remotely and at fall workshops, to assess responses across diverse backgrounds. The student survey includes 15 Likert-scale questions, while the mentor survey includes scaled and open-ended questions about educational value and participation barriers. (Faculty Sponsor: Dr. Kelly Albus)

12. EXPLORING THE GENE EXPRESSION CHANGES IN BREAST CANCER CELLS AND TUMORS TREATED BY JJMB9, A NOVEL P300 INHIBITOR. N. Franco Arjona, K. Foust, S. Ruiz, M. Bergel. Sciences – Biology

Breast cancer is a major global health challenge, driven in part by dysregulated transcriptional programs that sustain uncontrolled proliferation. Targeting these epigenetic dysregulations represents a promising therapeutic strategy. In our laboratory, JJMB9, a bisamidoxime, demonstrated significant anti-cancer efficacy both in vitro and in vivo and was identified as an inhibitor of p300, a histone acetyltransferase and transcriptional co-activator. However, its molecular mechanism remains unclear. Using RNA sequencing, we investigated transcriptional changes after JJMB9 treatment of MCF-7 cells and BALB/c murine tumors.. After identifying significantly downregulated genes involved in DNA replication and S-phase progression, PCR and RT-qPCR were done to confirm their validity and determine the mechanism of action of JJMB9. The genes identified are essential for replication origin firing, fork stability, and checkpoint signaling. Thus, we propose that JJMB9-mediated inhibition of histone acetylation disrupts transcription by the coordinated repression of replication-associated genes that restrict proliferation in cancer cells. (Faculty Sponsor: Dr. Michael Bergel)

Supported by TWU Jane Nelson Institute for Women's Leadership and NSF Award 1953448 (PRIME).

13. INVESTIGATING HOW LICL MAY WORK TO INHIBIT HERPESVIRUSES. L. Gaytan Bernal, L. Hanson. Sciences – Biology

Lithium chloride (LiCl) has been known to inhibit herpesvirus replication in cells, at concentrations of 30 mM or higher, since the 1980s. However, patients, who have much lower levels of lithium, have fewer herpes outbreaks, than those not on lithium. Our lab found that pretreating cells for four hours with LiCl reduced herpes viral production, supporting that LiCl is acting primarily on cellular rather than viral factors. This led us to hypothesize that lithium inhibition of virus will vary in different cell types, which could explain the clinical findings. Our preliminary investigation in fibroblast cells (NIH 3T3), showed that a single dose of 30 mM of LiCl could inhibit virus replication and spread through at least four days. We are now testing additional cell types; SGC1 epithelial-like cells and J774 macrophages, to see whether the sensitivity to lithium inhibition varies. We expect to see more efficient inhibition in these cells. (Faculty Sponsor: Dr. Laura Hanson)

14. INVESTIGATION OF VIRAL INFECTION AND CELLULAR DIFFERENTIATION IN ALZHEIMER'S-LIKE CELL CHANGES. S. Nabi, L. Hanson, D. Hynds. Sciences – Biology

Clinical studies link herpesvirus infections with Alzheimer's disease (AD), although causal mechanisms remain unclear. Our lab previously reported that murine cytomegalovirus (MCMV) can induce AD-like high-molecular-weight (HMW) tau accumulation (50–250 kDa) in B35 neuroblastoma cells. We are now establishing a model using MCMV at low MOI (0.1 PFU/cell) to evaluate time-dependent changes in tau. We also compare viral effects under two cellular conditions: serum-containing media (SCM), which maintains proliferative growth, and serum-free media (SFM), which promotes cellular differentiation and neurite outgrowth, resulting in more neuron-like phenotype. We hypothesize that removal of serum will promote neurite outgrowth and alter tau regulation, potentially increasing viral-induced HMW tau accumulation and cytopathic effects compared to

proliferating cells. Ongoing work validates infection efficiency through viral early protein E1 expression and assesses total tau levels at multiple post- infection time points. This approach aims to clarify how infection and cellular state interact in AD-relevant tau alterations. (Faculty Sponsor: Dr. Dianna Hynds)

15. LANGUAGE CLASSIFICATION FROM TONGUE MOTION IN BALANCED BILINGUAL SPEAKERS. R. Oli, W. Xu, J. Wang. Sciences – Computer Sciences

This study examines whether tongue motion distinguishes English and Spanish speech in balanced bilingual speakers. Articulatory data were collected from two participants producing isolated vowels in both languages using wearable electromagnetic articulography (EMA). Vertical(y) and front–back(z) tongue coordinates were normalized and concatenated into feature vectors. A Support Vector Machine (SVM) classifier with 5-fold cross-validation performed binary language classification for each speaker. Preliminary results show an average accuracy of approximately 88%. A permutation test reduced performance, confirming language-specific articulatory differences. Data from additional speakers are being analyzed. These findings show bilingual speakers use distinct articulatory patterns and language can be identified from tongue motion alone. (Faculty Sponsor: Dr. Wen Xu)

16. MAPPING DIGITAL HEALTH INTERVENTIONS FOR RURAL FEMALE CANCER SURVIVORS: A PRISMA SCOPING REVIEW WITH INTERRATER RELIABILITY ASSESSMENT. L. Denton, M. David, M. Massey-Stokes, S. Rana. Health Studies

Telehealth and digital health interventions hold growing promise for improving rural cancer survivorship care by providing safe, timely, and accessible support where in-person services are limited. This scoping review aimed to map and synthesize evidence on digital health interventions among rural female cancer survivors. A secondary aim was to examine whether interventions addressed the six pillars of lifestyle medicine. A systematic search of PubMed, CINAHL, Cochrane, Scopus, and Web of Science was conducted in accordance with PRISMA-ScR guidelines, followed by an Elicit search six months later, resulting in 113 articles. The primary researcher led a team of four independent reviewers who screened articles and titles for relevant population, concept, and context. Interrater reliability was assessed using Cohen's kappa for both abstract and full- article reviews. To meet study aims of identifying gaps and informing future research, next steps will include PRISMA-ScR data extraction, data synthesis, and thematic analysis. (Faculty Sponsor: Dr. Marilyn Massey-Stokes

Supported by TWU Experiential Student Scholars Program.

17. MISSING VALUES IN THE CONTEXT OF CATEGORICAL DATA IN LONGITUDINAL RESEARCH. K. Dehtan. Sciences – Mathematics

In this poster, we look at missing values in the context of longitudinal studies. We investigate if missing values occur due to categorical dependency or randomly. To do that, we generate a synthesized data set that includes random categorical data like height, gender, and age, in addition to categorical longitudinal observations (such as disease category). From this simulation, we show that a combination of proportion calculations and tests can be used to determine an index of ignorability to missingness for longitudinal categorical data. We apply this methodology to a longitudinal study on varicose veins that looks at categorical data, including CEAP scores, which are a rating of severity in clinical diagnosis ranging from C0 to C6. The primary takeaway from this project is a measure of how missing categorical values in a sequence occur in relation to other variables. (Faculty Sponsor: Dr. Micah Thornton)

18. NAVIGATING PARENTING TRANSITIONS IN MILITARY FAMILIES: CHANGES IN ROUTINES AND DISCIPLINE. D. Calvert, R. Todd. Human Sciences

Military families move often, which can interrupt daily routines and discipline. These changes can make children feel stressed, confused, or act out. Parents may also find it hard to keep rules and routines consistent during a move. Navigating Parenting Transitions in Military Families is a needed program that will help military parents with children ages 4-16 to keep structure, support their children emotionally, and make transitions easier. (Faculty Sponsor: Dr. Tamyra LaFrance)

19. OCTA- AND TETRA- HECK REACTION, A NOVEL PORPHYRIN SYNTHESIS. N. Starrett, T. Smith I. LaBass, J. Bueno Arroyo. Sciences – Chemistry and Biochemistry

Porphyrins are an interesting molecule with unique photochemical uses. Ranging an abortion spectrum from around 350-450nm. These versatile properties are due to the relationship between structure and function. There is a well categorized knowledge pool of reactions in the synthesis of porphyrins. Post-synthesis tailoring of beta- and meso- pyrrole positions of core porphyrin is yet another source of attunement. Utilizing the coordination of a metal-based porphyrin bromination of all 8 available positions can be utilized using NBS reaction schemes. These brominated positions can then undergo a heck reaction giving rise to new larger multi- differential ligand porphyrins with unique properties and a larger amount of reaction sites. Key ligands containing hydrogen-bond doners and acceptors can be added increasing hydrogen bonding capabilities, framework stability, and crystalline Hydrogen organic bonding (HOF) formations. (Faculty Sponsor: Dr. Ting Han)

Supported by Robert A. Welch Foundation, US Dept of Education Award P031M220022 (ACCESS), TWU Center for Student Research.

20. ORGANIC POLLUTANT ABSORPTION ON METAL-ORGANIC FRAMEWORKS: A COMPUTATIONAL INVESTIGATION. M. Mapula, S. Lin. Sciences – Chemistry and Biochemistry

Metal-organic frameworks (MOFs) are porous materials composed of metal nodes and organic linkers. MOFs have unique properties, such as tunable pore size, high surface area, and the ability to adsorb small molecules, making them promising candidates for various applications, including pollutant removal. The Quantum Metal-Organic Frameworks Database is a publicly available resource of more than 20,000 experimentally synthesized and hypothetical MOFs, available for use in the Materials Project. In our study, we selected 100 MOFs from the QMOF database to identify the top candidates for adsorbing organic pollutants, including benzene, toluene, ethylbenzene, xylenes, linear and cyclic siloxanes. We applied computational chemistry methods to investigate interactions between selected pollutant compounds and our MOFs, thereby guiding the design and modification of MOFs for the adsorption and removal of organic pollutants. (Faculty Sponsor: Dr. Shiru Lin)

Supported by NSF.

21. PARENTS SUPPORTING THEIR CHILDREN'S MENTAL HEALTH. M. Garcia, G. Catalan. Human Sciences

Parents play an important role in shaping their children's mental health and emotional development, but often lack the tools. Emotional Regulation for Parents is a program designed to help parents obtain tools to help support their children's mental well-being through communication, emotional validation, and the creation of a safe and supportive environment. The goal is to give parents the professionals tools to foster connection, promote emotional regulation, and strengthen family relationships in ways that support long-term mental wellness for all members. (Faculty Sponsor: Dr. Tamyra LaFrance)

22. RAISING CHILDREN IN A DIGITAL WORLD. H. White, K. Fox, K. Martinez, A. Cole. Human Sciences

Technology today has taken control of our everyday lives and influences the lives of young children and adolescents. With children accessing digital devices at increasingly younger ages, many parents feel unprepared to manage screen time and online safety. Raising Children in a Digital World, a parent education program intends to address the challenge of raising children in a digital world, where technology influences learning, behavior, relationships, and mental health by equipping families with practical strategies that promote healthy technology use while preserving strong parent-child connections. This program is designed for parents and caregivers of children ages 5-14, including working families, single parents, and first-time caregivers who are navigating technology use at home. (Faculty Sponsor: Dr. Tamyra LaFrance)

23. REGULATION REIMAGINED. M. Shores, A. Norris, V. Garcia, A. Kim. Human Sciences

Emotional Regulation as a Parent is the ability to understand and process one’s emotions before acting on them. Our program addresses the lack of emotional regulation among society, highlights the importance of emotional regulation within a family unit and interpersonal relationships, as well as learning how to interpret and manage feelings without letting it affect how an individual parents. The Regulated Parent Project will provide individuals with strategies and techniques to give them the ability to emotionally regulate, provide a community for parents to communicate and share experiences involving emotion regulation, and will provide educational resources and information that individuals can utilize to learn more about emotional regulation. (Faculty Sponsor: Dr. Tamyra LaFrance)

24. THE ART OF THE DO OVER: HELPING PARENTS ACKNOWLEDGE THEIR MISTAKES. A. Black, R. Terry. Human Sciences

The Art of the Do-Over is a program developed to help parents shift from a facade to accountability. Perfection is not possible, and striving for it can lead to burnout and a sense of disconnection from family. It is important for children to see mistakes as opportunities for healthy development. With exercises and communication tools, parents will learn how to humanize themselves to their children. Turning mistakes into teachable moments, the program is designed to help parents strengthen their bonds and foster a home of honesty and mutual respect with and for their teenagers ages 13-18. (Faculty Sponsor: Dr. Tamyra LaFrance)

25. THE EXPERIENCES OF HISTORICAL TRAUMA COMMUNICATION IN THE ASIAN AMERICAN PARENT-CHILD RELATIONSHIP. R. Shyu. Human Sciences

Asian American (AA) immigrants are at higher risks for mental health issues stemming from acculturative stress and compounded historical trauma, discrimination, and racism, but are among the lowest mental health seeking populations. Support for and greater understanding of family processes and ethnic and culture identity formation are needed. Utilizing narrative inquiry, this research explores the experiences of 2nd generation Asian American children in communication with their 1st generation parents about their family’s historical trauma contextualized in sociopolitical events and personal narratives. Findings will provide insight into AA historical trauma remembrance and resilience, AA parent-child communication processes, and personal meaning-making of historical trauma experiences. A review of literature, study methodology, data collection, and preliminary data analysis will be discussed. (Faculty Sponsor: Dr. Aaron Norton)

Supported by TWU Center for Student Research.

26. THE OAK TREE AND THE YELLOW ROSE IN HEARNE: GERMAN PRISONERS OF WAR IN A SMALL-TOWN TEXAS CAMP, AND THE RESIDENTS IN THEIR SHADOW. C. Wood. Social Sciences and Historical Studies

During World War II, one of many responsibilities for the United States in wartime included the interring and treatment

of Axis prisoners of war. Texas was a popular site for POW camps due to its similar climate to areas in which the soldiers were captured, as well as its central location away from military installations. Up to thirty installations were constructed throughout the state, primarily outside of small towns, leaving thousands of small-town residents to come to grips with the enemy in their own backyard. While most academic writings focused mostly on the camps themselves, this research aims to look into the societal and social impacts of these residents in the towns themselves, through primary sources including oral interviews and newspaper archives. (Faculty Sponsor: Professor Aubri Thurmond)

27. WHITE POWER GROUPS AND THE RECRUITMENT OF VIETNAM WAR VETERANS. C. Rosas. Social Sciences and Historical Studies

Many historians have attempted to trace the origins of the White Power movement, most recently historian Kathleen Belew's argues that the Vietnam War was the foundation of the White Power movement. While much research has been done on White Power's leaders, more inquiry into the personal motivations behind recruited Vietnam veterans is needed. Interviews from oral history organizations like Witness to War and The Vietnam War: Oral History reveal racial attitudes during Vietnam and how veterans were targeted by White Power leaders. These groups recruited veterans by appealing to racist rhetoric, targeting veterans that returned to civil unrest, and co-opting the betrayal from the public that many veterans felt which morphed into racial prejudice. However, further scholarship is needed as interviews with former White Power activists remain rare. By understanding the motivations of recruited veterans, this project seeks to identify how White Power groups have continued to evolve in the 21st century. (Faculty Sponsor: Professor Aubri Thurmond)

28. WOMEN LEAD THE WAY. L. Rosen, G. Reese, D. Dias. Social Work, Psychology, and Philosophy

Women are increasingly pursuing entrepreneurial endeavors. A report from the U.S. Small Business Administration Office of Advocacy (2024) indicates that women own approximately 44% of small businesses in the United States. In the United States, women of color made up 89% of all small businesses before COVID (Stewart, 2023). Here in the states there are 14 million woman-owned businesses (Founder report, 2026) which are a driving force in the US economy, accounting for approximately 39% of all enterprises (NWBC,2024). The current study focuses on the experience of female entrepreneurs. Based on NWBC (2026), women entrepreneurs contribute a large sum of 3.3 trillion dollars annually in revenue which makes up about 6.2% of total revenue nationally. For our study, we interviewed 16 women in entrepreneurship. Thematic analysis was conducted to identify themes surrounding challenges women face as business owners. Implications and future directions will be discussed. (Faculty Sponsor: Dr. Lisa Rosen)

29. WORDS OF GROWTH: LANGUAGE AS A WINDOW INTO THERAPIST'S CLINICAL THINKING DURING DELIBERATE PRACTICE. A. Harris, A. Jones. Human Sciences

How do therapists know they are growing? This research examines how clinicians' language reveals shifts in clinical thinking during deliberate practice. Drawing from a study on the intentional practice of core psychotherapy skills, we analyze how therapists respond to challenging clinical vignettes and how their decision-making (mental models) evolves with repeated practice. Findings highlight patterns in the development of clinical reasoning, attunement, and reflective self-of-the-therapist awareness, offering insight into how therapist growth unfolds over time. (Faculty Sponsor: Dr. Adam Jones)

Supported by TWU Experiential Student Scholars Program.

ABSTRACTS FOR VIRTUAL PRESENTATIONS
Abstracts are listed in the department of faculty sponsor

All presentations take place via Zoom – see program schedule on last page for link.

Session 1. Tuesday, April 21, 9:00 am – 10:20 am
Moderated by Tom Guffey

1. BEYOND STANDARDIZATION: DESIGNING STUDENT-CENTERED CLASSIFICATION IN JAPANESE SCHOOL LIBRARIES. A. Nakata. Library and Information Studies

This presentation explores how Japanese School librarians modify classification systems to create a more learner-centered environment. In Japan, the Nippon Decimal Classification (NDC) is the national standard, modeled after the Dewey Decimal Classification (DDC) commonly used in U.S. libraries. However, strict academic standards can sometimes scatter related books, making it difficult for students to browse. This qualitative case study analyzes five specific adjustments in a secondary school library: reclassifying anthologies by author, grouping country-specific materials, placing manga by original subject, moving educational resources to subject shelves, and interfiling Japanese and English books by topic. These practices prioritize student discovery and the school curriculum over rigid library rules. Overall, this presentation provides a practical framework for creating more intuitive, accessible libraries for young learners. (Faculty Sponsor: Dr. Priya Kizhakkethil)

2. NEONATAL INTENSIVE CARE SIMULATION-BASED EXPERIENCE. C. Dozier. Nursing - Dallas

While in nursing school, a small cohort of nursing students develop an interest in pursuing a career in the Neonatal Intensive Care Unit (NICU). In many colleges of nursing, in the United States, adult population health care is a primary focus and students' exposure to the neonatal population is minimal. However, nursing students at Texas Woman's University- Houston campus have an opportunity to experience a glimpse of the life of a NICU nurse through a simulation-based learning activity. The use of interactive patient learning simulation scenarios will create a sense of realism for students. The simulation will contribute to the development of critical thinking, emotional awareness, and confirmation of future career interests. Furthermore, the simulation will add to the literature by incorporating data from initial survey modeled after the Likert scale. Lastly, following the conclusion of the simulation the post-survey will be mirrored after the Simulation Effectiveness Tool. (Faculty Sponsor: Dr. Cecilia Wilson)

3. THE ROLE OF CODE BLUE SIMULATION IN ENHANCING NURSING STUDENT CONFIDENCE. P. Whitley, C. Wilson, L. Kubin, B. Baudler. Nursing - Dallas

Code Blue events are high-acuity, low-frequency clinical emergencies in which timely nursing intervention is critical to patient survival. However, undergraduate nursing students rarely participate in Code Blue situations during clinical rotations, resulting in limited exposure to emergency management and inadequate preparation for real-world practice. This educational gap is especially significant for final-semester students transitioning into professional roles. The purpose of this study is to examine learner perceptions of satisfaction and self-confidence following participation in a Code Blue simulation embedded in the N4032 Integration Lab III course at Texas Woman's University. The study will use pre- and post-simulation administration of the National League for Nursing Student Satisfaction and Self-Confidence in Learning Scale. The pre-simulation survey will assess students' expectations, while the post-simulation survey will measure perceived learning outcomes. Survey data will be summarized to describe changes in self-reported confidence and satisfaction associated with the simulation experience for nursing education. (Faculty Sponsor: Dr. Cecilia Wilson)

4. ADOLESCENT SELF-MANAGEMENT AND AUTONOMY OF CHRONIC CONDITIONS: A SCOPING REVIEW. M. Morton, E. Isik, B. Haynes, S. Sayma, N. Fredland, J. Bruzzese. Nursing - Houston

Adolescents with chronic conditions are expected to become more independent, develop self-management skills, and assume responsibility for managing their chronic condition. The research question is: How do adolescents with chronic conditions perceive autonomy and responsibility in decision-making, goal setting, and taking action to manage their chronic illness? This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guidelines. Databases searched included CINAHL, APA PsycARTICLES, PubMed, Nursing and Allied Health Database, Scopus, and Embase. Thirty studies were included in the final synthesis. Four main categories identified: navigating responsibility transfer and regression, communication and support for readiness, emotional turmoil and identity adaptation, and emerging autonomy in action. Adolescents face many challenges as they assume responsibility for managing their chronic condition. This highlights the importance of consistent support and guidance in fostering and sustaining their emerging autonomy in care. (Faculty Sponsor: Dr. Elif Isik)

Supported by NIH NHLBI R15 HL165313.

5. CLINICAL RELATIONSHIPS AMONG GASTROINTESTINAL SYMPTOMS AND QUALITY OF LIFE IN ADULTS WITH PRIMARY AUTONOMIC DISORDERS (DYSAUTONOMIA). T. Leakey, D.

Miketinas, C. Ireton-Jones, H. Everts, M. Patterson, K. Davis. Nutrition and Food Sciences - Denton

Primary autonomic disorders (dysautonomia) are characterized by dysfunction of the autonomic nervous system and frequently involve significant gastrointestinal (GI) symptom burden. These symptoms—including nausea, early satiety, bloating, constipation, diarrhea, and abdominal pain—can substantially impair daily functioning and psychosocial well-being. However, the clinical relationships between GI symptom severity and quality of life (QoL) in adults with primary autonomic disorders remain underexplored. Phase 1 of this study examines the associations among GI symptom burden and patient-reported QoL outcomes in a cohort of adults diagnosed with primary autonomic disorders. Validated instruments were used to assess GI-related functional impact and multiple domains of QoL, including social participation, emotional distress, and fatigue. The purpose was to characterize associations among GI symptoms, QoL, and healthcare utilization, and to explore subgroup differences. Understanding these relationships may inform targeted, multidisciplinary interventions aimed at improving patient-centered outcomes in this medically complex population. (Faculty Sponsor: Dr. Kathleen Davis

6. ENHANCED GAIT VARIABILITY INDEX FOR FALL RISK IN NEUROLOGICAL AND AGING POPULATIONS: A SCOPING REVIEW. M. Wang, P. Karakkattil. Physical Therapy - Dallas

The Enhanced Gait Variability Index (eGVI), introduced in 2018, quantifies stride-to-stride variability while reducing redundancy in indices, yet its clinical application in neurological and aging populations remains underexplored. The objective of this study is to map and synthesize evidence on eGVI application in neurological and older adult populations, emphasizing gait assessment protocols and reference standards. A scoping review following PRISMA-ScR guidelines searched PubMed, CINAHL, Scopus, Emcare, and Web of Science. Peer-reviewed studies reporting eGVI outcomes were screened, and data were extracted on participant characteristics, gait protocols, and outcomes. Eighteen studies involving 1915 participants were included, most examining Parkinson's disease (39%) and older adults (22%). eGVI detected age-related gait decline, neurological impairment, and increased variability during dual-task walking. However, heterogeneity in instrumentation, walking conditions, and populations limited comparability across studies. eGVI shows promise as a gait biomarker, but standardized protocols and age-specific norms are required for clinical implementation. (Faculty Sponsor: Dr. Priya Karakkattil)

Supported by TWU Experiential Student Scholars Program.

7. QUALITY ASSESSMENT OF GARMIN VIVOACTIVE 5 FITNESS TRACKER. J. Roos, S. Lin, K. Mitchell, J. Thomas, K. Froehlich-Grobe. Physical Therapy - Dallas

Individuals with chronic disease, like those living with spinal cord injury, have a more sedentary lifestyle due to muscle paralysis in the trunk and the lower body limiting their ability to walk. Digital fitness trackers worn on the body have enhanced monitoring and are now including wheelchair physical activity. Promoting physical activity with a fitness tracker might enhance a person with a spinal cord injury (SCI) to participate in daily activities. The Garmin fitness tracker can track movement and heart rate for wheelchair users. However, its reliability of movement tracking and the validity of heart rate monitoring in individuals with SCI have not been reported. The purpose of the study was to examine: (1) the test-retest reliability of Garmin vivoactive 5 fitness tracker on wheelchair push counts during the six-minute push test with a manual wheelchair, and (2) the validity of heart rate monitoring of the tracker in community-dwelling adults with a chronic SCI. (Faculty Sponsor: Dr. Suh- Jen Lin)

Supported by TWU Center for Student Research.

8. BRINGING THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) EXERCISE IS MEDICINE - ON CAMPUS (EIM-OC) PROGRAM TO THE TWU HOUSTON CAMPUS: PROJECT IMPLEMENTATION AND ASSESSMENT PHASES. M. Griffin, A. Zimmer. Physical Therapy - Houston

Graduate and professional students at Texas Woman's University (TWU) Houston face high academic demands, stress, and limited access to structured wellness programming, despite studying on a campus with strong health-professional resources. This project addressed that gap by implementing the American College of Sports Medicine's Exercise is Medicine® On Campus (EIM-OC) initiative through TWU's Health and Wellbeing Initiative (HWI). Using Phases 1–8 of the PRECEDE–PROCEED Model, historical data and current needs assessments across disciplines informed program planning, implementation, and evaluation. Findings guided the development of a Houston-specific EIM-OC resource toolkit designed for full academic-year implementation, leveraging the Houston campus's resources, interdisciplinary student body, and existing wellness infrastructure. Interventions included peer-led movement opportunities, flexible participation options, and integration of physical activity into campus culture. Collaboration with HWI ensured alignment with institutional priorities and sustainability. This scalable model establishes a foundation for expansion of EIM-OC to TWU Denton and Dallas campuses. (Faculty Sponsor: Dr. Rupal Patel)

Supported by TWU Jane Nelson Institute for Women's Leadership and TWU Quality Enhancement Plan (QEP).

Session 2. Tuesday, April 21, 2:40 – 4:00 pm

No virtual presentations during this presentation time.

Session 3. Tuesday, April 21, 6:00 pm – 7:20 pm
Moderated by Ryan Hulla

1. AMPLIFICATION, ACCESS, AND ACHIEVEMENT: UNLOCKING JESSICA'S POTENTIAL. L. Boyd. Communication Sciences and Oral Health

In this case study, I will be discussing a third-grade student I'll refer to as Jessica. Jessica is an 8-year-old student who attends the Wichita Falls Regional Day School Program for the Deaf and Hard of Hearing. She communicates using SimCom (Simultaneous Communication)—signed and spoken English—and relies on bilateral hearing aids, though not consistently. I chose Jessica for this project because her profile highlights how inconsistent access to sound can significantly impact language, academics, and communication development. This case helped me deepen my understanding of the relationship between hearing technology, communication modes, academic instruction, and family needs. It pushed me to think critically about designing interventions that address real barriers to learning." (Faculty Sponsor: Dr. Leanna Hodges)

2. TEACHER COLLABORATION AND SELF-EFFICACY: A LITERATURE REVIEW. K. Njoku-Ibe. Literacy and Learning

Collaboration between general and special education teachers is frequently framed as joint instructional planning, while much of the literature emphasizes disconnect and role ambiguity between the two groups. Despite extensive discussion of barriers, there is limited research identifying research-supported collaborative methods or clear articulation of what successful collaborative relationships entail. This analysis examines how collaboration is defined in the literature and considers whether effective practices may already reflect principles aligned with self-efficacy and experiential learning theory, even if not explicitly conceptualized as such. The analysis seeks to clarify how effective, research-supported collaboration between general and special education teachers may be understood in practice. (Faculty Sponsor: Dr. Lin Moore)

3. SKIN-TO-SKIN CARE EDUCATION IN CARDIAC INTENSIVE CARE UNIT. A. Echeverri. Nursing - Dallas

Skin-to-skin care (SSC), also known as kangaroo care, is an evidence-based practice shown to improve physiologic stability, reduce stress, and promote parent–infant bonding. Despite these benefits, SSC implementation for infants with congenital heart disease (CHD) in the Cardiac Intensive Care Unit (CICU) remains inconsistent due to patient acuity and staff uncertainty. This quality improvement project aims to enhance nursing knowledge, confidence, and consistency in SSC delivery by developing an evidence-based SSC decision tree and providing targeted small-group education. A prospective pre–post design will be used to assess nursing readiness and confidence using a validated survey instrument, approved for use by its author, Dr. Lisanti. Baseline surveys will be completed before implementation, and follow-up surveys will be administered 4–6 weeks after the education. This initiative seeks to address a practice gap and promote evidence-based, family-centered care in the CICU. (Faculty Sponsor: Dr. Cecilia Wilson)

4. SEIZURE FIRST AID FOR HEALTHCARE STUDENTS. M. Santos. Nursing - Dallas

Seizures are a common neurological emergency that can occur in both clinical and community settings, making prompt and appropriate first aid essential for patient safety and improved outcomes. This virtual educational presentation aims to equip healthcare students from diverse disciplines with foundational knowledge and practical skills in seizure first aid. Key topics include recognizing different types of seizures, ensuring patient safety during an event, appropriate response actions, when to activate emergency medical services, and common misconceptions about seizure care. Emphasis is placed on interprofessional collaboration and the role of healthcare providers in promoting safe, evidence-based seizure management across settings. By increasing awareness and confidence, this session seeks to empower future healthcare professionals to respond effectively and compassionately when encountering individuals experiencing a seizure. (Faculty Sponsor: Dr. Cecilia Wilson)

5. DETECTION AND ANALYSIS OF FRAUD IN HEALTHCARE. B. Bhattarai. Sciences – Computer Sciences

The United States loses tens of billions of dollars each year to health care fraud, and the claims fraud remains a significant contributor to rising health care costs nationwide. Healthcare claims or billing fraud occurs when providers misuse billing practices to increase reimbursement. Detecting fraudulent claims is challenging due to the complexity of billing structures and the large volume of claims. Procedure codes may be overutilized to reflect more complex or costly services than provided, prescriptions and medical procedures may also be over prescribed or inappropriately prescribed. In some cases, providers unbundle services that should be billed under a single bundled reimbursement rate. Fraud can also involve fraudulent billing and double billing for the same service. Therefore, healthcare claim fraud detection and analysis are important to protect the integrity of the healthcare system and to promote ethical practices among providers. This Capstone project examines how healthcare fraud patterns

vary across different claim types at the procedure level. (Faculty Sponsor: Dr. Jian Zhang)

6. THE EVOLUTIONARY PATH OF THE PYTHAGOREAN THEOREM. S. Mendoza. Sciences – Mathematics

The following research will explore the history of the Pythagorean Theorem with a focus on its influence on modern computational number theory. We will begin with the Old Babylonian tablet, Plimpton 322, which lists sets of numbers that correspond to right triangles. We will examine how Babylonians were able to work with Pythagorean triples without a formal mathematical theorem. We will also show how early examples of mathematics, such as the Plimpton 322, influenced later mathematical thoughts, including Greek geometric interpretations and other algebraic formulations. Overall, the goal of this research is to show that the Pythagorean theorem is not only a geometric result, but also a foundational idea that allowed the evolution of simple number patterns into what we know today as modern number theory. (Faculty Sponsor: Dr. Ellina Grigorieva)

7. ZIP CODE INEQUITY: HOW SCHOOL BOUNDARIES SHAPE EDUCATIONAL OPPORTUNITY. L. Lindley. Teacher Education

This study examines how school attendance boundaries function as policy instruments that produce and sustain ZIP code–based educational inequity. Focusing on two elementary schools in Houston, Texas, located less than three miles apart, the research highlights stark disparities in access to educational opportunities, including gifted programming, English learner support, and Title I resources. Using a mixed-methods approach that integrates demographic analysis, publicly available school data, and GIS mapping, this study demonstrates how geographic boundaries shape access to opportunity and reinforce structural inequality. Findings suggest that these disparities are not incidental but are embedded within policy decisions governing school zoning and resource allocation. A comparative lens, including insights from Estonia's equity-focused education system, informs potential pathways toward more equitable policy design. (Faculty Sponsor: Dr. Jerry Ausburn)

Supported by TWU Center for Student Research.

Session 4. Wednesday, April 22, 9:00 am – 10:20 am
Moderated by Jessie Brauer

1. CROSS-CULTURAL AND LANGUAGE COMMUNICATION IN NEONATOLOGY: IMPLICATIONS FOR FAMILY-CENTERED AND EQUITABLE CARE. A. Rathod, D. Rigoberto. Health Care Administration

Infants admitted to the neonatal intensive care unit (NICU) experience significant medical stress, while their parents are expected to comprehend complex information and participate in critical care decisions. Effective communication is essential to family-centered and equitable care; however, language barriers, limited health literacy, and differing cultural beliefs can hinder understanding and collaboration. This study examines how linguistic and cultural factors affect communication, parental understanding, and decision-making in the NICU. A narrative review will analyze evidence on interpreter use, communication barriers, and culturally responsive care. Although professional interpreters improve communication, their use is inconsistent due to time constraints, limited resources, and inadequate training. Cultural differences in parental roles may also contribute to miscommunication and mistrust. This study aims to increase understanding of factors influencing communication in the NICU and to inform strategies to improve equitable, family-centered communication and care for NICU families. (Faculty Sponsor: Dr. Rigoberto Delgado)

2. A COMMUNITY-BASED PARTICIPATORY APPROACH TO DEVELOPING AN ADOLESCENT-LED INSTRUMENT FOR ASTHMA SELF-MANAGEMENT. L. Runyon, E. Isik, N. Fredland, M. Morton, S. Sayma, N. Tsering, J. Bruzzese. Nursing - Houston

Understanding adolescents' autonomy in asthma self-management is critical to improving their behaviors. To our knowledge, there are no adolescent-led asthma self-management instruments. The aim of this study was to develop an instrument for asthma self-management. A multistep process using a community-based participatory research approach was used, involving three adolescents to develop the survey items. Forty-one items were initially developed. Content validity was established with 17 experts. Thirty-eight items were finalized for the instrument. Exploratory factor analysis (N=157) yielded a 15-item questionnaire explaining 45.12% of the total variance. Confirmatory factor analysis, construct validity, and test-retest reliability (N=150) are underway. This innovative instrument bridges a critical gap in adolescent self-management and can be employed by researchers and clinicians to tailor interventions, track behaviors, and enhance asthma outcomes for adolescents. (Faculty Sponsor: Dr. Elif Isik)

Supported by NIH NHLBI R15 HL165313.

3. QUALITY IMPROVEMENT INITIATIVE: NCLEX CLINICAL JUDGMENT STRATEGY WORKSHOP. C. Farris. Nursing - Houston

The transition to the Next Generation NCLEX (NGN) has intensified the emphasis on clinical judgment as a core

competency for entry-level nursing practice. Despite curricular focus on clinical reasoning, many pre licensure students struggle to apply structured decision-making processes in high-stakes testing environments. This Quality Improvement initiative proposes a focused, two-hour NGN Clinical Judgment Strategy Workshop grounded in the National Council of State Boards of Nursing Clinical Judgment Measurement Model. The workshop integrates NGN-style case studies, guided strategy instruction, and structured debriefing to strengthen students' ability to recognize cues, analyze data, prioritize hypotheses, generate solutions, take action, and evaluate outcomes. Effectiveness will be evaluated using pre- and post-assessment scores and self-efficacy surveys. This initiative aims to enhance testing readiness, improve confidence, and provide a scalable instructional model to strengthen clinical judgment preparation in nursing education. (Faculty Sponsor: Dr. Cecilia Wilson)

4. ROOTED IN EQUITY: EXPLORING HAIR, HEALTH, AND HOLISTIC PRACTICE. M. Hardy, A. Sullivan , M. Yousef. Occupational Therapy - Dallas

Rooted in Equity: Exploring Hair, Health, and Holistic Practice examines health professional students' awareness, comfort, and readiness regarding inclusive hair care. Defined as the recognition and support of diverse hair types and cultural practices, inclusive hair care is a vital component of holistic personal care. This project aims to provide health professional students with entry-level skills on inclusive hair in preparation for clinical practice through culturally responsive education and training experiences. Using a pre- and post survey design, this research assesses participants' awareness, comfort, and readiness before and after an in-person skills training session. The intervention focuses on developing practical skills, knowledge, and experience to foster equitable healthcare. Additionally, this study evaluates the feasibility, acceptability, and appropriateness of such training to future healthcare providers in delivering inclusive care to diverse patients. (Faculty Sponsor: Dr. Anne Sullivan)

Supported by TWU Center for Student Research.

5. NON-EUCLIDEAN GEOMETRY: PAST, PRESENT, AND FUTURE APPLICATIONS. D. Hademenos. Sciences – Mathematics

Non-Euclidean geometry developed in the 19th century by challenging Euclid's parallel postulate, and in so doing introduced hyperbolic and elliptic geometries that explore curved spaces. This field has become essential in modern science and technology, underpinning Einstein's theory of relativity, GPS navigation, computer graphics, and architectural design. As we advance, non-Euclidean geometry will play a key role in quantum physics, cosmology, and virtual reality, enabling the modeling of complex, non-flat spaces. This presentation will explore the historical development, current significance, and future potential of non-Euclidean geometry, highlighting its impact on our understanding of the universe and its practical applications in technology and daily life. (Faculty Sponsor: Dr. Ellina Grigorieva)

6. SYSTEMATIC LITERATURE REVIEW PROPOSAL: THE CRIMINALIZATION OF MENTAL ILLNESS IN COMMUNITY SUPERVISION. S. Anyim. Social Sciences and Historical Studies

This systematic literature review examines how mental illness shapes outcomes among individuals on probation and supervised release, with particular attention to technical violations and institutional responses. Sociological and criminological scholarship increasingly conceptualizes community supervision as an extension of social control, wherein mental illness is regulated through compliance-oriented institutional frameworks. This review synthesizes empirical research on how mental health conditions influence supervision outcomes, including heightened surveillance, increased risk of violations, and differential institutional intervention. It also evaluates how structural factors, such as access to treatment and institutional legitimacy, mediate these outcomes. By identifying theoretical convergences and empirical gaps, this review contributes to broader sociological discussions on criminalization, governance, and the management of marginalized populations within community-based correctional systems. (Faculty Sponsor: Dr. Paul Bones)

7. GRAPHIC NARRATIVE SOCIOLOGY AS A TOOL FOR AUTOETHNOGRAPHIC RESEARCH.. A. Morales. Social Sciences and Historical Studies

Autoethnography is a qualitative method used by sociologists to inquiry personally-lived phenomena through narrative storytelling, and use of analytical tools like retrospective sensemaking and theory to understand socially-constructed realities. An effective autoethnography captures the reader's interest, revealing some truth that is relatable and conveyed with an emotional impact. In this presentation, my goal is to show how art (using the sequential graphic novel panel format), sociological theory and research methods can be combined in a visual narrative to explore sociological topics and engage readers. By combining the concepts of Gloria Anzaldúa's seven stages of conocimiento (a transformation process though borderlands to re-emerge with a reconstructed worldview), feminist theory (gender policing, intersectionality), and autoethnographic reflexivity, I look back at my experiences with bullying and pressures to conform in school as the son

of Mexican immigrants with shaky grasp of the English language and how I navigated the borderlands of identity. (Faculty Sponsor: Dr. Paul Bones)

8. EXPLORING FORMAL AND INFORMAL SUPPORT SYSTEMS AMONG NON-TRADITIONAL STUDENTS IN ONLINE HIGHER EDUCATION. B. Wesley. Teacher Education

This proposed qualitative phenomenological study explores how non- traditional students enrolled in fully online higher education programs use formal and informal support systems to persist toward their educational goals. As online learning continues to expand access for adult learners, non-traditional students often navigate complex academic, personal, and professional responsibilities while relying on varied sources of support. The study will examine students' lived experiences with institutional supports, such as advising and faculty interactions, as well as informal and external supports, including family, peers, and community resources. Data will be collected through semi-structured interviews with non- traditional students enrolled in online programs and analyzed using phenomenological methods to identify shared meanings and themes. Findings from this study aim to contribute to a deeper understanding of how support systems function in online learning environments and to inform more inclusive and responsive institutional practices for non-traditional undergraduate and graduate student populations. (Faculty Sponsor: Dr. Laura Trujillo-Jenks)

Session 5. Wednesday, April 22, 2:40 pm – 4:00 pm
Moderated by Wanyi Wang

1. CRITICAL CONTEMPLATIVE PEDAGOGIES: EMBODIED APPROACHES TO REPARATIVE INTERVENTIONS. J. Hahn. Arts and Design – Dance

This research presentation examines critical approaches to contemplative pedagogy during an interdisciplinary, multi-site qualitative case study. The overarching project investigates how artists in dance, somatic education, and activism practice and manifest contemplative pedagogy while identifying its definitions, characteristics, and emergent patterns. Drawing on ethnographic and archival research, I focus specifically on choreographer Bill T. Jones's solo Floating the Tongue (1978) as a performance that challenges the historical and institutional regulation of moving bodies. I analyze the performance as a site of contemplative inquiry by tracing how the dancers embody responsive strategies that question dominant ideological systems. Throughout this analysis, I will demonstrate how critical approaches to contemplative pedagogy serve as a methodological framework for my research. This presentation situates Floating the Tongue in conversation with the other case studies and discusses how contemplative engagement operates as a praxis of intervention and care. (Faculty Sponsor: Dr. Adesola Akinleye)

Supported by TWU Center for Student Research.

2. THE NEXGEN NURSE PROJECT: A NURSING CAREER READINESS INITIATIVE. E. Miller. Nursing - Dallas

The United States faces a critical nursing shortage caused by workforce burnout, nurse retirement, limited nurse educator capacity, and a declining pipeline of new nurses. The Nexgen Nurse Project: A Nursing Career Readiness Initiative seeks to increase awareness, interest, and preparedness for nursing careers among elementary schools, secondary schools, community college, and university students, particularly those with limited exposure to the profession. The initiative will utilize a portion of the TWU Reimagining and Improving Student Equity in Nursing (RISE) grant, targeted nurse education, career fair participation, collaboration with school counselors, educational materials, and a structured outreach program. Expected outcomes include improved understanding of nursing career pathways, active recruitment, positive perceptions of the profession, and increased interest in TWU College of Nursing. Data will be collected through post-surveys, and tracking over six months to evaluate project effectiveness. (Faculty Sponsor: Dr. Cecilia Wilson)

Supported by US Dept of Education Award P031S230041 (RISE).

3. IMPROVING SAFE SLEEP EDUCATION IN NURSES IN THE ACUTE CARE CLINICAL SETTING. N. Spillars. Nursing - Dallas

During the hospitalization of infants, nurses play an important role in educating parents on safe sleep practices (SSP). The purpose of this project is to provide nursing education through the use of simulation to reinforce and increase the confidence & knowledge levels of nurses in the use of SSP to educate parents and promote safe sleep environments for infants. During the tabletop simulation nurses will encounter scenarios demonstrating unsafe sleep practices, such as parents co-sleeping on the couch with the infant, or an unsafe crib environment. Nurses will participate in pre-and post-briefing sessions. Throughout the simulation they will be expected to display therapeutic communication and utilize teach-back educational methods about SSP. Pre-and post-surveys will be used to collect data looking at knowledge and self-confidence in the use of SSP. (Faculty Sponsor: Dr. Cecilia Wilson)

4. REVIEW OF UTILIZATION OF RICOEURIAN HERMENEUTIC PHENOMENOLOGICAL ANALYSIS IN NURSING RESEARCH. J. Rijal, Freysteinson, W.M. is also an author of this integrative review. Nursing - Houston

This integrative review examined the use of Ricoeurian hermeneutic- phenomenological analysis in nursing research. Using Whittemore and Knafl's integrative review design and PRISMA guidelines, CINAHL, Academic Search Complete, PubMed, and Web of Science were searched without time limits. Original English-language studies applying Ricoeur's philosophy in data analysis were included. Fifteen studies published between 2011 and 2025 met the criteria. Findings indicate that while Ricoeurian analysis is widely cited and used to explore lived experiences across nursing contexts, the full depth of Ricoeurian philosophy is not consistently followed and articulated in analytic procedures. Most studies applied the naïve reading, structural analysis, and comprehensive understanding framework. Reporting of reflexivity and philosophical rigor varied, and authorship was concentrated among a few researchers. A broader application, involvement of diverse researchers, and stronger philosophical fidelity are recommended. (Faculty Sponsor: Dr. Wyona Freysteinson)

Supported by TWU Experiential Student Scholars Program.

5. BRIDGING NEUROPLASTICITY AND OCCUPATIONAL THERAPY: A SCOPING REVIEW OF OT-DELIVERABLE INTERVENTIONS WITH MEASURABLE NEURAL OUTCOMES. J. Marchant. Sciences – Environmental Science

Recent advancements in neuroscience have greatly expanded our understanding of neuroplasticity, demonstrating that the brain can adapt and reorganize in measurable ways after injury. However, much of the occupational therapy rehabilitation literature continues to emphasize improvements in task performance without clearly showing whether those changes reflect underlying brain reorganization. This gap between what neuroscience now reveals and what is commonly reported in occupational therapy research limits how confidently neuroplasticity principles can be applied in practice. This project addresses this gap through a scoping review that brings together studies using objective, brain-based measures to examine neuroplastic change associated with occupational therapy interventions. By mapping therapy approaches alongside direct evidence of brain reorganization, this work aims to support more intentional, neuroscience- informed intervention planning by practicing occupational therapists, subsequently helping individuals with stroke and traumatic brain injury. (Faculty Sponsor: Dr. Diana Elrod)

6. NO EXPECTATIONS: LEARNING FROM A LIFE WITH ACCESS NEEDS. E. Perlow. Social Sciences and Historical Studies

The author writes the author's own obituary: an autoethnographic study exploring universal lessons learned from living a life with developmental access needs with no expectations. The study presents insights from the author's 1) lifetime of personal experience living with such access needs and adapting to these needs' related functional limitations; and 2) the author's research and advocacy to promote accessibility, equity of access, and engagement with and writing about fellow self-identifying class members with access needs. The author's primary goal is to leave a legacy that promotes: 1) the truth of having access needs as a universal reality of human existence, thereby enabling proactive positive reframing of both class members' and society's perceptions of having access needs; 2) society's full integration of and respect for individuals with access needs; and 3) society's enlistment of particularly lifelong class members as exemplary mentors for individuals facing acquired access needs throughout the lifespan. (Faculty Sponsor: Dr. Jessica Gullion)

7. UNDERSTANDING SOCIAL LEARNING THEORY IMPACTS STUDENT'S LIFE. S. Campos. Social Sciences and Historical Studies

My research focuses on focuses on student's experiences and how well they adapt to their life. Students use the Social Learning Theory by Albert Bandura to understand how behavior can be learned through observations. Students are self-aware about people, or their own environment can influence their life. Identifying and resources are being used to help students with decision- making skills as a tool used to identify what leads to their educational, professional, and personal developments based their influences. This information is gathered through student's interviews and scholarly articles that address similar findings of students being exposed to social learning theory early on can impact their life. This research will show how there are ways to navigate systems that can assist student's experiences to form positive influences. In this research, I will highlight the importance of student's learning about the social learning theory can be used in the educational system. This awareness is to help student prepare themselves for life. (Faculty Sponsor: Dr. Angelica Ruvalcaba)

Session 6. Wednesday, April 22, 6:00 – 7:20 pm

No virtual presentations during this presentation time.

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LIST OF TWU COMPONENTS WITH STUDENTS PRESENTING

Arts and Design – Dance
Arts and Design – Music
Arts and Design – Visual Arts
Communication Sciences and Oral Health
Counseling and Development
Center for Research Design and Analysis
Health Care Administration
Health Promotions
Health Studies
Human Sciences
Kinesiology
Language, Culture, and Gender Studies
Library and Information Studies
Literacy and Learning
Nursing - Dallas
Nursing - Denton
Nursing - Houston
Nutrition and Food Sciences - Denton
Nutrition and Food Sciences - Houston
Occupational Therapy - Dallas
Occupational Therapy - Houston
Other
Physical Therapy - Dallas
Physical Therapy - Denton
Physical Therapy - Houston
Sciences – Biology
Sciences – Chemistry and Biochemistry
Sciences – Computer Sciences
Sciences – Environmental Science
Sciences – Mathematics
Social Sciences and Historical Studies
Social Work, Psychology, and Philosophy
Teacher Education

LIST OF FACULTY SPONSORS

Dr. Rima Abunasser (Language, Culture, and Gender Studies)
Dr. Adesola Akinleye (Arts and Design – Dance)
Dr. Kelly Albus (Sciences – Environmental Science)
Dr. Mary Anderson (Sciences – Chemistry and Biochemistry)
Dr. Jerry Ausburn (Teacher Education)
Dr. Dayna Averitt (Sciences – Biology)
Dr. Addison Babineau (Social Work, Psychology, and Philosophy)
Dr. John Beatty (Sciences – Chemistry and Biochemistry)
Dr. Michael Bergel (Sciences – Biology)
Dr. Renee Blanchard (Human Sciences)
Dr. Paul Bones (Social Sciences and Historical Studies)
Professor Laurie Bricker (Communication Sciences and Oral Health)
Dr. Francilia Brito-Silva (Other)
Dr. Christopher Brower (Sciences – Biology)
Dr. Gretchen Busl (Language, Culture, and Gender Studies)
Dr. Renee Buster (Health Studies)
Dr. Robin Conrad (Arts and Design – Dance)
Dr. Kathleen Davis (Nutrition and Food Sciences - Denton)
Dr. Rigoberto Delgado (Health Care Administration)
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Dr. Helen Everts (Nutrition and Food Sciences - Denton)
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Dr. David Gardner (Sciences – Computer Sciences)
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Dr. Dianna Hynds (Sciences – Biology)
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Dr. Shamsun Nahar (Social Work, Psychology, and Philosophy)
Dr. Aaron Norton (Human Sciences)
Dr. Manal Omary (Sciences – Chemistry and Biochemistry)
Dr. Mandana Pahlavani (Nutrition and Food Sciences - Denton
Dr. Rupal Patel (Physical Therapy - Houston)
Professor Sheli Petersen (Arts and Design – Visual Arts)
Dr. Lindsey Phillips (Communication Sciences and Oral Health)
Dr. Catalina Pislariu (Sciences – Biology)
Dr. Brandon (Rhett) Rigby (Kinesiology)
Dr. Alannah Shelby Rivers (Social Work, Psychology, and Philosophy)
Dr. Lisa Rosen (Social Work, Psychology, and Philosophy)
Dr. Ratonia Runnels (Social Work, Psychology, and Philosophy)
Dr. Angelica Ruvalcaba (Social Sciences and Historical Studies)
Dr. Gustavo Salazar (Sciences – Chemistry and Biochemistry)
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Dr. Alana Taylor (Sciences – Chemistry and Biochemistry)
Dr. Amy Teague (Communication Sciences and Oral Health)
Ms. Deborah Testerman (Communication Sciences and Oral Health)
Dr. Paul Thomas (Arts and Design – Music)
Dr. Micah Thornton (Sciences – Mathematics)
Professor Aubri Thurmond (Social Sciences and Historical Studies)
Dr. Laura Trujillo-Jenks (Teacher Education)
Dr. Yancy Ulbrich (Communication Sciences and Oral Health)
Dr. Wouter VanErve (Social Sciences and Historical Studies)
Dr. Danhui Wang(Nutrition and Food Sciences - Denton
Dr. Sharon Wang-Price (Physical Therapy - Dallas)
Dr. Genevieve West (Language, Culture, and Gender Studies)
Dr. Marlene Williams (Social Work, Psychology, and Philosophy)
Dr. Cecilia Wilson (Nursing - Dallas)
Dr. Jennifer Wilson (Nursing - Dallas)
Dr. Wen Xu (Sciences – Computer Sciences)
Dr. Jian Zhang (Sciences – Computer Sciences)

SCHEDULE OF EVENTS

Refreshments will be available in the Southwest Ballroom 2300 during all poster sessions. The registration table will be located outside the Student Union 2300 Southwest Ballroom.

Tuesday, April 21, 2026

8:00 a.m. – 10:00 a.m.	Experiential Student Scholars and McNair Scholars Breakfast Reception (invitation only)	Pioneer Center for Student Excellence Library 2nd Floor, Suite 220
9:00 a.m. – 10:20 a.m.	Poster Presentations Platform Presentations Virtual Presentations*	Student Union 2300 (Southwest Ballroom B) Student Union 2231 (A) and 2238 (B) Zoom (see complete link below)
10:30 a.m. – 12:00 p.m.	Celebration of Research for Graduate Council Award for Exceptional, Original Scholarship and Chancellor's Student Research Scholars	Student Union 2231
12:00 p.m. – 1:00 p.m.	Chancellor's Luncheon to Honor Student Research Scholars and Graduate Council Awardees (invitation only)	Student Union 2220 (Southeast Ballroom)
1:30 p.m. – 2:30 p.m.	Keynote Speaker: Stephanie Rodriguez, PhD	Student Union 2300 (Southwest Ballroom A)
2:40 p.m. – 4:00 p.m.	Poster Presentations and TWU Bettye Myers Butterfly Garden Photo contest Platform Presentations	Student Union 2300 (Southwest Ballroom B) Student Union 2231
6:00 p.m. – 7:20 p.m.	Poster Presentations Platform Presentations Virtual Presentations*	Student Union 2300 (Southwest Ballroom B) Student Union 2231 Zoom (see complete link below)

Wednesday, April 22, 2026

8:00 a.m. – 10:00 a.m.	Experiential Student Scholars and McNair Scholars Breakfast Reception (invitation only)	Pioneer Center for Student Excellence Library 2nd Floor, Suite 220
9:00 a.m. – 10:20 a.m.	Poster Presentations Platform Presentations Virtual Presentations*	Student Union 2300 (Southwest Ballroom B) Student Union 2231 Zoom (see complete link below)
1:00 p.m. – 2:30 p.m.	Amplify Your Impact Celebration and Panel Discussion	Student Union 2231
2:40 p.m. – 4:00 p.m.	Poster Presentations and TWU Bettye Myers Butterfly Garden Photo contest Platform Presentations Virtual Presentations*	Student Union 2300 (Southwest Ballroom B) Student Union 2231 Zoom (see complete link below)
6:00 p.m. – 7:20 p.m.	Poster Presentations Platform Presentations	Student Union 2300 (Southwest Ballroom B) Student Union 2231

* Virtual sessions on Zoom (https://twu-edu.zoom.us/j/85282085398?pwd=46tDkHg4mfXQYViMMH0kGbJv3ZKUJ9.1)