TEXAS WOMAN'S UNIVERSITY | APRIL 23-24

# 2024 Student Creative Arts & Research Symposium

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# Welcome

Welcome to the **2024 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 **2024 Annual Symposium**!

# Acknowledgements

The involvement and support of many people and departments across campus make the 2024 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 Artist

A special thank you goes to this year's Symposium Program cover artist, Abi Rainey. Abi is a mixed-media artist focused on exploring faith through personal memory and shared everyday experiences. Visually she walks the border between the material and the spiritual, manipulating layers of cut papers, paintings, and fabrics to create ethereal, narrative collages. Re-imagining motifs of Christian iconography such as halos and Madonna-like figures, Abi recontextualizes ancient traditions, raising questions of God's significance in contemporary human experiences. Adjacent to these concepts, she explores faith as it relates to the "everyday" - the connection between the common and the sacred, the ordinary and holy, the medial and the spiritual - and how these seemingly divergent impressions of daily life can exist in the same place and hold meaning for each other.

The cover work, *The Messengers*, is one of a series entitled Bondage/Bandage in which Abi explores visualizing the memory, pain, and forgiveness of the innermost being in collaged "soulscapes." This work in particular is a dual portrait of the artist and her mother, and deals with the overlap of generational love and hurt, pointing out that forgiveness has the power to redeem relationships.

Abi Rainey is from May, TX. She received her Bachelor's of Fine Art in Art Education with an All-Level Certification in 2020 from Howard Payne University in Brownwood, TX. Currently, she is in her second year at Texas Woman's University as a candidate for a Master's of Fine Art in Visual Arts. Upon graduation, she plans to pursue a career in higher education and illustration.

# TWU Bettye Myers Butterfly Garden Photo Contest

**Tuesday, April 23, 2024 (2:40 – 4:00 p.m.) and**
**Wednesday, April 24, 2024 (2:40 – 4:00 p.m.)**

**Student Union 2300 (Southwest Ballroom)**

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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# Graduate Council Award for Exceptional, Original Scholarship

**Cayla Clark, Ph.D. Candidate in Kinesiology**
**Cory Alcon, Ph.D. Candidate in Physical Therapy**
**Jayne Dunlap, Ph.D. Student, College of Professional Education**

These three students were selected by the Research Committee of the Graduate Council as recipients of the 2024 Graduate Council Award for Exceptional, Original Scholarship. Recipients receive a monetary award/scholarship and below is a summary of their research.

**Cayla Clark** is a PhD candidate in Kinesiology, with an area emphasis in exercise physiology. Her research interests are in therapeutic interventions for people with neurodegenerative diseases, with an interest in exercise and thermoregulation. Specifically, her dissertation research focus is on exercise and heat interventions for women with Parkinson's disease. She has been involved in several research studies at TWU since she began her degree and has presented at local, state, and national conferences from research as the primary investigator. In addition, she has published peer reviewed manuscripts as first author prior to dissemination of her dissertation, and has received internal and external grants for her research. Cayla truly believes that exercise is medicine, and aims to dedicate her research career to transforming the quality and quantity of lives for people with chronic disease.

**Cory Alcon**, PT, DPT, OCS is a physical therapist and PhD candidate in Physical Therapy, graduating in May 2024. His research focuses on investigating the relationships between pain behaviors and cognitive function in those with chronic musculoskeletal pain. Further, his research assesses the utilization of noninvasive brain stimulation techniques to prime the brain prior to receiving cognitive behavioral therapy techniques. His research has been presented at state and national conferences. He has three peer-reviewed publications throughout his PhD studies and has been funded through the Woodcock Institute for the Advancement of Neurocognitive Research and Applied Practice.

**Jayne Jennings Dunlap**, DNP, APRN, FNP-C, CNE, EBP-C is completing her first year as a PhD student in the Education, Leadership and Organization (ELO) Program in the College of Professional Education. Jayne is a practicing family nurse practitioner whose program of scholarship specially surrounds timely detection and treatment of children with autism spectrum disorder and is more broadly focused on decreasing research to practice translation times. Jayne has published in peer-reviewed journals, presented globally and is currently co-editing a graduate education textbook entitled: *Leading Evidence-Based Practice and Quality Improvement Initiatives in Advanced Nursing Practice: A Competency-Based Approach*. Jayne enjoys preparing nurse leaders in TWUs Doctor of Nursing Practice (DNP) program. Her research focus is DNP faculty scholarship outcomes, an area in which new scientific knowledge is urgently needed on a National scale.

# Chancellor's Student Research Scholars

# A Celebration of Research

**Tuesday, April 23, 2024, 10:45 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 2024 Honorees and their Faculty Mentors**:

**Doctoral Students**

Alcon, Cory (Physical Therapy – Dallas) ..... Dr. Sharon Wang-Price
Brown, Jace (Physical Therapy – Dallas) ..... Dr. Sharon Wang-Price
Kosel, Amanda (Language, Culture, and Gender Studies) ..... Dr. Jackie Hoermann-Elliott
Olaoluwa, Temiloluwa (Biology) ..... Dr. Dayna Averitt
Prajapati, Miteshri (Nutrition & Food Sciences – Houston)..... Dr. Kathleen Davis
Ratoza, Madeline (Physical Therapy – Houston)..... Dr. Rupal Patel
Rumpa, Mafia Mahabub (Biology) ..... Dr. Camelia Maier
Thorpe, Desiree (Language, Culture, and Gender Studies) ..... Dr. Jackie Hoermann-Elliott

**Masters Students**

Love, Elizabeth (Human Development, Family Studies, and Counseling ..... Dr. Brittany Huelett-Lyons
Randel, Hudson (Social Work, Psychology and Philosophy) ..... Dr. Elisa Na
Woodring, Daisy (Chemistry and Biochemistry) ..... Dr. Nasrin Mirsaleh-Kohan

**Undergraduate Students**

Adams, Juliet (Social Work, Psychology and Philosophy) ..... Dr. Alannah Rivers
Amundson, Kaitlyn (Nursing – Houston) ..... Professor Barbara Baudler
Mack, Alexandra (Nutrition & Food Sciences) ..... Dr. Kathleen Davis

# Keynote Speaker

# Roza Selimyan, PhD

## Teaching Professor and Executive Director of Academic Affairs and Educational Resources

## Johns Hopkins Bloomberg School of Public Health
## Department of Biochemistry and Molecular Biology

***Exploring Frontiers in Science and Self - A Journey of Discovery***

**Tuesday, April 23, 2024, 1:30 pm – 2:30 pm**
**Student Union 2231**

Roza Selimyan is a Teaching Professor and the Executive Director of Academic Affairs and Educational Resources at the Department of Biochemistry and Molecular Biology at the Johns Hopkins Bloomberg School of Public Health. She is also an adjunct senior lecturer at the Johns Hopkins Krieger School of Arts and Sciences and is a visiting professor at the American University of Armenia.

Selimyan earned her PhD in molecular biology from the University of Rostock (Germany) and her master's degree in genetics from Yerevan State University (Armenia). Her areas of expertise include epigenetics, development, cancer, and aging. After her graduate work, Dr. Selimyan was a postdoctoral fellow and, subsequently, a visiting scientist at the National Institutes of Health.

Since 2012, she has transitioned from scientific research to education. She teaches graduate and undergraduate students various including human molecular genetics, epigenetics, biology of cancer, biology of aging, psychosocial determinants of health, societal issues in biotechnology, and more. In addition, she has been supporting premedical students since 2014. She is a recipient of multiple awards for her research and education.

As a three-time cancer survivor, Dr. Selimyan has been an active promoter of health, science, and education in the United States and abroad.

## ABSTRACTS FOR PLATFORM PRESENTATIONS

**Abstracts are listed in the department of the faculty sponsor.**

**Session 1. Tuesday, April 23, 9:00 am – 10:20 am**
**Track A (Student Union 2231)**

**1. THE GENDER GAP IN S.T.E.M.** A. Myers, A. Rodriguez. Mathematics

The scarcity of women in S.T.E.M. originates in their youth due to insufficient amount of support in their educational and home environments. The stereotyping that men are more suited for challenging careers discourages young girls from pursuing S.T.E.M. This research will discuss issues leading to this ongoing problem. From counselors to family members, women who advance in their education see a decrease in promotion and motivation for S.T.E.M. programs compared to their male counterparts causing gender segregation. Whether intentional or not, a lack of familiarity in a room influences one's optimism when carefully choosing their next steps into a potential occupation. Furthermore, the lack of excellent role models and mentors exacerbates the alienation of the next generation of women who have aptitudes for STEM fields. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**2. HUMAN CYTOMEGALOVIRUS (HCMV) INFECTION REDUCES HORMONE RECEPTOR LEVELS IN BREAST CANCER CELLS.** E. Garcia, I. LaRue, J. Spencer. Biology

Breast cancer is the most commonly diagnosed cancer in women. One emerging factor that may influence the severity of breast cancer diagnosis is infection with the widespread virus, HCMV. We investigated the impact of HCMV infection on estrogen receptor-α (ERα), and the progesterone receptor (PR), which are important targets for breast cancer treatments. Patients whose tumors have low levels of these receptors have the poorest predicted outcomes. We found that ERα and PR levels in two breast cancer cell lines decreased significantly upon infection with HCMV. We also found that ERα and PR in these cells were not degraded during HCMV infection, but that expression of genes encoding ERα and PR were greatly reduced. Our future experiments will investigate whether downregulation of ERα and PR is dependent on viral replication. Ultimately, this work may help improve the precision of current breast cancer treatment modalities. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU Center for Student Research, TWU REP, Paup Foundation.

**3. TEACHING FINANCIAL LITERACY IN A DOCTOR OF PHYSICAL THERAPY PROGRAM USING FIVE STAGES OF CAREER DEVELOPMENT.** M. Ratoza, R. Patel. Physical Therapy – Houston

The purpose of this study was to understand the outcomes associated with a novel career planning and financial literacy workshop in a DPT program using a single cohort pre/post design and between subject analysis. The group of 55 participants that completed the post-workshop knowledge portion of the survey (M=87%, SD 220.72) demonstrated significantly better knowledge scores $t(124) = 7.44$, $p < .05$ compared to the group of 77 participants that completed the pre-workshop knowledge portion of the survey (M = 67%, SD 282.31). The group of 53 participants that completed the post-workshop confidence portion of the survey (M=35.79%, SD 27.09) demonstrated significantly improved confidence on the post-workshop survey $t(130) = 2.75$, $p < .05$ compared to the group of 79 participants that completed the pre-workshop confidence portion of the survey (M = 32.62,SD 64.57). A 1-hour workshop was effective at improving knowledge and confidence in financial literacy of DPT students. (Faculty Sponsor: Dr. Rupal Patel)

**4. IDENTIFYING PROTEIN QUALITY CONTROL PATHWAYS INVOLVED IN FRAGMENT CLEARANCE.** W. Lokuso, C. Brower. Biology

Protein aggregation is harmful to cells and results in disease. Hence, we need to pinpoint the cellular mechanisms involved in removing harmful proteins. Our research focuses on the human TAR DNA-binding protein 43 (TDP43), which is cleaved into fragments (e.g. TDP43219 and TDP43247) that are strongly associated with amyotrophic lateral sclerosis, frontal temporal dementia, and other forms of neurodegeneration. Previously, we discovered that TDP43247 is removed largely through the Arg/N-degron pathway in a manner that requires arginylation by Arginyltransferase 1. In subsequent work, we found that the Bcl-2-associated athanogene 6 (BAG6) participates in the degradation of TDP43219. Specifically, BAG6 inhibits TDP43219 aggregation and promotes its degradation by recruiting the ubiquitin ligase, RNF126. In the present work, we are investigating the E3 ligase identified by differential display (EDD, also called UBR5) as yet another pathway capable of preventing the aggregation of disease-linked fragments of TDP43. (Faculty Sponsor: Dr. Christopher Brower)

Supported by National Institute of Neurological Disorders and Stroke.

**Session 1. Tuesday, April 23, 9:00 am – 10:20 am**
**Track B (Student Union 2238)**

**1. FAMILY STORIES AS A TOOL TO UNDERSTANDING AND TEACHING PARENTING STYLES.** S. Bergman, N. Gillum. Human Development, Family Studies, and Counseling

This presentation is a literature review focusing on the importance that family stories can have on understanding parenting styles. This was accomplished through the lens of family life education. Goals are to define parenting styles, detail the relationship between family stories and parenting, and introduce a practical method of teaching this topic to families. (Faculty Sponsor: Dr. Nerissa Gillum)

**2. INGITION POINT MEASURE: M-PROBE REPLICATION OF SELI ET AL. (2016) STUDY.** C. Broomfield, A. Rivers, N. Garza,

H. Graley, L. Helms. Social Work, Psychology and Philosophy

Researchers measure thought probes by asking respondents to report their mental status retrospectively. Our study offers a new thought probe measurement: the M-Probe. The M-probe aids in identifying the ignition point of mind-wandering, allowing researchers to evaluate the awareness of mind-wandering, intentional or unintentional, adaptive or maladaptive, and whether the respondent can control the continuation of the mind-wandering episode. We replicated the research design of Seli et al. (2016), looking at mind-wandering types (intentional, unintentional) by manipulating the Sustained Attention to Response Task (SART) difficulty level (easy, difficult) across two condition groups (M-probe, no-M-probe). Study one included 92 respondents: 30 Texas Woman's University undergraduate students, SONA, and 62 convenience sample, non-SONA. We found a significant main effect in the relationship between mind-wandering (intentional, unintentional) and task (easy, difficult) $F(1,88) = 5.98$, $p = .02$. Study two has a target sample size of 250 SONA respondents and is still ongoing. (Faculty Sponsor: Dr. Alannah Rivers)

**3. UNJUST BUREAUCRACY: INCONSISTENCIES IN BOND CONDITION PROCEDURES AND THEIR IMPACT ON CRIMINAL DEFENDANTS' CONSTITUTIONAL RIGHTS AND LIBERTIES.** J. Covarelli. Social Sciences and Historical Studies

The temporary release of a criminal defendant pending trial, or bail, is a common but not uncontroversial occurrence: this aspect of criminal law raises important constitutional questions regarding society's competing interests in public safety and safeguarding individual liberties. This paper explores the implications of procedural inconsistencies in setting bond conditions and how these are presented to defendants. These inconsistencies make it more likely that defendants will unknowingly violate their bond conditions, opening themselves up to additional liability and possible incarceration ahead of or until trial, which is a significant curtailment of their individual liberties. Relying on original survey and interview data, this paper argues that procedures that do not allow for sufficient explanations of bond conditions may violate defendants' Fifth and Fourteenth Amendment due process rights and makes recommendations for proper and appropriate oversight, and proposes different avenues for procedural, due process assurance of a defendant's agreement to bond conditions. (Faculty Sponsor: Dr. Wouter Van Erve)

**4. EFFECTS OF NONINVASIVE BRAIN STIMULATION ON FACIAL EMOTION RECOGNITION IN YOUNG ADULTS WITH AUTISM.** M. Nishida. Communication Sciences and Oral Health

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by persistent difficulties in social communication and interaction, and by restricted, repetitive patterns of behavior, interests, or activities. Clinicians and researchers in many disciplines including speech-language pathology, psychology, and neurology have amassed new research and data with the aim to develop new treatments targeting behavior in ways that promote changes in the developing brain. Therapeutic approaches to supporting individuals with ASD are numerous and vary in their approaches, but all interventions share a universal goal of minimizing the impact of developmental challenges on functional abilities, participation, and quality of life, and of maximizing long-term independence in adulthood. This presentation will outline the methodology of a current pilot study examining the cognitive effects of applying noninvasive brain stimulation, namely, transcranial direct current stimulation (tDCS), to the dorsolateral prefrontal cortex (DLPFC) of young adults with ASD who are concurrently receiving social communication intervention. (Faculty Sponsor: Dr. Jyutika Mehta)

**5. LAYERS OF LIGHT: VISUAL ART AND PROJECTION IN THE CREATION OF A SCREENDANCE.** M. Rosenberger. Dance

This project explores ways to utilize video projection in the creation of a screen dance with choreographic phrases generated from a series of watercolor paintings. The research investigates the use of visual artwork as impetus for movement generation and engages with the idea of spatial design inspired by brushstrokes, positive and negative space between dancers, and camera movement in partnership with projection. A method of visual abstraction was used to guide the project. Visual abstraction refers to the representation of shape in dance, whether through the recreation of lines in the body or through the spatial pathways of the choreography. In this work the dancers recreated movements similar to those of the paintings' brushstrokes. Part of the process included assessment of the footage collected. The project had three film dates and each time allowed for more questions to arise that altered the camera angles and camera movement used. (Faculty Sponsor: Professor Jordan Fuchs)

Supported by TWU Experiential Student Scholars Program.

**Session 2. Tuesday, April 23, 2:40 pm – 4:00 pm**
**Track A (Student Union 2231)**

**1. EXPLORING AND IMPROVING FOOD INSECURITY AND ITS RELATED STIGMA AMONG TWU COLLEGE STUDENTS.** A. Mack, K. Davis. Nutrition & Food Sciences

Over 45% of students nationwide attending four-year institutions are food insecure. Many of these students work, receive financial aid, have meal plans, and do not receive SNAP benefits. At Texas Woman's University (TWU) the Campus Alliance and Resource Education (CARE) has become the main resource focused on combating college food insecurity using an on-campus food pantry called Minerva's Market. This research aims to explore Minerva's Market user demographics, understand how users perceive the services, explore barriers to use, such as stigma, and create curriculum tailored to patrons. First, a survey was used to determine what subgroups of students use the pantry, how satisfied they are with the service, and what would better accommodate their needs. Next, interviews were conducted with pantry users to understand food insecurity experiences and

associated stigma. Lastly recipes and video resources were created to provide tools to make nutritious meals from pantry foods. (Faculty Sponsor: Dr. Kathleen Davis)

Supported by TWU Honors Program, TWU CARE.

**2. PATIENTS WITH DEMENTIA AND THEIR FAMILIES: THEIR USE OF TECHNOLOGY TO IMPROVE THEIR LIVES.** P. Van Fossen, N. Gillum. Human Development, Family Studies, and Counseling

Dementia is a main cause of disability among the elderly (National Institute on Aging, 2022). Every 3 seconds someone in the world is diagnosed with dementia (Alzheimer's disease International, n.d.). The goal of this research was to learn about types of technology that may provide a better quality of life for those with dementia and for their families. This presentation will be multifaceted in sharing the prevalence of dementia, findings of the use of technology for patients who have dementia, and recommendations for professionals who work with these families. (Faculty Sponsor: Dr. Nerissa Gillum)

**3. ASSESSING COLLEGE STUDENTS' KNOWLEDGE AND ATTITUDES TOWARDS PROTEIN USING A MIXED-METHODS APPROACH: THE DIETARY PROTEIN ASSESSMENT QUESTIONNAIRE (DPAQ).** P. Gutjahr, C. Warren, D. Miketinas. Nutrition & Food Sciences

The purpose of this study was to provide evidence of the Dietary Protein Assessment Questionnaire's construct validity. Students currently enrolled at a college/university were recruited to complete the DPAQ. Construct validity of the knowledge questions was assessed by performing known-group comparisons using an independent t-test. The factor structure of the attitude questions was evaluated by exploratory factor analysis with principal axis factoring and a promax rotation. Construct validity of the attitude questions was evaluated by calculating participants' attitude scores. One thousand five hundred forty-four participants (54.3% female) provided responses. The initial EFA hypothesized a three-factor structure which explained 47.6% of the variance. The mean[sd] knowledge scores of nutrition students was significantly greater than non-nutrition students (16.7[4.5] vs. 14.2[4.2]; $p < 0.001$). Attitude scores were greater among nutrition students, but the difference was not significant. Attitudes towards dietary protein appear multidimensional. Further testing is needed to confirm the proposed factor structure. (Faculty Sponsor: Dr. Cynthia Warren)

Supported by TWU Center for Student Research, Moore-Khourie Research Fund.

**4. EUPHORBIA BICOLOR DITERPENE EXTRACT INHIBITS GROWTH OF ER-POSITIVE AND TRIPLE-NEGATIVE BREAST CANCER CELLS THROUGH MULTIPLE DEATH PATHWAYS.** M. Rumpa, C. Maier. Biology

Breast cancer impacts women's health worldwide. This study investigates the antiproliferative effects of *Euphorbia bicolor* diterpene extract on ER- positive T47D and triple-negative MDA-MB-231 breast carcinomas. Viability assays revealed that at 2 µg/ml, the diterpene extract inhibited T47D cell growth by 60% and at 500 µg/ml, the inhibition was 90%. In MDA-MB-231 cell cultures, inhibition started at 8 µg/ml and reached 95% at 250 µg/ml. Diterpene resiniferatoxin, a TRPV1 agonist, may be implicated in inducing cell death, as evidenced by increased viability when that ion channel is blocked and calcium ions are chelated. Apoptosis, confirmed by TUNEL assay and activated caspase 3, indicates one potential cell death mechanism of diterpenes. Future investigations will explore additional pathways like autophagy, necrosis, and ferroptosis. This research underscores the promising drug discovery prospects of *E. bicolor* diterpenes for cancer therapy. (Faculty Sponsor: Dr. Camelia Maier)

**5. GUIDING COMMUNICATION IN COUPLES POST-INFIDELITY.** E. Love, C. O'Neal, R. Lucero-Jones. Human Development, Family Studies, and Counseling

How does betrayal trauma from infidelity impact communication in couples and the family system? In a review of the literature on best practices for infidelity treatment, this presentation will offer marriage and family therapists and other mental health clinicians an opportunity to learn how to guide couples through communication after infidelity discovery. Participants without a clinical background will learn about the application of theory to infidelity treatment. Attachment styles shape the way individuals respond to and cope with infidelity and betrayal trauma. Participants will learn about the erosion of trust leading up to and after learning about infidelity, with considerations for the impact of culture on communication. Additionally, participants will learn about applying Emotionally Focused Therapy to infidelity treatment. After completing a case study exercise based on the information learned, participants will have an opportunity to provide comments, ask questions, and offer reflections on the material. (Faculty Sponsor: Dr. Rebecca Lucero-Jones)

Supported by TWU Center for Student Research.

**Session 3. Tuesday, April 23, 6:00 pm - 7:20 pm**
**Track A (Student Union 2231)**

**1. A NOURISHING SPACE: GROWING CLIENT-CENTRIC HEALTHCARE PROVIDERS.** S. Honse, M. Prajapati, C. Hong, J. Cobos, D. Chavez, K. Davis, M. Massey-Stokes, F. Brito-Silva, M. Kelly. Student Life

In 2021, "A Nourishing Space" (ANS) was launched to provide health and wellness-related majors with health coaching and entrepreneurial experience. In a collaboration among Nutrition and Food Sciences, Health Studies, the Health and Wellbeing Initiative, and JNIWL, student coaches learn to provide client-centered care and build business skills. The '23-'24 cohort was trained in multiple components: nutrition assessment, motivational interviewing, behavioral psychology, and private practice competencies. By using a theory-based coaching curriculum, the coaches supported client self-efficacy, motivation, and accountability in consultations. ANS expanded from 23 consultations in '21-'22

to over 60 consultations during the '23-'24 academic year, with 70% retention of clients in the fall '23 semester. ANS is an innovative pilot program promoting student wellbeing, while providing the ANS coaches with training in health coaching. Through this experiential learning opportunity, student coaches will be able to successfully apply their newly developed skills and entrepreneurial knowledge in future careers. (Faculty Sponsor: Dr. Michelle Kelly)

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

**2. ACHIEVING AUTHENTIC SUSTAINABILITY IN BUSINESS.** C. Easterling, R. Lembrino-Crowe, J. Vega. Business

In today's market landscape, sustainability stands as a paramount consideration, with consumers increasingly prioritizing products and brands that demonstrate environmental and social responsibility. As a result, businesses are keen to integrate sustainable practices into their operations, yet often grapple with the complexities of implementation. This paper addresses this critical gap by presenting a comprehensive framework derived from a thorough literature review and insightful interviews with business leaders. The framework offers practical guidance and actionable strategies for organizations seeking to authentically incorporate sustainability into their business practices. By synthesizing insights from both academic research and industry perspectives, this study contributes to bridging the divide between consumer expectations and corporate actions. It underscores the imperative of aligning business strategies with sustainability principles to meet the evolving demands of consumers while fostering genuine environmental stewardship and social responsibility in the marketplace. (Faculty Sponsor: Dr. Fernanda Muniz)

**3. ALLEVIATING FOOD INSECURITY THROUGH THE TEXAS HUNGER INITIATIVE: ASSESSING THE EFFECTIVENESS OF HUNGER-FREE COALITIONS.** A. Vargas. Social Sciences and Historical Studies

The Texas Hunger Initiative supports over 20 Hunger Free Coalitions across the state. These coalitions are aimed at eliminating the root causes of hunger and food insecurity in local communities. Coalitions provide sustainable solutions for mitigating food injustices by identifying regional needs and utilizing community resources. Using an original survey, this study tests the effectiveness of the VISTA coalitions in Texas and creates individual case studies of each service project. By documenting the sustained efforts of policymakers, non-profits, volunteers, and the federal government this project measures whether the Texas Hunger Initiative expanded food accessibility and resources to its local communities. This paper will assess whether the Texas Hunger Initiative deployed its resources effectively to reach its established goals of long- term sustainability, diverse community involvement, resourcefulness, and proactive assessment. (Faculty Sponsor: Dr. Wouter Van Erve)

Supported by Baylor Collaborative on Hunger and Poverty, AmeriCorps.

**4. RECLAIMING EROTICA: CONTEMPORARY BLACK WOMEN ARTISTS' DEPICTIONS OF BLACK WOMEN'S SEXUALITY IN SOCIETY.** T. Hilley-Carroll. Visual Arts

In "Reclaiming Erotica: Contemporary Black Women Artists' Depictions of Black Women's Sexuality in Society," we will explore the ways the artists, Kara Walker, Mickalene Thomas, and Wangechi Mutu, through diverse mediums and techniques, challenge stereotypes, dismantle objectification, and assert their autonomy in the face of societal constraints in regard to Black women's sexuality. Kara Walker's A Subtlety serves as a symbol of the objectification of Black women's body and hypersexualized imagery. Mickalene Thomas's Whatever You Want uses her mixed-media method to showcase how Black women can embody femininity and sexuality in spaces that were dominated by their white counterparts. Wangechi Mutu's Homeward Bound confronts stereotypes by exposing the inner complexities of Black women. Contemporary Black women artists and artwork are asserting their autonomy, it is necessary the narrative and depictions of Black women be represented, to shed light on their experiences, culture, and their truth from within. (Faculty Sponsor: Dr. Sara Ishii-Bear)

**Session 3. Tuesday, April 23, 6:00 pm – 7:20 pm**
**Track B (Student Union SGA Chambers)**

**1. EXPERIENTIAL LEARNING INTERVENTIONS TO IMPROVE FRUIT AND VEGETABLE CONSUMPTION AMONG HEAD START PRESCHOOLERS.** B. Coffie, T. Zhang, K. Davis, C. Warren, J. Keller. Nutrition & Food Sciences

In 2021, nearly one third of young US children did not eat any fruit daily, and nearly one half did not eat a vegetable. The Head Start to Healthy Lifestyles (HSHL) project is designed to provide experiential learning opportunities to Head Start preschoolers, including learning about food groups, where food comes from, gardening, and food tasting. Parents also received newsletters about healthy eating. Of over 400 program participants, 41 parents of Head Start preschoolers completed both pre-and post-surveys regarding their child's fruit and vegetable consumption. Children were more likely to have eaten more than one fruit the day before ($p=0.035$), more likely to have had 100% juice ($p=009$), and more likely to report they used MyPlate to plan their child's meal after the experiential learning interventions ($p=0.001$). Experiential learning may be a promising strategy to enhance fruit and vegetable intake among Head Start preschoolers to improve health outcomes. (Faculty Sponsor: Dr. Kathleen Davis)

Supported by Texas Health and Human Services Commission through the USDA SNAP-Ed program.

**2. TEACHING PE TO STUDENTS WITH DISABILIITIES - HOW DOES SELF-EFFICACY DIFFER AMONG TEXAS TEACHERS?** J. York, K. Staples. Health Promotions and Kinesiology

Due to increased pressure for inclusion, integrated physical education (PE) classes are becoming more common within the public school setting. Teachers are responsible for instructing students with and without disabilities in their PE

classes; however, current literature supports that PE teachers feel inadequately prepared to meet all their students' needs. Therefore, this study's purpose is to examine the self-efficacy of current Texas PE teachers. Using a researcher-developed questionnaire and the Teaching Students with Disabilities Efficacy Scale, this study aims to explore current PE teacher self-efficacy and determine if a correlation exists between teacher self-efficacy and the setting they teach. Researchers have used a snowball recruitment method to gather responses from all types of PE teachers, general and adapted. Twenty-six participants have completed the survey thus far with recruitment efforts ongoing. (Faculty Sponsor: Dr. Kerri Staples)

Supported by TWU Experiential Student Scholars Program.

**3. THE EFFECTS OF VIDEO MODELING IN TEACHING AAC TO CHILDREN WITH ASD.** B. Hines, M. Nishida, R. Gonzalez. Teacher Education

Autism spectrum disorder (ASD) is a neurological developmental disorder of childhood onset that affects 1 in 36 children in the United States (ASD; CDC, 2023). Children diagnosed with ASD exhibit a wide range of characteristics including various degrees of social communication deficits that can negatively impact a child's ability to interact with others. Interventions to address communication deficits in children with ASD have been shown to lead to better outcomes that improve overall quality of life. Augmentative and alternative communication (AAC) facilitates communication and has been used as a tool to teach language and enable expression for children with ASD. However, there is limited research about effective strategies for teaching independent use of AAC to children with ASD. This presentation will describe a current study examining if video modeling (VM) is an effective method for teaching augmentative and alternative communication skills to children with ASD. (Faculty Sponsor: Dr. Minkowan Goo)

**4. BUILDING CORTICAL GRAFTS FROM INDUCED PLURIPOTENT DERIVED STEM CELLS FOR TRAUMATIC BRAIN INJURIES.** M. Gladen, Z. Lybrand. Biology

Traumatic brain injury (TBI) results in permanent loss of brain tissue. This study aims to develop in vitro cortical grafts for transplantation following TBI. We used human-induced pluripotent stem cells to grow cortical grafts using a directed 3D organoid protocol. These grafts replicate developing cortical architecture with essential neuronal and glial cell populations. Male NOD SCID mice were randomly placed into either TBI + Transplant, TBI, or sham. Mice in all groups excluding sham received a TBI to the left motor cortex. Following surgical procedures, mice were monitored daily using a modified neurological severity score, and forelimb motor-specific tests were performed. Prior to transplant, the graft was infected with AAV-hSyn-GFP to label all neurons. 28 days following the transplant, we observed significant GFP projections in the contralateral motor cortex, ipsilateral/contralateral somatosensory, thalamus, and hypothalamus that colocalized with STEM121, a human cytoplasmic marker. We additionally observed a significant forelimb motor ability. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by TWU REP, Mission Connect.

**5. DINOSAUR DIG.** N. Costen, J. Soto, D. Gardner. Computer Science

Technology may seem to some as meticulous and boring, focusing on bits and bytes and lacking connection to humanity, but the reality is that technology provides a way to enhance experience and understanding. Through mobile technology, augmentation to reality/experience, and mobile computing, technology can provide a deeper, richer, and more accessible avenue to explore the wonders of the world. This project illustrates how project planning, database construction, wireframing, accessible design, creative content creation, and programming combine to allow for enhancement and multi-modal targeting of education and experience. Join a team of computer science and informatics students to explore how technology can enhance and gamify a dinosaur dig providing a framework for similar experiences and content using a modular framework. (Faculty Sponsor: Dr. David Gardner)

## Session 4. Wednesday, April 24, 9:00 am – 10:20 am Track A (Student Union 2231)

**1. ADDRESSING GAPS IN MENTAL HEALTHCARE.** J. Uzzell. Nursing – Dallas

This presentation will describe how funding from the Texas Woman's University's Experiential Student Scholar Program enabled a Pediatric Nurse Practitioner to address gaps identified in the community through the findings of the DNP EBPQI project. Since the COVID pandemic, children in need of mental health services has increased significantly. Social biases, costs, lack of mental health services, and long wait times prevent children from receiving care. The ESSP project addresses the social stigma and the need for timely treatment at the pediatric medical home. The ESSP funds address these barriers by 1) providing Cognitive Behaviors Training for Pediatric Anxiety, which allows for prompt, clinic-based mental health care, 2) reducing stigma through Mental Health Matters t-shirts for the staff to wear to encourage open communication about mental health concerns, and 3) books on mental health self-care were bought to gift to families challenged with mental health concerns. (Faculty Sponsor: Dr. Jennifer Wilson)

Supported by TWU Experiential Student Scholars Program.

**2. IDENTIFYING THE MODULATORS OF PROTEIN ARGINYLATION.** R. Dasgupta, C. Brower. Biology

Protein arginylation is an important regulator of developmental and physiological processes. It involves the conjugation of arginine, by Arginyltransferase 1 (ATE1), to proteins bearing acidic N-terminal amino acids. We found that the loss of arginylation in mice causes resistance to obesity as well as neurodegeneration. Thus, controlling ATE1 activity holds promise for treating these increasingly common

human diseases. In efforts to identify modulators of ATE1, we generated a dual-fluorescent reporter sensitive to its activity. We have employed this reporter in a number of settings to screen small molecules for their effects on ATE1. We have also utilized this reporter in various stress conditions to determine if they influence ATE1 activity. Finally, we recently generated transgenic mice expressing the reporter; which should facilitate a comprehensive survey of the spatial and temporal regulation of ATE1. Ultimately, these studies may help identify therapeutic targets to treat ATE1-linked diseases such as obesity or neurodegeneration. (Faculty Sponsor: Dr. Christopher Brower)

Supported by NINDS, TWU Center for Student Research.

**3. CMVIL-10 ENHANCES CXCR4 SIGNALING INDUCED BY MIF AND TFF2.** K. Satani, J. Spencer. Biology

Human cytomegalovirus (HCMV) is a ubiquitous virus that manipulates the host immune system to establish life-long latent infection. HCMV UL111A gene encodes viral cytokine cmvIL-10 that binds to human IL-10R. CmvIL- 10/hIL-10R interaction elicits anti-inflammatory responses that lead to the host's immune suppression. CmvIL-10 also enhances CXCR4 signaling. CXCR4 is a chemokine receptor that binds to extracellular ligands and modulates several physiological pathways. These extracellular ligands include macrophage inhibitory factor (MIF) and trefoil factor 2 (TFF2) protein. We investigated the effects of cmvIL-10 on CXCR4 signaling induced by MIF or TFF2. Human epithelial (ARPE-19) cells were treated with either MIF or TFF2 in the presence and absence of cmvIL-10 and cellular proliferation and migration were monitored. Results show that MIF and TFF2 stimulate cell proliferation and migration and cmvIL-10 intensifies the effects of MIF and TFF2. These findings will provide insight into the influence of cmvIL-10 on CXCR4 and its potential role in immune modulation. (Faculty Sponsor: Dr. Juliet Spencer)

**4. THE EFFECTS OF DRY NEEDLING ON MUSCLE BLOOD FLOW, SHOULDER MOTIONS, AND SENSITIVITY TO PRESSURE IN INDIVIDUALS WITH SHOULDER PAIN.** J. Brown, S. Wang-Price. Physical Therapy – Dallas

Background: Myofascial trigger points (MTrPs) contribute to impaired muscle blood flow (BF), shoulder motion, and pain. Although dry needling (DN) is an effective intervention for MTrPs, its effects on muscle BF and shoulder motions have not been investigated. This study examined DN's effects on infraspinatus muscle BF, shoulder rotation motions, and sensitivity to pressure stimuli in individuals with shoulder pain. Method: Forty individuals with shoulder pain and MTrPs in the infraspinatus were randomly assigned to receive real or sham DN. BF parameters, shoulder rotation motions, and pressure pain thresholds were measured before and after a single DN session. Results: The results showed that real DN improved BF and increased shoulder motions more than sham DN. Conclusion: Improved BF after DN suggests that DN has effects on enhancing BF via vasodilation, leading to relieving capillary compression. DN also may affect muscle relaxation, thus contributing to motion improvement. (Faculty Sponsor: Dr. Sharon Wang-Price)

Supported by Texas Physical Therapy Foundation.

**Session 5. Wednesday, April 24, 2:40 pm – 4:00 pm**
**Track A (Student Union 2231)**

**1. A LOOK AT GRIEF FROM AN OBJECT RELATIONS PERSPECTIVE.** C. Hausmann. Human Development, Family Studies, and Counseling

Object Relations therapy is the oldest associated clinical application to contemporary marriage and family therapy practice. Its theoretical framework in regard to grief, relates back to an infant's earliest attachments to their primary object. This presentation will show the research behind object relations therapy and how clinicians can be prepared for clients suffering from grief and existential concerns in relation to death. (Faculty Sponsor: Dr. Rebecca Lucero-Jones)

**2. BENEFITS OF OCCUPATIONAL THERAPY FOR PARENTS OF TODDLERS.** A. Powers, N. Gillum. Human Development, Family Studies, and Counseling

Presentation will include research conducted to develop an infographic for parents and other caregivers of toddlers to explain the benefits of occupational therapy. Meaning of occupational therapy, reasons for occupational therapy, types of occupational therapy exercises, and occupational therapy resources will be discussed. (Faculty Sponsor: Dr. Nerissa Gillum)

**3. WOVEN TRADITIONS IN A DIGITAL AGE: REVISITING VICTORIAN HAIRWORK.** K. Pinkham. Visual Arts

My creative research for my MFA thesis exhibition at TWU utilizes mixed media processes like weaving, ceramics, and found object assemblage to explore the relationships between beauty and disgust, mortality, femininity, and gender roles. With funds from the Center for Student Research grant program, I was able to purchase materials for a series of tapestries woven out of human hair using the visual art division's digital jacquard loom. I will integrate human hair into woven images using both digital and hand weaving processes on the TC2 loom. By weaving with human hair, a potent symbol of beauty, femininity and the grotesque, I aim to create a unique sensory experience with historic and contemporary significance, whilst exploring the intersections of technology and traditional craft. (Faculty Sponsor: Professor Julie Libersat)

Supported by TWU Center for Student Research.

**4. USE OF HERBAL MEDICINES AMONG BREASTFEEDING MOTHERS IN TANZANIA: A CROSS - SECTIONAL STUDY.** V. Millinga, H.B. Im, J.H. Hwang, S.J. Choi, D. Han. Nutrition & Food Sciences

Background: There are limited data on the use of herbal medicines (HM) among breastfeeding mothers. Knowledge of the possible benefits or harms of HM use has a direct relationship with the health of infants. The study determined the prevalence and factors associated with HM use among breastfeeding mothers in Tanzania. Methods: A cross-

sectional design using a structured survey. Participants were attending a reproductive and child health clinic in Morogoro, Tanzania. Chi-square test and logistic regression were used for data analysis using SPSS ver. 24.0. Results: 53.8% used HM during breastfeeding. The most commonly used HM was black pepper (80.0%), followed by pumpkin seeds (18.0%). Higher education levels and low breastmilk supply were identified as potential predictors of Herbal Medicine use. Conclusion: HM use among breastfeeding mothers in Tanzania is popular to ease breastfeeding difficulties. There is still need for further pharmacological studies on herbal medicines among breastfeeding mothers. (Faculty Sponsor: Dr. Kathleen Davis)

Supported by Korea International Cooperation Agency (KOICA) Scholarship Program.

**5. EXPLORING GIGANTISM AND DWARFISM LINKS IN LITERATURE AND SCIENCE.** L. Oquel, T. Gumienny. Biology

This study delves into the historical portrayal of giants and dwarfs in literature, unraveling their potential genetic origins in pituitary gigantism and achondroplasia. Tracing from ancient mythology to 20th- century fantasy, this work highlights parallels between descriptions of giants and dwarves and traits associated with medical conditions. Genetic research has revealed mutations in the AIP gene in pituitary gigantism and the FGFR3 gene in achondroplasia, underscoring the natural causes for these fantastical creatures. Pituitary gigantism and achondroplasia have a very low genetic prevalence in humans, arguably prompting the birth of tales of mythical creatures to explain these genetic anomalies. Giants and dwarfs act as pivotal links between mythical narratives and modern genetic realities, challenging preconceptions and fostering compassion in society. This research illuminates the intersections of myth and science, and emphasizes the significance of comprehending these parallels and genetic origins to enlighten, to combat stigma, and to foster inclusivity and enlightenment. (Faculty Sponsor: Dr. Tina Gumienny)

**Session 6. Wednesday, April 24, 6:00 pm – 7:20 pm**
**Track A (Student Union 2231)**

**1. WOMEN AND MINORITIES IN STEM RELATED CAREERS.** E. Brelove, A. Applewhite. Mathematics

The goal of our research paper is to point out the lack of representation for women and minorities in STEM. When you think of a STEM job, you're probably thinking of a white male in a suit. The STEM field has always predominantly consisted of white males. Now with more women and minorities pursuing careers in STEM, this is allowing for a new generation of role models for younger generations of girls and minorities who want to pursue careers in the field. They are able to see people like themselves in STEM careers more than any other generation could. There is a need to continue showing little girls (all colors - white, black, brown, yellow, etc.) that they can be anything they want to be no matter what they look like or came from. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**2. BREAKING THROUGH: WOMEN AND MINORITIES OVERCOMING BARRIERS IN THE STEM FIELDS.** A. Williams, E. Ali. Mathematics

The focus of the following research paper is to educate individuals on the ways in which women may “break barriers” in the STEM fields. These efforts of those women are highlighted in our research. People should aim to find inspiration in the history of the women who have been noted for making an impact in the field. Through sharing information and asking questions about the circumstances people face as women in the STEM fields, they can empower themselves and their peers to push past the barriers they may face as women in “male-dominated” fields so that even more barriers can be broken. This paper also aims to highlight the importance of organizational support, in the empowerment of women in STEM fields as well as recognition for these organizations and women. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**3. DISCOVERING OCCUPATIONAL THERAPY POSSIBILITIES WITH VIRTUAL REALITY.** S. Jones, B. Lazarus. Computer Science

The ability of virtual reality based technologies to target multiple senses in order to create an immersive environment that produces physical responses in the human body poses significant opportunities for supporting individuals with cognitive and physical difficulties. Exploring and rehearsing every day tasks in virtual reality allows people to make mistakes and practice in an environment that is safe from potential hazards that the real environment may hold. This project focuses on building a virtual kitchen environment to serve as a base model upon which to build modular and graduated skill practice and awareness in support of occupational therapy. Goals, obstacles, and successes present during the prototype phase of the project will be highlighted as well as a demonstration of the current working VR environment. (Faculty Sponsor: Dr. David Gardner)

**4. WHEREIN.** C. Bacidore, E. Canalas, G. Hale, D. Zuhaimi, V. Cruz, H. Nguyen. Computer Science

Navigating new places, especially transient events like festivals or fairs can be difficult for many. This experience is exacerbated when the person trying to navigate the space has cognitive or physical impairments. Technologies like GPS, Bluetooth, and NVC offer different options for supporting way finding, but each have their pros and cons. Wherein is an event navigation tool that utilizes a modular approach and a focus on Universal Design to leverage multiple way finding technologies to provide an augmented reality where information about directionality, paths, points of interest, and other supporting information are provided to a user's phone to offer navigation support. This presentation will demonstrate the use of the prototype navigation tool and provide insight into design considerations, scalability, and accessibility of the project. (Faculty Sponsor: Dr. David Gardner)

## ABSTRACTS FOR POSTER PRESENTATIONS

**Abstracts are listed in the department of the faculty sponsor.**

**Session 1. Tuesday, April 23, 9:00 am – 10:20 am**
**Student Union 2300 (Southwest Ballroom)**

**1. EXPLORING THE BARRIERS AND BENEFITS OF STUDENT ATHLETES MAJORING IN NURSING.** S. McCormick, J. Wilson. Nursing – Dallas

Many college athletes are discouraged from pursuing a career in nursing, requiring them to choose between their career and sport. Despite the qualifications and positive qualities of collegiate athletes, many universities will not recruit competitive athletes interested in nursing due to conflicting schedules and the high demands required of both sports and nursing curricula. Historically, most TWU athletes quit their sport once they start nursing school based on the understanding it is not possible; however, a select few TWU athletes have successfully managed both. This presentation describes an initiative exploring this problem that gained insight from TWU nursing student athletes, coaches, graduates, and other stakeholders. Findings are being utilized to create holistic processes to facilitate success of this student population. This project aims to pave the way for future TWU athletes and ultimately enable TWU to gain distinction as the premier magnet university for athletes majoring in nursing. (Faculty Sponsor: Dr. Jennifer Wilson)

**2. OCCUPATIONAL THERAPY AND TYPE 2 DIABETES.** A. Randall. Social Work, Psychology and Philosophy

Diabetes has been categorized as a public health emergency, which is complicated by barriers to necessary self-management; including inadequate communication with physicians and poor disease knowledge. Occupational therapists offer unique services by integrating many different elements of rehabilitation with an understanding of illness and psychosocial elements, as well as a knowledge of how to analyze and adapt to one's environment (Ellexson, 1985). The methodology is an online questionnaire conducted through Prolific and participants are patients with T2D, consisting of two subsamples; those who have seen an occupational therapist and those who have not. This poster aims to analyze how outcomes differ for patients who have worked with an occupational therapist or who have one on their care team compared to those without. We also aim to analyze occupational therapy alliance and correlates such as treatment adherence, perceived benefit, perceived burden, well-being, anxiety, depression, diabetes self-efficacy, HbA1c levels and coping strategies. (Faculty Sponsor: Dr. Alannah Rivers)

**3. AFFECT DYSREGULATION IN ADULT CHILDREN OF NARCISSISTIC PARENTS: EXAMINING THE IMPACT OF PERCEIVED PARENTAL NARCISSISM.** A. Whitaker. Social Work, Psychology and Philosophy

Healthy affect regulation, one's capacity to navigate heightened emotions without disruption, is a key component of psychological well-being. This study investigates the impact of perceived parental narcissism on affect regulation, addressing a gap in the existing literature that primarily focuses on broader childhood abuse. Through a survey of 482 individuals, this study reveals significant correlations between heightened affect dysregulation and experiences of parental narcissism. These findings highlight the critical role of affect regulation in daily functioning and emphasize the necessity of early identification and intervention for parental narcissistic abuse. Based on the results as well as existing research, recommended interventions include a comprehensive approach that integrates trauma-focused therapy, abuse counseling, resource referrals, and safety planning. This study contributes to the evolving understanding of affect regulation dynamics, providing valuable insights for clinicians and researchers alike. (Faculty Sponsor: Dr. Alannah Rivers)

Supported by TWU Center for Student Research.

**4. MATHEMATICS TEACHING FOCUSING ON THE REAL NUMBER LINE OUTLINE.** S. Arnett, E. De Leon, C. Quintero, C. Slater, M. Lingthep. Mathematics

The following research paper focuses on "Constructing the Real Number Line System" via Cauchy Sequences or Dedekind Cuts. The mathematical theories described in this paper provide an explanation to why the real number system is a complete system. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**5. GUILT AND SHAME PRONENESS AS PREDICTORS OF LYING.** A. Whitaker, C. Hart. Social Work, Psychology and Philosophy

Guilt and shame have been shown to influence people's decisions and behavior, but it is unknown whether trait levels of guilt- and shame- proneness correspond with lying. In this study, we examined how these traits influence the tendency to lie, hypothesizing that both guilt- and shame-proneness would be associated with reduced lying. 149 participants completed a self-report survey composed of personality and deception measures. Results found that guilt was negatively associated with lying, while shame was positively correlated. Guilt-prone individuals may tend to avoid lying in order to avoid feeling guilty, while shame-prone people may lie more in order to conceal their shameful actions. From a practical standpoint, the associations between guilt-proneness, shame-proneness, and lying may assist with predicting and controlling dishonesty in real-world situations. Future research should examine practical scenarios in which guilt and shame can be manipulated to influence honest reporting. (Faculty Sponsor: Dr. Christian Hart)

Supported by TWU Center for Student Research.

**6. EXPLORING CULTURAL PERCEPTIONS OF GRATITUDE:**

**PARTNERING GRATITUDE PRACTICES IN SCHOOL AND HOME SETTINGS.** M. Wamsley. Social Work, Psychology and Philosophy

Gratitude is defined as a multilayer construct representing feeling and acting positively in response to benefit (Navarro & Tudge, 2020). Research has shown that having gratitude is correlated with prosocial behaviors, positive well-being, adaptive social relationships (Bono & Froh, 2022). These positive correlates bring attention to the teaching and application of gratitude in children in the home and school setting. However, it is important to acknowledge that gratitude definitions can vary, and schools remain intentional in culturally responsive gratitude pedagogy. The aim of this study was to conduct a literature review on the nuanced cultural perspectives on gratitude. The findings of this study will contribute to the significance of understanding cultural perspectives on gratitude and practical implementation of gratitude in both the home and K-12 educational environment. By examining the benefits of gratitude in primary and secondary education, educators can understand and appreciate its role in fostering positive development. (Faculty Sponsor: Dr. Courtney Banks)

**7. ENHANCING NURSING EDUCATION AND PATIENT SAFETY: EXPLORING THE IMPACT OF THE "ROOM OF HORRORS" SIMULATION PROJECT.** G. Garcia. Nursing – Dallas

Patients frequently encounter harm during hospital stays, with those with diabetes particularly susceptible to medication errors and glycemic complications. The 'Room of Horrors' (ROH) project aims to bolster nursing students' critical thinking and clinical reasoning skills concerning patient errors in hospital environments. Through simulated scenarios, ROH engages students in error identification, rectification of unsafe conditions, and intervention prioritization. The project's significance lies in its potential to enhance clinical competency and patient safety by integrating theoretical knowledge with practical application. Evaluation of nursing students' satisfaction and confidence in learning will be conducted using the National League for Nursing (NLN) Student Satisfaction and Self-Confidence in Learning tool. Results are pending. (Faculty Sponsor: Dr. Cecilia Wilson)

**8. ZERO IMPACT PROJECT: WASTE DIVERSTION AT CELEBRATION OF SCIENCE.** A. White. Chemistry and Biochemistry

The TWU zero impact project (ZIP) is an environmental conservation group created with the purpose of reducing the environmental impact on campus and events. We provided our services to reduce the impact of the School of the Sciences, Celebration of Science Event in Fall 2023. In preparation to conduct our waste diversion project ZIP met to coordinate and create a plan. We determined that the event had the potential to produce 24.88 kg of waste. At the conclusion of the event we used a scale to measure the amount of landfill, recycling and compost produced by the event. We found that we had managed to prevent 10.88 kg and divert 12.5 kg of waste from the landfill. Once the data was collected we found that by providing labeled waste stations and limiting single use items there was a significant reduction in the environmental impact of the event. (Faculty Sponsor: Professor Alana Taylor)

**9. ANTIPROLIFERATIVE ACTIVITIES OF EUPHORBIA MACULATA IN MDA-MB 231, T47D, AND MCF-7 CANCER CELL LINES.** M. Parada, M. Rumpa, C. Maier. Biology

Using plants in medicine has been around for years and many have unique properties as chemotherapeutic agents. This study evaluates the antiproliferative activities of Euphorbia maculata (Euphorbiaceae) ethanol and diterpene extracts on triple negative MDA-MB 231, and ER-positive MCF- 7, and T47D breast cancer cells. E. maculata is a plant native to North America known for its medicinal properties, but its antiproliferative activity has yet to be fully studied. Preliminary results showed that E. maculata ethanol extract at 500 µg/ml significantly reduced cell viability of MDA-MB 231 cells although lower concentrations of extract did not reduce cell proliferation. The ethanol extract may have a stronger antiproliferative activity at a higher concentrations, above 500µg/ml. Future work will focus on increasing concentrations of ethanol extract and characterizing the antiproliferative activities and mechanisms of action of the diterpene and isoflavone fractions. This project could lead to new therapeutics for breast cancer from E. maculata. (Faculty Sponsor: Dr. Camelia Maier)

Supported by NSF Award 1953448, TWU REP.

**10. IMPACT OF HUMAN CYTOMEGALOVIRUS ON CELLULAR LIPID COMPOSITION.** C. Mendez, J. Spencer, A. Martins, L. Faure. Biology

Human Cytomegalovirus (HCMV) infects a majority of the human population, generally causing no symptoms except in immunodeficient individuals. HCMV is a large double-stranded DNA virus with an icosahedral capsid enclosed in a lipid envelope that is derived from the host cell. We hypothesized that HCMV infection may impact lipid composition or quantity in host cells. To examine baseline levels of lipid content and lipid composition, we performed thin layer chromatography and gas chromatography-mass spectrometry on uninfected fibroblasts (NuFF) and epithelial cells (ARPE- 19). We found that the two cell types had similar lipid compositions. Next we will determine the total lipid levels and lipid composition of HCMV infected ARPE-19 and NuFF cells to determine the impact of virus infection. A better understanding of how HCMV affects the cellular lipid composition will clarify how HCMV modifies host cell physiology which may be used to develop new treatments to fight against HCMV infection. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by NSF Award 1953448, TWU REP.

**11. THE ENCOMIENDA: THE SPARK TO THE PUEBLO REVOLT.** M. Adams. Social Sciences and Historical Studies

The Pueblo Revolt of 1680 stands as a milestone in early North American history, characterized by being the most successful Native American uprising against colonization. The revolt began as a result of upheaval over religious restriction against the Puebloans by the Spanish. However, the Spanish had already inflicted wounds against the Native American culture, identity, and physical wellbeing in many ways. These wounds were a result of Spanish exploitation of the encomienda, a system akin to feudalism. The Spanish had broken the rules that kept the encomienda lawful, which created physical, economic, and cultural conflict. In research, the two subjects – religious revitalization and tensions created by the encomienda – are kept as two separate events. However, the Pueblo Revolt emerges as a complex event that was sparked by religious motives, but had the stage set by the abuse and exploitation of the encomienda. (Faculty Sponsor: Ms. Aubri Thurmond)

**12. IMAGE-BASED PREDICTION OF 2D MATERIAL CHARACTERISTICS VIA CONVOLUTIONAL NEURAL NETWORKS.** E. De Leon. Chemistry and Biochemistry

Due to the rise of both two dimensional (2D) materials and machine learning tools in computational chemistry research, it is imperative to create modes that can detect the properties of 2D materials. Since 2D materials have the possibility to be used in a variety of important applications, having a reliable method of detecting many of their key properties would be a powerful aid to chemistry research. The existing machine learning methods for predicting the properties of 2D materials primarily focus on classic machine learning regression models, with limited utilization of graphical structures and deep learning for prediction. From this, we work to build and train a convolutional neural network (CNN) to detect properties such as type and magnetism. In deep learning, CNNs are useful for image classification through adding layers or filters to extract distinct features. (Faculty Sponsor: Dr. Shiru Lin)

**13. THE EFFECTS OF HEIGHT ON PERFORMANCE ON A MARGARIA-KALAMEN STAIR STEP TEST.** C. Morse, K. Biggerstaff. Health Promotions and Kinesiology

Anaerobic power can be measured by the Margaria-Kalamen Power test, which requires individuals to sprint up 12 stair-steps while striding three stair-steps at a time (MK3) which is challenging for shorter individuals. The purpose of this study was to determine if there is a difference in the power output during the MK3 and a modified test (MK2) between individuals shorter than 168 cm (ST) and those 168 cm or taller (TL). All participants performed a modified Wingate test lasting 5s (WG5), the MK3, and the MK2. Absolute power and relative power were significantly greater ($p<.05$) in TL compared to ST in each test. In both TL and ST groups for absolute power and relative power, there were significant differences ($p<.05$) between all three tests (MK3>MK2>WG5). There was a significant correlation between height and power during WG5, but not during the MK3 or MK2. (Faculty Sponsor: Dr. Kyle Biggerstaff)

**14. INFLUENCE OF MATERNAL SEPARATION IN POMC KNOCKOUT MICE ON THE EXPRESSION OF STRESS-RELATED NEUROPEPTIDES.** H. Randel, P. Frayre. Social Work, Psychology and Philosophy

Methyl-CpG binding protein 2 (MeCP2), a crucial transcriptional repressor involved with neuron-level physiology, plays a role in stress responsiveness, and associated neurobiological changes. Our lab has shown that knocking out MeCP2 in pro-opiomelanocortin (POMC) neurons of the hypothalamus produces an overweight phenotype and increased plasma corticosterone levels, a stress hormone that can become deleterious when chronically elevated. Mouse models of maternal separation were employed on POMC-MeCP2 knockout mice to induce moderate stress, followed by a battery of behavioral tests to assess depression and anxiety. ELISA assays to delineate neuroendocrine dynamics for hormones associated with stress such as corticosterone, adrenocorticotropic hormone (ACTH), and corticotrophin releasing hormone (CRH) as well as brain derived neurotrophic factor (BDNF), a protein implicated in neuronal health. By unraveling the interaction between genetic determinants and environmental stressors, this inquiry extends our comprehension of stress etiology and unveils potential avenues for therapeutic intervention in anxiety and depression. (Faculty Sponsor: Dr. Elisa Na)

**15. THE EFFECT OF MENSTRUAL CYCLE PHASE ON LACTATE, LDH, MCT1, AND MCT4 POST WINGATE: RESEARCH PROPOSAL.** K. Lambright, D. Newmire. Health Promotions and Kinesiology

INTRO: Conflicting results exist regarding whether menstrual cycle phases or fluctuations in sex hormones affect exercise performance, metabolism, and regulation of hormone responses. Furthermore, limited evidence is available regarding anabolic hormone responses to resistance training during menstrual cycle phases. The purpose of this study is to observe the anabolic hormone response to an acute bout of resistance training between menstrual cycle phases. METHODS: Female participants (18-40 years) will perform an acute resistance exercise bout during two menstrual cycle phases including menses (Days 1-6) and ovulation phase (Days 10-14). Anabolic hormones including growth hormone (GH) and Insulin-like growth factor-1 (IGF-1) will be measured through blood analysis and compared between menstrual cycle phases post-exercise. Understanding how GH and IGF-1 are regulated during the menstrual cycle after resistance training can provide valuable insights for active women looking to optimize their training, recovery, and overall health. (Faculty Sponsor: Dr. Daniel Newmire)

Supported by TWU Center for Student Research.

**16. DECIPHERING HCMV US27: UNVEILING CONTROL MECHANISMS IN ENDOCYTOSIS.** G. Connors, J. Spencer. Biology

Approximately 90% of individuals in developing countries harbor latent Human Cytomegalovirus (HCMV), which persists partly due to viral proteins mimicking host functions. US27 and US28, viral proteins structurally and functionally similar to host G-protein coupled receptors (GPCRs), exhibit constitutive signaling activity within the host cell. Like GPCRs, which rely on β-arrestin and adaptor protein 2 (AP-2) for modulation of signaling and internalization, tight control of US27 and US28 signaling is essential for optimal viral fitness. While US28 utilizes β-arrestin and AP-2 to modulate signaling and internalization, whether US27 follows the same mechanism remains unclear. In this study, the C-terminal domain of US27, fused to GST, was employed in pull-down assays, capturing β-arrestin and AP-2, suggesting potential interactions. Further validation through co-immunoprecipitation in mammalian cells expressing full-length US27 is underway. These findings illuminate potential shared regulatory mechanisms between US27 and US28, paving the way for a deeper understanding of US27's role in HCMV persistence. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU Center for Student Research.

**17. EVALUATING NON-PHARMACOLOGICAL INTERVENTIONS FOR CHILDREN WITH ADHD: A LITERATURE REVIEW.** C. Caya. Social Work, Psychology and Philosophy

Attention deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder which affects approximately 5-7% of children in the United States. The prevalence of ADHD has driven research concerning its etiology and treatment. While medication is the most common treatment for ADHD, advances in understanding of the disorder has moved treatment toward a multimodal approach consisting of medication in combination with non-pharmacological interventions. Numerous non-pharmacological interventions are available; however, their outcomes as a group are not fully understood. This study sought to evaluate the literature to determine the efficacy of salient non- pharmacological interventions for children and adolescents with ADHD. The results yielded psychosocial, body-based, cognitive, and neurological interventions. Of the interventions encountered, only some demonstrated efficacy, while others failed to provide an empirical basis for reduction in symptoms. Limitations of the current understanding of these interventions are also discussed, which may direct future directions for research. (Faculty Sponsor: Dr. Wendi Johnson)

**18. INSPECTING POSTSYNAPTIC PROTEINS WITH HUMAN CYTOSKELETAL PROTEINS IN THE MOUSE BRAIN.** L. Garcia, M. Gladen, Z. Lybrand. Biology

Traumatic brain injury affects the brain by causing cell death, such as necrosis and apoptosis. Transplanting organoids is a method that can be used to replace injured tissue; replacing lost neurons from traumatic brain injury and replacing them with ones that can assist with regenerating that part of the brain. The goal of my research project is to inspect postsynaptic protein with human cytoskeletal proteins in the mouse brain to determine if projections from cortical grafts form input from the host brain. I used immunochemistry to visualize the synaptic connections between the transplanted organoid and the host brain. The organoids were immunostained with primary antibodies such as Post Synaptic Density 95 (PSD95) and Stem 121, a general human cytoplasmic protein marker. My results have localized postsynaptic proteins with transplanted neuronal projections within the brain tissue. Transplanting organoids by replacing injured brain tissue could enhance ways to treat traumatic brain injury. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by TWU REP, Mission Connect.

**19. TRACKING THE TRAJECTORY OF RECYCLED PLASTIC USING TECHNOLOGY.** U. Joshi, J. Beatty. Chemistry and Biochemistry

The demand for plastics is steadily rising, yet very little gets recycled due to its complex chemistry and cost to recycle. Plastic, being non- degradable, contributes to various forms of chemical pollution. Currently, recycling is one of the few means to mitigate plastic waste, but it requires proper disposal methods, ensuring it reaches recycling centers instead of landfills and not the environment. Despite municipalities offering recycling services to its residents, logistical hurdles often impede the plastic's journey to these centers. Apple's Airtags, utilizing Bluetooth technology, can track items over long distances using nearby iPhones to relay location information back to the AirTag owner, potentially aiding in waste management and tracking. This study aims to utilize Apple AirTags to monitor the movement of plastic waste intended for recycling in Denton County. By attaching Airtags to plastic waste, we'll track and report their trajectories. (Faculty Sponsor: Dr. John Beatty)

Supported by NSF Award 1953448.

**20. IMPACTS OF ARTHROPOD INTERACTIONS ON SURVIVAL OF MONARCH BUTTERFLIES' EGGS & LARVAE.** M. Blanton. Biology

The Monarch butterfly, Danaus plexippus, has faced alarming population declines in USA, mainly because of Milkweed breeding habitat loss due to intensive agriculture, use of pesticides and climate change. Monarch caterpillars depend on milkweed species for their survival and metamorphosis. This study investigated whether other arthropod inhabitants of Milkweed affect the survival of Monarch caterpillars (neonates). Data was collected from 23 locations in Chicago, Illinois, focusing on swamp and butterfly Milkweed species. Seventy observations were made during the summer of 2023. The study found no significant correlation between the presence of arthropods and Monarch neonatal survival. Despite the absence of correlation, the research highlights the critical role that milkweed has in Monarch conservation. Future studies of interference by other Milkweed inhabitants should expand observation sites and durations. Protecting milkweed and understanding the relationships of Monarch

neonates with other arthropods remain crucial for sustaining Danaus plexippus populations. (Faculty Sponsor: Dr. Camelia Maier)

**21. LOCATING EMOTION IN TEACHER IDENTITY: A LITERATURE REVIEW.** A. Kosel. Language, Culture, and Gender Studies

Research on teacher identity meaningfully contributes to pedagogical theory and teacher education by addressing the critical need for effectual, culturally responsive teachers – a need compromised by teacher burnout and retention. Locating emotion in teacher identity formation is driven by the desire to repair teacher well-being injured by the COVID-19 pandemic and escalating political distrust. This literature review reveals how "Admitting emotion into understandings of cultural and identity formations especially deepens our commitment to exploring the interplay of differences in our classrooms and university experiences as well as in our scholarship" (Micciche). Exploring the affective nature of teaching reveals how personal history and lived experience, and the emotions tied to these embodied experiences, shape our professional identities. The work in this literature review has future implications for research on teacher identity formation and well-being, and can have positive outcomes for both educators and students. (Faculty Sponsor: Dr. Jackie Hoermann-Elliott)

Supported by TWU Jane Nelson Institute for Women's Leadership [Wo]mentoring Grant.

**Session 2. Tuesday, April 23, 2:40 pm – 4:00 pm**
**Student Union 2300 (Southwest Ballroom)**

**1. A RETROSPECTIVE STUDY ON THE EXPERIENCE OF COMING OUT ON LGBTQ+ LATINX ADOLESCENTS.** K. Hernandez. Human Development, Family Studies, and Counseling

Adolescents are in a unique position as they are emerging into adulthood and their identities as individuals are forming. Emerging identities, such as burgeoning sexuality can cause shifts within the relationships with those around the adolescent, referred to by Bronfenbrenner as an ecological system (1994). Existing research has found that ecological shifts impact LGBTQ+ individuals and can be a risk or resilience factor (Mills-Koonce, et. al., 2018). There has been an identified gap in literature regarding the ecological systems of Latinx LGBTQ+ individuals and whether cultural ideologies impact the presence or absence of support. Using a phenomenological approach, ten interviews were conducted with LGBTQ+ Latinx individuals about their coming out experiences as adolescents. These interviews were then analyzed for themes involving culture, gender and sexuality ideology, and relationship dynamics. The findings of this research may inform developmental specialists to approach this topic in a culturally aware manner. (Faculty Sponsor: Dr. Azucena Verdin)

Supported by TWU Center for Student Research.

**2. INTERSECTIONALITY OF RACE AND GENDER FOR TOKEN BLACK WOMEN ENTREPRENEURS.** L. Lemmon, G. Smith, J. Lambert. Social Work, Psychology and Philosophy

Research has indicated that women entrepreneurs face heightened visibility and scrutiny. Kanter's lens of visibility, polarization, and assimilation highlights the barriers and challenges women entrepreneurs must overcome to exist and thrive in traditionally male dominated spaces. However, further research is needed to address the unique and persistent challenges encountered by Black women entrepreneurs due to compounding racial and gender biases. In this study, we will investigate the intersectionality of race and gender for Black women entrepreneurs and explore the impacts of token bias when taking both race and gender into consideration. We will conduct qualitative interviews with women thriving in leadership roles to illuminate the impacts of race and gender on Black women in male-dominated fields. We will conduct 5 semi-structured interviews with Black women leaders about their experiences using an interpretive phenomenological analysis. We hypothesize that Black women entrepreneurs face amplified token bias due to both gender and race. (Faculty Sponsor: Dr. Gabrielle Smith)

Supported by TWU Small Grant Program.

**3. EUPHORBIA BICOLOR PHYTOCHEMICALS REDUCE OXIDATIVE STRESS, INFLAMMATORY MEDIATORS, AND PAIN SIGNALING IN A RAT MODEL OF BURN PAIN.** T. Olaoluwa, D. Hynds, C. Maier, D. Averitt. Biology

Burn pain is difficult to treat with nonsteroidal anti-inflammatory medications, opioids, and gabapentinoids. All are associated with negative side effects, necessitating the development of novel burn pain relief treatments. Euphorbia bicolor, a native Texas plant, contains analgesic phytochemicals and we hypothesized that E. bicolor extract reduces nociceptive and inflammatory key markers. Male rats received thermal injury to the hind paw followed by local injection of vehicle or E. bicolor extract. Following the development of analgesia, dorsal root ganglia (DRG) were collected at 72 hours to quantify cytokine release. At 3 weeks, DRG and blood were collected to quantify markers of oxidative stress. Lumbar spinal cord was collected to quantify nociceptive inputs at central terminals. We report a significant reduction in proinflammatory peptides and oxidative stress markers in E. bicolor-treated rats, indicating that E. bicolor phytochemicals mitigate burn pain by reducing oxidative stress, inflammation, and nociceptive peptidergic activity in sensory afferents. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by TWU REP.

**4. SEX DIFFERENCES AND THE EFFECTS OF STRESS ON THE DEVELOPMENT OF PAIN BEHAVIORS IN A RAT MODEL OF TEMPOROMANDIBULAR JOINT DISORDER.** D. Polk, T. Hickman, E. Keene, D. Averitt. Biology

Research has shown that women are four times more likely to suffer from temporomandibular joint disorder (TMD) than men. This can be attributed to the elevated levels of psychological stress experienced by women during this stage of life. Although the link between stress and orofacial pain in women has been established, further research is required to comprehend the mechanisms behind this fully. This investigation aims to employ a clinically relevant rat model of TMD pain using the unilateral anterior crossbite (UAC) method. We hypothesized that females would develop greater TMD and/or widespread pain behaviors compared to males. To test this hypothesis, we attached a dental prosthesis to the front teeth, creating a crossbite, and added a stressor (forced swim test; FST) in a different set of rats as a comparison. We then measured four distinct pain behaviors every week for four weeks using mechanical allodynia and thermal hyperalgesia. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH R15DE025970.

**5. FLOAT POOL ORIENTATION RESOURCES.** K. Ten Eyck. Nursing – Dallas

A need for a more comprehensive orientation for nurses working in the float pool was identified for a large urban hospital. The float pool nurses may be assigned to work in any of the hospital's 25+ inpatient units. Each unit has specialized patient populations, skills, equipment, and protocols that require specific knowledge in order to provide safe, quality care. The current orientation system does not allow time for orientation to every unit's specific practices. During a one-week general orientation, the orientee experiences a maximum of six different units during six 12-hour orientation shifts, leaving 19 units not reviewed. The missing information poses a potential risk of harm in the care of patients. Standardized unit- specific tip sheets were created with the goal of preventing confusion and delay of care. These tip sheets will be made readily available to float pool nurses on the units thus promoting safe passage of the patient. (Faculty Sponsor: Dr. Cecilia Wilson)

**6. LGBTQ-POC ON THEIR EXPERIENCE AS MFTS IN TRAINING.** E. Love, B. Huelett-Lyons, M. Mitchell. Human Development, Family Studies, and Counseling

How are LGBTQ+ clinicians of color who provide marriage and family therapy in Texas supported in their clinical development and training? Recent legislation has involved efforts aimed at limiting institutional accountability for diversity in educational spheres. By centering on the stories of LGBTQ-POC MFTs, providers-in-training with intersecting marginalized identities will have an opportunity to share their unique experiences of developing clinical skills. This poster is a qualitative phenomenology study based on semi-structured interviews with MFTs in training (interns and associates) who identify as both members of the LGBTQ+ community and people of color. (Faculty Sponsor: Dr. Brittany Huelett-Lyons)

Supported by TWU Experiential Student Scholars Program.

**7. CLASSIFYING GROUPS IN ABSTRACT ALGEBRA.** E. Arellano, A. Hardesty. Mathematics

In this research we focused on the Fundamental Theorem of Finite Abelian Groups and how it provides a classification of groups. Through isomorphisms, groups can be broken down into the direct product of cyclic groups of prime power order. We noticed how the Fundamental Theorem of Abelian Groups related to the Fundamental Theorem of Finitely Generated Abelian Groups. Through examples, definitions, and proofs of these theorems; we showed how every Un is isomorphic to the direct product of cyclic groups. (Faculty Sponsor: Dr. Alexis Hardesty)

Supported by NSF Award 1953448.

**8. COMPARING HUMAN GS AND YEAST GS THROUGH HOMOLOGY MODELING.** D. Thomas, M. Stankus, J. Kimbrell, M. Anderson. Chemistry and Biochemistry

Glutathione (GSH) is an antioxidant tripeptide that protects cells from oxidative stress, while other functions include amino acid transport and as a cofactor for other enzymes. GSH is essential to human life, and deficiencies in GSH are linked to Parkinson's disease, cancer, Alzheimer's disease, and a variety of other diseases. GSH is synthesized by y-glutamylcysteine (GCS) and glutathione synthetase (GS), which are intracellular enzymes that are ATP/Mg2+ dependent. GCS is the first enzyme in the pathway that ligates glutamate and cysteine to make the intermediate y-glutamylcysteine. GS then ligates glycine to y-glutamylcysteine to make GSH. This project focuses on understanding the open conformation of GS, which is the enzyme structure without substrates and cofactors. The closed conformation is the enzyme structure when it binds to the product, and comparing the two structures could further the understanding of how the G- loop closes the active site and which secondary structures form. (Faculty Sponsor: Dr. Mary Anderson)

**9. ROLE OF BASIC LUCINE ZIPPER TRANSCRIPTION FACTOR 3 (BATF3) IN HUMAN T-CELLS.** T. Nester, M. Morse, S. Sinha. Biology

BATF3 belongs to the family of transcription factors called Activator protein 1. BATF3 was originally discovered in human T-cells, however, our knowledge is limited to murine studies which show that BATF3 may be required for the formation of memory T-cells after activation. This study aims to determine the function of BATF3 in human T-cells. Human T-cells were isolated from healthy donors and were either unstimulated, or stimulated with anti-CD3, or anti-CD3 + anti-CD28. The cells were stained with fluorescently conjugated antibodies to measure proliferation (Ki-67) and cytokine production (Anti-TNF-α, anti-IFN-γ, and anti-Granzyme B). Data was acquired on Cytoflex and analyzed using FloJo software. Our results show that BATF3 is upregulated in T-cells upon activation. Interestingly, BATF3+ T cells proliferated more and had increased expression of cytokines as compared to BATF3- T-

cells. Overall our results suggest that BATF3 may play a role in effector responses from human T- cells. (Faculty Sponsor: Dr. Sushmita Sinha)

Supported by NIH R15AI169400, TWU Chancellor's Research Faculty Scholar Program.

**10. USE OF RATE CONTROL AND EXAGGERATED ARTICULATORY MOVEMENTS WITH AN ADULT WITH DYSARTHRIA AND A VOICE DISORDER TO INCREASE INTELLIGIBILITY.** L. Alvarado. Communication Sciences and Oral Health

Rate control and exaggerated articulatory movements were used jointly as an intervention approach to investigate their effects on improving speech intelligibility of an adult with dysarthria and a voice disorder. An ABA design with a stable baseline was used. The treatment was centered around treating six speech sounds that were continuously measured using a baseline list of nonsense words. Within that treatment, rate control and exaggerated articulatory movements were used as a means to increase intelligibility. While some improvements were observed, no significant effect size was found at the conclusion of treatment. (Faculty Sponsor: Professor Alisa Woods)

**11. EFFECTS OF HYBRID APPROACH ON NAMING IN ANOMIC APHASIA: A SINGLE- CASE STUDY.** S. Pham. Communication Sciences and Oral Health

Cerebrovascular accidents (CVA) can have drastic impacts on speech, language, communication, and quality of life. CVAs can result in communication disorders such as aphasia, which is a language disorder that can affect expressive and receptive language in spoken and written forms (American Speech-Language and Hearing Association, n.d.). A specific subtype of aphasia, called anomic aphasia, specifically impacts word finding and confrontational naming. There have been many approaches, such as Semantic Feature Analysis (SFA) and Phonological Components Analysis (PCA), that have been researched. However, the hybrid approach has yet to be evaluated for its efficacy on word finding abilities. (Faculty Sponsor: Professor Alisa Woods)

**12. ISOLATION AND IDENTIFICATION OF ENDOPHYTIC FUNGI FROM EUPHORBIA DENTATA AND EUPHORBIA BICOLOR (EUPHORBIACEAE).** J. Saldana, R. Crane, C. Maier. Biology

Endophytic fungi are organisms that inhabit some plants' bodies without being pathogenic. Euphorbia species, known to synthesize bioactive chemicals, have symbiotic relationships with endophytic fungi. We discovered the presence of endophytic fungi in plant tissue cultures of E. dentata and E. bicolor, two native species not studied before. Our research goal is to identify the symbiotic endophytic fungi and determine the secondary metabolites they produce, since pharmacological studies are finding plant endophytic fungi as potential sources for bioactive metabolites. Isolation of the endophytic fungi from E. dentata and E. bicolor was performed through subcultures on V8 agar medium. Preliminary microscopy identified two of the endophytic fungi as Aspergillus and Alternaria. Further research will be conducted to isolate, identify, and compare fungal secondary metabolites to those synthesized by E. dentata and E. bicolor to discover new pharmacologically active chemicals. (Faculty Sponsor: Dr. Camelia Maier)

**13. LUNAR REGOLITH: WILL DUST HINDER NASA'S ARTEMIS MISSION TO THE MOON?** S. Daigle, K. Coker, J. Seo, R. Zhang, J. Beatty. Chemistry and Biochemistry

Lunar regolith consists of small dust particles up to boulder-sized rocks. The elemental composition of the regolith varies, but mainly is composed of Si, Fe, Ti, and a few others. There are no weathering processes on the Moon, so the regolith consists of sharp and pointed edges, even down to the smallest dust particle. Additionally, the dust is statically charged, causing fine dust to adhere to anything that comes in contact with the Moon's surface. Dust plumes during rover and manned vehicle landings could also damage surfaces. Microscopic dust particles are extremely abrasive and can damage equipment and harm the body if inhaled by astronauts. Damage to equipment can be mitigated by our experimental electrostatic dust- repelling coatings sent to the Moon. In collaboration with UNT and NASA, this project aims to develop and study coatings that repel lunar dust, manage heat in spacecraft, and protect equipment sent to the Moon. (Faculty Sponsor: Dr. John Beatty)

Supported by NASA Grant 80NSSC23M0207, NSF Award 1953448, UNT Chemistry.

**14. CHROMATOGRAPHIC & THEORETICAL INVESTIGATION OF THE PLATINUM-BASED CHEMOTHERAPEUTIC DRUG COMPLEX, CARBOPLATIN.** L. French, A. GigiScaria, J. Hernandez, S. Lin, N. Mirsaleh-Kohan. Chemistry and Biochemistry

Platinum-based anticancer drugs are the mainstay of the chemotherapy regimens designed to cure most cancers. Like many platinum-based antineoplastic complexes currently in use, the drug complex Carboplatin has shown significant antitumor activity but also causes considerable damage to other cells and multiple undesirable side effects. Not only are platinum-based chemotherapy agents limited by such toxicity, but many cancer patients who initially respond well may quickly evolve resistance to these therapies. To develop efficient next-generation platinum-based anticancer compounds with less toxicity and less drug resistance, additional understanding of how these complexes interact with DNA is needed. Modifications to the DNA dinucleotide, dGpdG, in the presence of the antineoplastic Carboplatin, will be examined by reverse-phase high performance liquid chromatography (RP-HPLC) using varying reactant concentrations and DNA to drug ratios. The interactions of Carboplatin near Guanine will be theoretically investigated by density-functional theory (DFT) computations. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by Robert A. Welch Foundation M-0200, TWU Center for Student Research.

**15. THERMAL GRAVIMETRIC ANALYSIS AND RAMAN SPECTRAL CHARACTERIZATION OF CARBON NANOTUBES.** M. Rodriguez, M. Obradovic, N. Mirsaleh-Kohan. Chemistry and Biochemistry

Carbon nanotubes (CNTs) are able to absorb carbon dioxide, making them a potential solution for the reduction of greenhouse gasses. These nanostructures are composed of sheets of graphene and can vary in diameters, number of carbon walls and in whether they contain functional groups. In order to comprehend the influence of heat on the properties of carbon nanotubes (CNTs) and the stability of these CNTs. CNTs samples are analyzed through use of Thermal Gravimetric Analysis (TGA) where the sample is gradually heated at 20C per minute from room temperature up to 1000C. TG Analysis are used to study the thermal stability of the samples by obtaining the changes in weight of the sample as the temperature increases. Furthermore, the samples of CNTs are examined using Raman Spectroscopy to analyze CNT spectral features before and after heating, aiming to detect any structural alterations. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

**16. EXERCISE AND ALZHEIMER'S: A RESOURCE FOR POSITIVE IMPACT.** M. Pearson. Biology

This research presentation aims to address the negative symptoms associated with Alzheimer's Disease and explore the broad impact of exercise on this neurodegenerative condition. Alzheimer's Disease manifests with a range of adverse cognitive and behavioral symptoms. Acknowledging the potential positive effects of exercise on Alzheimer's, this review aims to create a user-friendly resource to broadly illustrate how different types of exercise may influence Alzheimer's Disease. By providing accessible information, this resource aims to empower individuals to incorporate suitable exercises into their routines, fostering a proactive approach to managing and potentially mitigating the negative impacts of Alzheimer's. The goal is to offer an education resource that summarizes the potential benefits of exercise in the context of Alzheimer's Disease. (Faculty Sponsor: Dr. Zane Lybrand)

**17. INCREASING THE UTILIZATION OF EMERGENCY CONTRACEPTION IN REPRODUCTIVE-AGE WOMEN: AN EVIDENCE-BASED PRACTICE QUALITY IMPROVEMENT PROJECT.** T. Davis. Nursing – Dallas

Levonorgestrel emergency contraception (EC) reduces the chance of unintended pregnancy by up to 90% when used within 72 hours of unprotected sex. The U.S. Selected Practice Recommendations for Contraceptive Use, 2016, advises real-time and advanced provision of EC to remove access barriers and improve EC effectiveness. Only 8% of healthcare providers adhere to the recommendation. This quality improvement (QI) project aimed to increase EC utilization in reproductive-age women (R-AW) through reproductive health staff education and implementation of an evidence-based practice (EBP) guideline. The QI project also assessed the existence of provider-driven barriers to EC access. The results of the QI project showed adding the EBP guideline to the existing contraceptive counseling program produced a statistically significant ($p<.001$) increase in EC counseling and utilization. The staff survey results did not significantly decrease provider-driven biases ($p<.05$). (Faculty Sponsor: Dr. Shalawn Harris)

**18. THE BIOMECHANICAL EFFECTS OF ASSISTIVE BATTING EQUIPMENT IN A WHEELCHAIR SOFTBALL BATTING SWING.** H. Alvis, S. Baek, K. Mori, R. Davis, R. Rigby, Y. Kwon. Health Promotions and Kinesiology

The purpose of this study was to investigate the effects of different assistive equipment (i.e., block, cage) on batting performance while performing a wheelchair softball swing. Kinematics and kinetics of the wheelchair batting motion were analyzed for 10 adaptive athletes (age = 31.9±10.7 years, sitting height = 143.7±12.2 cm; weight = 78.7±18.3 kg; 7 males) using three-dimensional motion capture at 250 Hz and force plate technology at 1000 Hz. Participants performed three batting swings off of a tee using the block, cage, and with no equipment. Performance variables were compared using a one way, repeated MANOVA without adjusting alpha. Participants exhibited increased bat speed, peak ground reaction force, torque, and hip and shoulder kinematics, while utilizing either the block or cage when compared to batting without the assistive equipment. Based on these results, using assistive batting equipment may lead to optimal batting performance for athletes who compete in wheelchair softball. (Faculty Sponsor: Dr. Young-Hoo Kwon)

Supported by TWU Center for Student Research, PER4MAX, University of Texas at Arlington.

**19. ANTIPROLIFERATIVE ACTIVITY OF EUPHORBIA DENTATA IN T47D, MDA-MB 231, AND MCF-7 CANCER CELL LINES.** A. Ifagbayi-Adeniran, M. Mahabub Rumpa, C. Maier. Biology

Utilization of medicinal plants has seen a notable rise over the past few years with certain plant extracts being known for having anti-cancer properties. This study evaluates the antiproliferative activities of Euphorbia dentata extracts on ER-positive MCF-7 and T47D, and triple- negative MDA-MB 231 breast cancer cells. Preliminary results showed that E. dentata extract has antiproliferative activity in T47D cell line but not in MDA-MB-231 cancer cells. A biphasic effect was observed with T47D breast carcinoma in which E. dentata extract at low concentrations increased and at high concentrations decreased cell proliferation. There was an 80% decrease in cell viability at 250µg/ml of extract. Future work will focus on fractionating E. dentata extracts and characterizing the antiproliferative activities and mechanisms of action of the diterpene and isoflavone fractions, which could lead to the discovery of new therapeutics for breast cancer. (Faculty Sponsor: Dr. Camelia Maier)

Supported by NSF Award 1953448.

**20. UPCYCLING GRAPE POMACE WASTE INTO FOOD INGREDIENTS WITH SOLID-STATE FERMENTATION.** D. Salta, D. Wang, X. Du. Nutrition & Food Sciences

Grape pomace is a major waste product of the wine industry. In addition to its high fiber content, grape pomace is rich in polyphenols as these are not fully extracted during winemaking. The objective of this study was to extract polyphenols and other compounds from Texas grape pomace after solid-state fermentation. High-performance liquid chromatography (HPLC) was used to measure concentrations of certain flavor compounds in the extracts to explore their use as food ingredients. Two types of grape pomace were fermented with two species of Aspergillus fungi at 30°C for 6 days and sampled every 24 hours. Extracts of the fermented samples showed significant differences ($p<0.05$) in pH, °Brix, and titratable acidity compared to the control samples over the fermentation period, as well as between the A. niger and A. oryzae samples. Extracts also showed significant differences in organic acid content as measured through HPLC. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by TWU Experiential Student Scholars Program, TWU Chancellor's Research Faculty Scholars Program.

**21. IDENTIFYING GENES DOWNREGULATED BY A NOVEL ANTI-CANCER, P300 INHIBITOR BISAMIDOXIME, JJMB9 IN HUMAN BREAST ADENOCARCINOMA CELLS, MCF-7.** N. Franco Arjona, M. Bergel, C. Golly, E. Shin, S. Ruiz. Biology

Breast cancer is a major worldwide health care. However, in our lab, JJMB9, a novel bisamidoxime compound, showed promising anti-cancer efficacy, both in vitro and in vivo, and inhibited p300, a histone acetyltransferase and transcription co-activator. JJMB9 can aid in cancer treatment by targeting the dysregulated gene expression characteristic of cancer cells. To explore the effect of JJJMB9 on human breast adenocarcinoma cells, MCF-7, transcriptome, RNA samples from both untreated and JJMB9-treated MCF-7 cells were collected and sequenced. The differences in the transcription pattern of the downregulated genes Claspin, Cystin 1, SLC6A19 and MCM10 were corroborated by RT-qPCR. These studies will help us to determine the mechanism-of-action of JJMB9 and to identify the exact protein targets associated with the chromatin compaction and transcriptional repression properties, that could lead to new validated targets for cancer therapy. (Faculty Sponsor: Dr. Michael Bergel)

**22. LACK OF CYTOPATHIC EFFECTS IN BREAST CANCER CELLS INFECTED WITH HUMAN CYTOMEGALOVIRUS.** I. LaRue, E. Garcia, A. Martins, J. Spencer. Biology

Human Cytomegalovirus (HCMV) is a member of the herpesvirus family that evades the host immune system and establishes life-long latency. While HCMV typically causes clinical disease only in immunocompromised people, it may contribute to chronic conditions, reduce immune function, and promote tumor progression. HCMV has been associated with invasive tumors and metastatic spreading in breast cancer. To investigate the impact of HCMV on breast cancer, we infected breast cancer cells and evaluated cell morphology using the Incucyte Live Cell Imaging System. While normal epithelial cells showed clear cytopathic effects following HCMV infection, breast cancer cells did not exhibit morphology changes or undergo cell lysis. These results suggest that HCMV infection may proceed differently in tumor cells compared to normal cells, possibly due to genetic mutations or abnormal tumor cell physiology. These findings demonstrate that HCMV infection of breast cancer cells has complex effects that may contribute to tumor progression. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU Center for Student Research.

**23. INVESTIGATING THE QUALITY OF PEA MICROGREENS ENRICHED WITH PROBIOTIC YEAST.** V. Montalvo, D. Wang. Nutrition & Food Sciences

Microgreens are an emerging specialty food product with increasing popularity. They are the edible seedlings of plants when the first true leaves emerge, and they contain high concentrations of bioactive components and are most commonly consumed fresh. The yeast Saccharomyces cerevisiae is used frequently in food production and was found to be an effective probiotic. Previous studies have shown that buckwheat sprouts inoculated with this yeast increased the nutraceutical value of the sprouts, but its effect on microgreens is unknown. This project investigated the effect of Saccharomyces cerevisiae on the physiological (height and weight) and microbiological quality (total microbial counts and yeast counts) of pea microgreens after the seeds were soaked in the yeast solution. The results will demonstrate how the yeast affects plant health and how the plants may become a carrier of probiotics for human health benefits. This study will open the opportunity for further research on health benefits of naturally modified plants. (Faculty Sponsor: Dr. Danhui Wang)

Supported by TWU Center for Student Research.

**24. COMBATING RACIAL AND ETHNIC MICROAGGRESSION EXPERIENCES WITH PARENT INVOLVEMENT.** I. Iven, C. Banks, M. Hinton. Social Work, Psychology and Philosophy

Although research has indicated that racial and ethnic microaggressions occur frequently in adults, there is a growing body of studies reflecting its occurrence and resulting negative outcomes during adolescence and secondary school. This research examined the interaction between parental involvement, racial and ethnic microaggressions, and adolescent well-being. The study utilized online surveys from 142 adolescents to gain quantitative data measuring observations of microaggressions, experiences of microaggressions, and adolescent well-being. Findings indicate a relationship between observing and/or experiencing microaggressions

and adolescent well-being. The principal findings suggest that perceived parental involvement moderated the association between both experiencing and observing microaggressions and well-being. The results contribute to the understanding of how schools can help create a healthy learning environment that supports adolescent well-being, student engagement, and a positive school climate. (Faculty Sponsor: Dr. Courtney Banks)

Supported by Sam Houston State University.

**25. DYNAMICS OF GLUTATHIONE SYNTHETASE'S H-LOOP RESIDUES.** M. Stankus, M. Anderson. Chemistry and Biochemistry

The tripeptide glutathione (GSH) is a critical antioxidant for sustaining life and protecting against oxidative stress. Two ATP-dependent enzymes, γ- glutamylcysteine synthetase (γGCS) and glutathione synthetase (GS), produce GSH through stepwise activity within cells. The G, A, and H loops surround the active site of human GS. Previous studies have shown that the G and A loops protect the GS reaction intermediate from hydrolysis. The H-loop of GS (T147, I148, S149, A150, S151A, F152) comprises several highly conserved Ser and Thr residues hypothesized to play a role in substrate binding. Through in silico mutagenesis, we have engineered the structure of double and triple site-directed mutations of the highly conserved residues T147, S149, and S151 and simulated the conformational changes caused by these mutations. Our results suggest that these conformational changes near the active site may cause a decrease in substrate binding affinity lowering enzyme activity. (Faculty Sponsor: Dr. Mary Anderson)

Supported by Robert A. Welch Foundation M-0200.

**Session 3. Tuesday, April 23, 6:00 pm – 7:20 pm**
**Student Union 2300 (Southwest Ballroom)**

**1. OIL REMEDIATION USING 12-N-12 GEMINI SURFACTANT IN SAND.** P. Justice, A. Jordan, D. Aguilar, R. Sheardy. Chemistry and Biochemistry

An estimated 706 million gallons of oil are lost to the environment per year, the impacts are widespread from water pollution, loss of habitats, and shoreline erosion. While there are many oil remediation (OR) techniques, our focus lies in physical-chemical remediation. Gemini surfactants (GS) are a promising use in OR techniques due to the low toxicity to the environment and high efficiency. With the use of 12-n-12 (where n=2,3,4,5,6) GS, we are exploring its potential in OR due to its ability to form micelles at extremely low concentrations, known as the critical micelle concentration (cmc). To evaluate its efficacy as an OR technique, we contaminated sand with common motor oil and added varying concentrations of the GS solution to attempt to remove the motor oil from the silica sand. The results of our experiment will be analyzed by various spectroscopic and non-spectroscopic techniques. (Faculty Sponsor: Dr. Richard Sheardy)

Supported by Robert A. Welch Foundation M-0200, NSF Award 1953448.

**2. ARE PRESCRIBED HEARING AIDS BETTER THAN OVER-THE-COUNTER HEARING AIDS?** A. Huizar, S. Bharadwaj, E. Landry, T. Betz. Communication Sciences and Oral Health

The proposed between-subject study aims to compare Over-the-Counter hearing aids (OTC) and prescribed audiologist-fitted hearing aids in terms of Quality of Life (QoL) and speech understanding. The study will include 50 participants ages 25-50 years, who have bilateral mild to severe hearing loss. Participants will be randomly assigned to either an OTC group or prescribed hearing aid group. Following audiometric evaluation and speech recognition in noise testing, participants will complete two QoL questionnaires: Satisfaction with Amplification in Daily Life and the Abbreviated Profile of Hearing Aid Benefit. These evaluations will be conducted at the onset of the study, the three-month mark, and at 6 months. Multivariate analyses of variance will be used to compare the benefits of each hearing technology in terms of QoL and speech recognition. It is expected that prescribed hearing aids will provide better QoL compared to OTC for individuals with hearing loss. (Faculty Sponsor: Dr. Sneha Bharadwaj)

**3. A COMPREHENSIVE LITERATURE REVIEW: DNA AND DRUG INTERACTIONS.** A. Ginegaw, R. Sheardy, N. Mirsaleh-Kohan. Chemistry and Biochemistry

DNA and drug interactions post the potential to shape the future of personalized medicine and therapeutic progress. By exploring the synthesis, characterization, and multi-spectroscopic studies of platinum complexes, such as metformin, the binding properties of DNA can be studied. Cationic porphyrins have exhibited great strides in understanding the impact of molecular crowding within these interactions when combined with poly(ethylene glycol), as well. In vitro studies regarding anticancer drugs have utilized spectroscopic techniques to further understand the mechanisms and binding affinities of DNA and drug interactions via UV- visible and fluorescence spectroscopies. The integration of bio and nano bioelectrochemistry in the realm of pharmacogenetics, specifically in use of cyclic voltammetry, has allowed the formulation of highly tailored treatments. In analysis of a variety of sources and diverse studies, this literature review deepens our understanding of DNA and drug interactions – proposing an enhancement in drug efficacy and therapeutic interventions. (Faculty Sponsor: Dr. Richard Sheardy)

**4. SELF-EFFICACY AND RESILIENCE AMONG TOKEN WOMEN ENTREPRENEURS.** L. Lemmon, G. Smith, J. Lambert. Social Work, Psychology and Philosophy

Previous research has explored the impacts of tokenism on women entrepreneurs regarding heightened visibility, polarization, and assimilation pressures. While various

studies have explored the barriers and challenges women entrepreneurs experience due to gender bias and tokenism, further research is needed to explore the phenomenon of resiliency and self-efficacy among this population. In this study we will further explore these themes and examine how self-efficacy and resilience may play a role in coping and thriving in these traditionally male dominated spaces. We will conduct qualitative interviews with women thriving in leadership roles to further illuminate instances of resiliency and self-efficacy of women in male-dominated fields. We will conduct 5 semi-structured interviews with diverse women leaders about their experiences in leadership using an interpretive phenomenological analysis. We hypothesize that there will be themes found in token women entrepreneur research that suggests a strong sense of self-efficacy and remarkable resilience in women entrepreneurs. (Faculty Sponsor: Dr. Gabrielle Smith)

Supported by TWU Small Grant Program.

**5. GENDER PARADOX: HOW EUROPEAN IDEALS IMPACT SOCIAL VIEWS OF GENDER IN STEM TODAY.** M. Hastings, B. Kinney. Mathematics

In the modern world, we celebrate the importance of Women in STEM; however, while supporting these women, there is still a gender paradox across these professions. A gender paradox, in this sense, means a shortage of a specific gender in certain STEM fields, such as a lack of women in engineering and technology, while there is a decrease of men in medical and social sciences. Why is this, though? Why are women more likely to become nurses than have a degree in engineering? Why are men less likely to have a degree in mathematics rather than pharmaceuticals? In modern days, many reasons and stereotypes affect these statistics, but the real question is how these reasons and stereotypes developed. One of the leading causes of this gender paradox is previous European ideals. This paper aims to focus on how these ideals are still held today and why that is. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**6. THE UNITED NATIONS AS A COALITION FOR THE ADVANCEMENT OF EQUALITY IN STEM.** R. Munguia, A. Bamigboye. Mathematics

Women make up a third of all STEM researchers worldwide. The United Nations Secretary-General believes that in order to build a better future, a reduction must be made in this representational disproportionality. This disparity stems from perceived stereotypes which dissuade women from pursuing careers in scientific fields and is perpetuated by biases reiterated and reinforced by machine learning algorithms. The authors and the UN as a whole, believe that by investing in a more inclusive and proportional body of researchers, the world of STEM will usher in a new era of better, more unbiased research, and thus become an increasingly equitable field for all involved. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**7. PARENTAL CHOICE ABOUT CREDIBLE SOURCES OF INFORMATION ABOUT CHILD DEVELOPMENT AND PARENTING.** U. Maryam, K. Rose, J. Crocker. Human Development, Family Studies, and Counseling

There are many potential sources available for parents to choose from when looking for information about parenting and/or child development, each with varying degrees of credibility. This study aims to explore where parents get information about typical child development/behaviors and parenting, where and how they access these sources, their level of trust in these sources, and the reasons they cite for trusting in these sources of information. While existing research has found that family members, books, the internet, and social media are frequently cited as sources of this information, less is known about the levels of trust parents place in these sources and why. This study seeks to fill that gap in the literature through and anonymous, online survey disseminated to parents of children 18 years old and younger, investigating the sources that they use, where and how they access these sources, and how much trust they place in each. (Faculty Sponsor: Dr. Katherine Rose)

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

**8. COMPARISON OF PHYSIOCHEMICAL PROPERTIES OF LETTUCES FROM OPEN FIELD AND VARIOUS HYDROPONIC CONDITIONS.** E. Kwock, X. Du. Nutrition & Food Sciences

Interest in controlled growing environments for lettuce production increases as available arable land decreases. This study aimed to compare effects of growing conditions and variety on lettuce physiochemical properties. Rex and Rouxai cultivars were grown under four growing conditions (open field, standard hydroponic, hydroponic in 30°C nutrient solution, and hydroponic in 20°C nutrient solution) at Texas A&M. Spectrophotometric methods determined pigment concentrations, total polyphenols, and antioxidant capacities; high performance liquid chromatography quantified soluble sugar and organic acid contents. Standard hydroponics produced the most total polyphenols in the Rex cultivar (0.00665-0.00748 mg/g GAE) and pigment compounds (2x concentration increase from open field); open fields produced the most total polyphenols in the Rouxai cultivar (0.01286-0.01303 mg/g GAE) and the highest antioxidant capacity (10x concentration increase from hydroponics). 20°C-solution hydroponics produced the most soluble sugars (total concentration approx. 285 mg/g FW); 30°C-solution hydroponics produced the most organic acids (total concentration 54.227-66.286 mg/g FW). (Faculty Sponsor: Dr. Xiaofen Du)

Supported by TWU REP.

**9. ILLUMINATE 1.** S. Patel, C. Brower, K. Castro, R. Dasgupta. Biology

Protein arginlyation is important for the removal of damaged proteins and has implications for human disease. Arginylation

is catalyzed by the enzyme, Arginyltransferase 1 (ATE1). The loss of ATE1 in mice was shown to cause defects in fat metabolism as well as neurodegeneration. However, in these studies ATE1 loss occurred in all tissues throughout the body. Therefore it is unclear in which tissues ATE1 is important. We have observed differences in ATE1 activity between tissues with similar ATE1 protein levels. This predicts the existence of tissue- or cell type-specific regulators of arginylation. As a means to survey the spatial and temporal regulation of ATE1 in a comprehensive manner, we recently generated transgenic ATE1-reporter mice which express a dual-fluorescent reporter sensitive to its activity. Here, we are validating transgenic founder mice and confirming propagation of the ATE1 reporter through genotyping of genomic DNA isolated from tails. (Faculty Sponsor: Dr. Christopher Brower)

Supported by TWU REP.

**10. SEE IT AND REPORT IT.** Y. Cao, J. Nguyen, A. Juarez, A. Delgado, O. Oboh. Communication Sciences and Oral Health

More than 600,000 children are abused in the U.S each year.8 The purpose of this research is to determine if dental professionals who complete continuing education on child abuse are more comfortable in addressing and reporting signs of physical, psychological, and sexual abuse to respective authorities. Research findings state that dental professionals are not reporting due to a lack of education and training. Research conducted reveals that dental professionals who engage in continuous education reported improvements in knowledge, motivation for learning, and quality of dental care. The implementation of enhancing knowledge through continuing education courses may enable dental professionals to be able to recognize and report instances of child abuse more confidently. Dental professionals may encounter signs of child abuse during routine examinations or treatments. Ultimately, it's important to be aware of potential indicators and follow appropriate procedures to ensure the safety and well-being of the patient. (Faculty Sponsor: Dr. Samiel Wells)

**11. SUMATRIPTAN ATTENUATES STRESS-EXACERBATED OROFACIAL PAIN BEHAVIORS IN FEMALE RATS.** L. Lugo, T. Hickman, D. Cantu, D. Leyva Zaldivar, D. Averitt. Biology

Stress is linked to higher pain reports in patients with orofacial pain conditions, such as temporomandibular joint disorder. Women are 2-4x more likely to experience orofacial pain and are more susceptible to the effects of stress on pain. Our previous studies demonstrated female rats display greater stress-exacerbated orofacial pain behaviors and higher pain signaling from sensory neurons to the brainstem. As serotonin can bind 5HT1B/1D receptors to reduce pain and females may have less serotonin receptors, we hypothesized that a 5HT1B/1D agonist would attenuate stress- exacerbated orofacial pain in female rats. Orofacial inflammation was induced in the vibrissal (cheek) pad, then rats were exposed to the forced swim test as a stressor. Rats received an injection of sumatriptan (5HT1B/1D agonist; 300 or 600 µg/kg) or saline (control) and pain behaviors were analyzed. We report that inflammation induced significant orofacial pain behaviors that were attenuated with sumatriptan treatment. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NIDCR R15 DE025970, NIH F31DE031959, NSF Award 1953448.

**12. INTERACTIONS OF CARBON NANOTUBES WITH ANTIBIOTICS TETRACYCLINE AND AMPICILLIN.** M. Pinon Galvan, N. Molina, Y. Li, N. Mirsaleh-Kohan. Chemistry and Biochemistry

In this study, the potential effects of different types of carbon nanotubes (CNTs) in combination with the antibiotics tetracycline and ampicillin are explored, aiming to evaluate their efficacy in combating the global crisis of antibiotic resistance. CNT solutions were prepared with four common solvents: water, ethanol, methanol, and DMSO. Experimental results suggest that CNTs have poor solubility with the solvents and proved to be a challenge and setback in sample preparation. As an alternative, solutions with functionalized CNTs COOH and NH2 were prepared with water. Furthermore, a low concentration of surfactant (0.1 mmol) was added to the NH2 CNT solution and sonicated for three hours to improve solution solubility, however, it did not completely dissolve. These experiments are in progress to find optimum conditions to improve solubility of the CNTs in the solvents. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by Robert A. Welch Foundation M-0200.

**13. SEMAGLUTIDE AND TIRZEPATIDE DRUGS AND THEIR EFFECT ON GLCA1C AND WEIGHT. POSSIBLE COUNTER-INTERACTIONS; ESPECIALLY IN INDIVIDUALS WITHOUT HISTORY OF DIABETES..** W. Ekhator, N. Canales, Z. Hussain, N. Mirsaleh-Kohan. Chemistry and Biochemistry

Ozempic is a drug prescribed for type 2 diabetes but recently there has been a high demand due to its rapid weight loss side effect. Semaglutide and Tirzepatide are two of the major drugs used in these types of medications that have a vast array of side effects such as nausea, diarrhea and weight loss. In this presentation, we will conduct a thorough literature search to examine these drugs effects on hemoglobin A1C (glcA1c) and their impacts on our bodies, especially for those who use these drugs without a history of diabetes. Several research studies conclude that these drugs in nondiabetic patients, can help mimic hormones that control hunger cravings causing a lack of appetite. In some extreme cases, serious side effects can include hypoglycemia, inflammation of the pancreas, gallbladder issues, and kidney failure. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

**14. PROBIOTICS, GOOD FOR YOUR GUT AND GOOD FOR YOUR GUMS!.** J. Avalos, C. Alfonzo, V. Sanchez, A. Green, Q. Nguyen. Communication Sciences and Oral Health

Probiotics are living microorganisms that, when administered

in sufficient quantities, showcase a diverse range of mechanisms that provide health benefits. The research sought to determine if adult patients who took probiotics while undergoing periodontal treatment experienced decreased healing time, reduced bleeding points, improved probe depths, and enhanced tissue appearance. A literature review analyzed existing research publications, which contributes to the understanding of how probiotics may enhance the effectiveness of periodontal treatment. Probiotics as a supplemental aid, in conjunction with plaque control, showed slight improvements in periodontal pocket depth, clinical attachment loss, and bleeding on probing. However, the duration of these effects may vary, requiring further research to refine probiotic administration regimens and individualize recommendations. Additional research through randomized controlled clinical trials with larger samples and longer follow-up periods is necessary to better comprehend the effectiveness of probiotics in managing periodontal diseases. (Faculty Sponsor: Professor Deborah Testerman)

**15. TRANSFORMING DENTISTRY WITH ARTIFICIAL INTELLIGENCE.** J. Martinez, A. Noman, O. Gallegos, G. Gradinaru. Communication Sciences and Oral Health

Artificial intelligence (AI) is a form of intelligence generated by software capable of performing activities that typically necessitate human intelligence. It is anticipated that AI assists in assessments, diagnosis, and treatment planning. Utilized in radiographic interpretation, it can identify restorations, caries, bone loss, and calculus. On intraoral images, AI can detect oral pathologies, lesions, and inflammation. Even though artificial intelligence has advanced over the years, further studies and testing are still needed to improve its accuracy and efficiency. (Faculty Sponsor: Professor Amy Teague)

**16. THE PROS AND CONS OF POPULAR DIET TRENDS: ARE THESE DIETING TRENDS ACTUALLY WORTH IT?** C. Edwards. Nutrition & Food Sciences

Every year we see new trends talking about what we should and shouldn't be eating. Article after article gets published saying to try this new diet or change these eating habits and you'll lose weight in no time at all. With each new trending diet method making numerous health claims, it can be hard to discern which ones are actually good; if any. What benefits do they actually have? Are there any downsides to these diets, and if so, what are they? This research project covers three popular diet trends: intermittent fasting, keto, and mediterranean, which is a type of plant based diet; and attempts to answer what the pros and cons of these diets are in a way that everyone, even those with little to no knowledge of nutrition can understand. (Faculty Sponsor: Ms. Christine VanBuren)

**17. BALANCE IN CHILDREN WITH AUTISM SPECTRUM DISORDER.** C. Wacaster, K. Staples. Health Promotions and Kinesiology

Children with ASD experience motor impairment across a variety of motor skills, using a variety of motor assessments. Although previous research has also demonstrated that children with ASD have poor balance compared to children with neurotypical development, balance has either been examined independently of other motor skills or grouped collectively with other gross motor skill competencies. This is despite postural control being an early motor skill that is pre-requisite to the development of other motor skills. Balance is the ability to maintain an upright position (or not fall over) during static or dynamic tasks. To maintain balance requires information from multiple sensory systems (visual, vestibular, proprioceptive) to be integrated and communicated to the body to produce muscular responses to adjust the body as necessary. It is suggested that difficulties with balance and postural stability may delay a child's ability to master fundamental motor skills. (Faculty Sponsor: Dr. Kerri Staples)

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

**18. DELETIONS OF RETINOL DEHYDROGENASES SDR16C5 AND SDR16C6 ALTER THE HAIR CYCLE AND HFSC MARKER, CD34, IN MICE.** R. Newman, C. VanBuren, H. Everts. Nutrition & Food Sciences

Recent studies indicated vitamin A might play a critical role in the regulation of the hair cycle. Genetic deletions in the retinol dehydrogenases Sdr16c5 and Sdr16c6 (chain short dehydrogenase/reductase family 16C, members 5 and 6) in mice altered the hair cycle in a previous study. This study aims to elucidate the role of vitamin A in hair cycle regulation and the expression of HFSC marker, CD34 in these mice. We analyzed skin biopsies from Sdr16c5-/-/Sdr16c6-/- double null (DKO) and wild-type C57BL/6J mice collected from postnatal day 26-50 with hematoxylin and eosin staining, and immunohistochemistry. Male DKO mice spent more time in catagen and initiated anagen earlier than wild-type mice. CD34 immunoreactivity was lower in telogen hair follicles from DKO mice in both sexes compared to wild-type mice. These results provide insight into how vitamin A regulates the hair cycle and could assist in future studies focusing on hair loss diseases. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Center for Student Research, Moore-Khourie Award, TWU REP, NIH R01AR076924.

**19. A STUDY ON THE INCREASE IN OBSERVATIONS OF POMACEA MACULATA IN TEXAS OVER A PERIOD OF 5 YEARS.** P. Hernandez. Biology

Pomacea maculata, commonly known as giant apple snail, is an invasive species in Texas. They have caused damage to rice crops in Asia thus posing a serious economic threat to counties that produce rice in Texas, and they transmit Rat lungworm which can infect humans. The number of observations were examined in various counties across south Texas per year from 2018- 2022 using data downloaded from iNaturalist, a citizen science database. There was an 800%

increase in observations from early 2018 to late 2022. This could be due to little means of remediation. Pesticides can harm native aquatic flora and fauna or contaminate drinking water. To prevent Pomacea maculata from damaging Texan ecosystems, citizens should be taught how to properly destroy snail eggs when encountering them and farmers should employ methods used in Japan, such as keeping paddy water shallow since snails do not feed on transplanted rice in shallow water. (Faculty Sponsor: Dr. Ann Davis)

**20. DON'T BE A SLAVE TO THE CRAVE.** K. Bogany, K. Davis, H. Lochtefeld, M. Thornton, I. Trevino. Communication Sciences and Oral Health

Nictotine Replacement Therapy (NRT) is provided to individuals for motivation to quit smoking and reduce nicotine withdrawal. Traditional nicotine cessation practices were compared to Transcranial Magnetic Stimulation (TMS) for the effectiveness of reducing periodontal disease. NRTs increase the rate of quitting by 50% to 60%. (Faculty Sponsor: Professor Nel Grassi)

**21. TINY TEETH, BIG BATTLES.** E. Rosas, Y. Rodriguez Flores, A. Six, L. Vigo, R. Yescas. Communication Sciences and Oral Health

Aggressive periodontitis is characterized by extensive destruction of periodontal tissues and often goes underdiagnosed in pediatric and adolescent populations. Factors such as socioeconomic status, familial history, and systemic diseases, increase the risk for development of periodontitis. It is important for dental professionals to be aware of risk factors in order to properly diagnose and treat periodontitis. Research shows clinicians are not taking the time to review risk assessments, which aid with early age detection and prevention. Undiagnosed systemic diseases combined with continued exposure of unidentified risk factors exacerbate the disease process and impact the primary dentition into the permanent dentition. Diagnostic radiographs, risk assessments, and routine dental care, are essential preventative measures. Aggressive periodontitis is often overlooked in children and adolescents, but dental professionals and pediatricians can take action to screen, detect, and treat the disease to prevent extensive loss and further understand periodontitis as it presents in this population. (Faculty Sponsor: Ms. Lizabeth Spoonts)

**22. GET TESTED, IT MAY SAVE YOUR LIFE.** J. Brown, R. Johnson, A. Briggs, C. Howard, N. Hutyra. Communication Sciences and Oral Health

Salivary testing is a tool that can be used in early detection of oral cancer. Specific inflammatory mediators and salivary biomarkers can detect the presence of oral squamous cell carcinoma and early signs of OSCC. These biomarkers include enolase 1, MiRNAs and extracellular vesicles. Studies compared the contents of saliva of a healthy patient to the contents of saliva of patients with OSCC. Research concludes salivary testing in conjunction with an oral cancer screening can be more efficient and effective in the diagnosis of cancerous and precancerous lesions as opposed to traditional oral cancer screenings alone. (Faculty Sponsor: Professor Laurie Bricker)

**23. THE LOOMING THREAT OF ANTIBIOTIC RESISTANCE.** M. Stankus, B. Welty, C. Carranza, G. Cruz. Chemistry and Biochemistry

As many as 5 million lives have been lost due to antibiotic resistance. If this ever increasing issue is not addressed, infections as common as Strep throat and Staph may become fatal. Many factors, including the incorrect use of antibiotics and the transfer of resistance genes between various species of bacteria, cause antibiotic resistance. Relevant literature reports several possible solutions. These include the development of new antibiotics, the use of novel treatments that do not involve drugs (such as phage therapy), and the education of healthcare providers and patients to ensure that antibiotics are only prescribed when needed and are taken in their directed fashion. This is a public health emergency that affects the global population, and immediate action to increase awareness and prevent any further complications is needed. (Faculty Sponsor: Dr. Mary Anderson)

**24. STUDY OF POLYETHYLENE MICROPLASTICS AND SODIUM LAURYL ETHER SULFATE VIA H-NMR SPECTROSCOPY.** X. Comanche-Webb, J. Leija, G. Salazar. Chemistry and Biochemistry

Pollution by microplastics, pieces of plastics between 1 and 5000 micrometers, have become a current concern due to their detrimental effects on the natural environment and -potentially- human health. There is now a plethora of literature reporting microplastics consumed by biota and then moved up the food chain; in fact, there are recent reports of microplastics accumulating in fish brain tissue and in human blood samples. Furthermore, when microplastics reach wastewaters they have shown the capacity of adsorbing toxic chemicals which concomitantly increase their damaging effects on living organisms. Therefore, the study of the microplastics surface and their interactions with chemicals found in wastewater are of paramount importantce. One chemical of interest is sodium lauryl ether sulfate, SLES; it is an odorless gel-like compound and the main surfactant in commonly used personal care products, such as toothpaste, hand soap, to name a few. As SLES also reaches wastewaters from both industrial and residential sources, it is a great candidate for our studies. Thus, here we rep... (Faculty Sponsor: Dr. Gustavo Salazar)

Supported by Robert A. Welch Foundation M-0200, NSF, TWU Jane Nelson Institute for Women's Leadership.

**25. THE DIVINE NINE SENSE OF PURPOSE AND BEYOND: AN AFROCENTRIC NARRATIVE EMBRACING WELL-BEING IN BLACK SORORITY SISTERHOOD.** C. Johnson Jones. Human Development, Family Studies, and Counseling

This qualitative research explored the lived experiences of

nine Black sorority sisters and the impact sorority sisterhood has on their well-being and Black Family Systems. An Afrocentric decolonizing design collected data with two theoretical perspectives - Africana Womanism and Ubuntu, each centering around family ideals and prioritizing race, gender, and class as a vital part of Black women's cultural identity. Following traditional Indigenous practices to experience familiarity and connection, three Afrocentric touch points fostered a sisterly relationship with the storyteller. Discovering a focus on relationships, this critical narrative delves into the rich tapestry of Black Greek life's ancestral, legacy, kinship, and kindred relations, highlighting the significance of well-being in fostering unity and empowerment. Within a profound sense of purpose, The Divine Nine sorority's sisterhood identified perceptible views of Black women's perspectives that promote well-being. This study champions The Divine Nine's sense of purpose, presenting an enduring and thriving Black collective. (Faculty Sponsor: Dr. Catherine Dutton)

Supported by TWU Experiential Student Scholars Program.

**Session 4. Wednesday, April 24, 9:00 am – 10:20 am**
**Student Union 2300 (Southwest Ballroom)**

**1. USING SOCIAL LEARNING MODELS TO IMPROVE EMERGENT READING OUTCOMES IN PREKINDERGARTEN STUDENTS.** A. Misch. Teacher Education

Prekindergarten students (ages 4-5) who have received evidence-based instruction in alphabetic knowledge within a print-rich environment, but who remain unable to name letters and their sounds, may be at risk for reading difficulties as they progress in grade school. Sociocultural learning, as studied by Vygotsky, Clay, Frith, and others, has been shown to impact cognitive development and foster the acquisition of skills and knowledge. While social models of instruction, such as the Jigsaw model, have been demonstrated to improve learning outcomes in older students, there is a dearth of research regarding how best to implement social learning models in the early childhood environment. This research project was conducted to determine whether social learning models can be used in early childhood education to increase alphabetic knowledge in children who have demonstrated difficulties with letter-learning, and to examine the efficacy of specific social models that have not previously been studied. (Faculty Sponsor: Dr. Ludovic Sourdot)

**2. UNVEILING THE HISTORICAL EXPLORATION OF WOMEN AND MINORITIES IN STEM FIELDS.** M. Strauss, C. Garcia. Mathematics

To discover and understand the challenges and barriers that have inhibited the performance of women and minorities in STEM (Science, Technology, Engineering, and Mathematics) disciplines, this research explores the background and history of these groups, which are frequently ignored and marginalized. Beginning with the remarkable efforts of early female and minority scientists who broke cultural standards to achieve groundbreaking strides in STEM disciplines, history develops as a journey distinguished by endurance and determination. This study aims to shed light on the difficulties encountered in obtaining chances and education by exposing the often-overlooked narratives that have impacted the accomplishments of women and minorities in STEM. The ultimate objective is to increase public awareness of the historical background of these people's struggles and to provide guidance for current initiatives to expand inclusive and equitable possibilities in STEM disciplines. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**3. THE APPLICATIONS OF HAMILTONIAN AND LAGRANGIAN MECHANICS WITHIN THE CALCULUS OF VARIATIONS.** H. Dean, K. Wheeler, Y. Guzman, G. Short. Mathematics

For this project, the researchers study Hamiltonian and Lagrangian mechanics and its applications within the Calculus of Variations. These physical principles allow us to express the minimum state of the mechanical systems, as well as optimize their action functional second by second. By using integration and Newton's laws, we apply the Euler-Lagrange equation to find the lowest potential energy along the mechanical system's trajectory through a configured bounded space. This process is investigated through various examples of one and multi-dimensional problems. Through these examples we will explain the topics's application within the Calculus of Variations. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**4. EXAMINING REGULATORY MECHANISMS OF MURID BETAHERPESVIRUS 1 ESSENTIAL M142 PROMOTER REGION.** D. Davis, L. Hanson. Biology

The major immediate-early promoter of human cytomegalovirus is a powerful promoter routinely applied for gene expression in a wide range of organisms. Although it is an excellent tool, its use is often associated with issues of toxic overexpression and inconsistent expression in long-term and in-vivo studies. We are working with a murine cytomegalovirus immediate-early promoter which we hypothesize will function in a similar breadth of organisms but with more moderate expression levels. We have constructed modified promoter constructs to test regions previous work supported are important for maximal expression. As such we have engineered a mutation to an ELK-1 binding site hypothesized to be critical for activation and have constructed a promoter construct excised of putative repressor sequences. We are testing in NIH3T3 mouse fibroblast, B35 rat neuroblastoma, and HFF-1 human fibroblasts cell lines to evaluate the importance of the sequences across an initial range of mammalian systems. (Faculty Sponsor: Dr. Laura Hanson)

Supported by TWU Center for Student Research, TWU Pioneer Center for Student Excellence.

**5. INVESTIGATING THE USE OF QUADRATIC APPLICATIONS IN MIDDLE SCHOOL MATHEMATICS.** J. Hayward, S. Cooley. Mathematics

This poster presentation will detail the use of quadratic applications at the middle school level. Sample lesson plans with student work will be discussed, as well as possible modifications, including technology connections, that could be made for future iterations of the assignments will be detailed. (Faculty Sponsor: Dr. Ann Wheeler)

**6. PEDIATRIC PAIN.** K. Nibarger. Nursing – Dallas

Pediatric patients do not receive the same level of pain assessments or treatments compared to adults. There are many behavioral and developmental differences that can make assessing pain more difficult, and it is therefore done less. The purpose of this educational project is to build a foundation of knowledge for nursing students, so they can appropriately assess and treat pain in pediatric patients. A teaching module will be developed to address the assessment and treatment of pediatric pain. The target audience is undergraduate nursing students and will be included as part of the Child Health Competencies content. Students will work through self-paced reading and learning activities and interactive class activities to assess understanding. Learning will be measured through the successful completion of an escape room at the end of the module. Content will also be included in their first exam. This module will address the QSEN (2022) patient-centered care competency. (Faculty Sponsor: Dr. Cecilia Wilson)

**7. CULTURALLY RELEVANT TEACHING METHODS IN CORRELATION TO ACCESS TO HIGHER EDUCATION.** Z. Henderson. Social Sciences and Historical Studies

The study aims to explore the enduring differences in racial and socioeconomic background to access and success in higher education by examining the application of culturally appropriate teaching strategies in academic environments. It will also investigate the value of culturally appropriate teaching strategies in facilitating positive identity development, encouraging academic success, and equipping students to engage critically. The study will investigate how culturally appropriate teaching strategies could strengthen educational environment equality and will explore educator's roles in acknowledging and addressing intersectionality of race and socioeconomic position in their attempts to remove obstacles to access to higher education, creating a sense of community, and supporting academic achievement for all students. To answer the research question, I will conduct a meta-analysis of scientific literature published on culturally appropriate teaching strategies. (Faculty Sponsor: Dr. Angelica Ruvalcaba)

Supported by TWU Honors Program.

**8. SWALLOWING YOUR WAY TO SUCCESS: EFFORTFUL TECHNIQUES VS. ELECTRICAL STIMULATION FOR PHARYNGEAL DYSPHAGIA IN ADULTS.** A. Dao, M. Zamora, L. Palti, S. Bharadwaj. Communication Sciences and Oral Health

Dysphagia presents difficulty in swallowing functions of individuals, necessitating oral-pharyngeal targeted therapy interventions to manage it effectively. Among the many interventions, two common approaches to treat dysphagia are Neuromuscular Electrical Stimulation (NMES) and Effortful Swallowing (ES). While the efficacy of each of these interventions have been investigated, there are no studies comparing the two interventions. The purpose of this proposal is to determine which intervention leads to better swallowing functions in individuals with pharyngeal dysphagia. Ten adults diagnosed with moderate to severe pharyngeal dysphagia will receive both interventions using a single-subject multiple baseline reversal (ABCACB) design. Swallowing function will be evaluated using Penetration-Aspiration Scale and The International Dysphagia Diet Standardization Initiative Scale. Visual analysis and percent non overlapping data will be used to compare the efficacy of the two interventions. It is predicted that NMES will lead to better swallowing function when compared to ES. (Faculty Sponsor: Dr. Sneha Bharadwaj)

**9. ORGANOIDS GENERATED FROM AGGREGATE EMBRYOID BODIES DEVELOPED COMPLEX PAX6 PROGENITOR DOMAINS.** V. Do, Z. Lybrand, N. Smith. Biology

Brain organoids are amazing tools in neuroscience research due to their capacity to replicate aspects of human brain development. During brain development, neurons are born in ventricular zones and migrate to eventually form the structure of the cortex. In brain organoids, the ventricular zones - are comprised of neural stem cells, and form neural rosettes to generate neuroprogenitor cells that make neural cells. Brain organoids develop multiple rosettes, instead of the singular rosette observed in the human brain, and this may limit the development observed in brain organoids. This study investigates whether organoids derived from aggregated embryoid bodies exhibit complex progenitor domains, observed by the presence of the progenitor marker Pair Box 6 (PAX6). I have analyzed progenitor zones in organoids from a single rosette versus organoids with multiple rosettes. We hypothesize that single organoid PAX6 generates fewer ventricular zones, thus yielding more directional signaling compared to multiple organoid PAX6. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by Departant of Defense (S-10780-01).

**10. DEVELOPING IMMUNOHISTOCHEMISTRY PROTOCOL TO IDENTIFY PRESTIN IN OTIC ORGANOIDS.** J. Fair, Z. Lybrand, M. Gladen. Biology

Hair cells of the inner and outer ear cannot regenerate nor repair once damaged. Loud sounds, trauma, or medication can cause the destruction of these hair cells. Traditionally animal models are used to study hearing however these models do not accurately replicate human hearing. In this lab, we are developing a method to generate human inner and outer hair cells in vitro by differentiating human induced pluripotent stem cells into otic organoids.. This will confirm that it is possible to grow organoids that accurately represent the human ear to later be used in the study of regenerative

hair cell methods. For this project, I have used immunohistochemistry to identify the outer hair cell protein, Prestin. This breakthrough opens the door for more late-stage hair cell proteins to be identified to confirm the ability to use ear organoids as the first viable human ear model. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by Department of Defense CDMRP S-11230-01.

**11. IMPACT OF AMD-3100 ON CELL MORPHOLOGY AND MOVEMENT.** C. Coloura, J. Spencer, K. Satani, A. Martins. Biology

Human cytomegalovirus is a widespread pathogen that infects the majority of the population but causes little disease except in immune-compromised individuals. HCMV encodes a viral cytokine, cmvIL-10, that engages the host cellular IL-10 receptor (IL-10R), inducing downstream signaling. Binding of cmvIL-10 to IL-10R also impacts signaling from other host receptors, especially the chemokine receptor CXCR4 which is essential for development and immune responses. We used a chemical inhibitor of CXCR4, AMD-3100, to study effects of cmvIL-10 on CXCR4 signaling. Human ARPE-19 cells growing in a monolayer were "scratched" to create a wound, then movement of cells filling in the wound was observed using the Incucyte Live-Cell Imaging System. The results show that AMD-3100 impairs cmvIL-10-induced cell movement into the wound, and that the treated cells have a distinct morphology compared to control cells. Further investigation is needed to determine whether AMD-3100 also impairs signaling from the IL-10R during virus infection. (Faculty Sponsor: Dr. Juliet Spencer)

**12. RELATIONSHIP BETWEEN STROKE LESION CHARACTERISTICS AND POST-STROKE FATIGUE: A SCOPING REVIEW.** L. Pacheco, H. Goh, M. Soto. Physical Therapy – Dallas

Post-Stroke Fatigue (PSF) is common and significantly impacts stroke recovery. Despite its prevalence, not much is known about the underlying mechanism. Limited evidence has suggested stroke lesion characteristics, such as stroke location, might be related to the development and severity of PSF. The purpose of this scoping review is to identify neuroimaging markers for PSF. We performed an article search on four scientific databases (PubMed, Medline, CINAHL, PsychInfo, and EMBASE) with the following search terms: Stroke, Cerebrovascular Accident, Brain Infarction, Brain Hemorrhage, Fatigue, MRI, CT, PET, and DTI. 329 articles were identified using the search strategy. Of those articles, 29 met the inclusion criteria for full text screening. Full-text screening is ongoing. We plan to extract the following stroke lesion characteristics for analysis: stroke type, stroke side, stroke location, stroke volume, and connectivity. These stroke lesion characteristics will be related to fatigue measures (presence of fatigue and fatigue severity). (Faculty Sponsor: Dr. Hui-Ting Goh)

Supported by TWU Experiential Student Scholars Program, NIH R15HD109737.

**13. EMOTIONAL EFFECT OF SMELLS AND ODORS.** A. Johnson, J. Clark, R. Omar, A. Mojica. Chemistry and Biochemistry

Smell is useful to mammals in various ways such as tracking animals, calming the nervous system, and identifying different foods. Recently there has been an increase in the use of different smells in therapy, massages, and commercially as candles and diffusers. The sense of smell, similar to vision, can excite emotions. Smells reach the brain by triggering chemoreceptors in the nose, which send a message to the olfactory bulb of the brain about what smell is observed. Some smells specific to us, chlorine, cigarettes, lavender, rosemary, and vanilla, have brought up the feelings of excitement, nostalgia, and hunger. These smells that create the emotions of excitement, nostalgia, and hunger, are sensed through olfactory receptors, and a chemical signal is sent to the amygdala, the hippocampus, and the hypothalamus respectively. (Faculty Sponsor: Dr. Mary Anderson)

**14. BREAKING BARRIERS: PREDISPOSED PREJUDICES AND UNDERREPRESENTATION OF HISPANIC AND AFRICAN AMERICAN WOMEN IN STEM.** T. Moss, C. Bosch. Mathematics

The purpose of this paper is to analytically examine the relationship between underrepresented minorities and predisposed prejudices in STEM fields. As aspiring young women of color in STEM fields we want to accurately depict the challenges that minority groups face, due to gender, race, and other systematically oppressing constructs. We decided to narrow our research to Hispanic and African American women in STEM, so that we're able to effectively analyze, assess, and report our findings. Our plan to encapsulate this problem is to provide the readers with in-depth data and statistics that will better explain how predisposed prejudices can play a vital role in the underepresentation of marginalized groups in those fields. We will also use our obtained knowledge over the issue to provide solutions that will engage, encourage, and empower Hispanic and African American women to seek careers in STEM fields. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**15. IN MY MOTHER'S BODY: INTERNALIZATION OF SOCIAL MEDIA COMMENTARY ON BODY DISSATISFACTION.** S. Dali. Social Work, Psychology and Philosophy

Poor body dissatisfaction in emerging adulthood is a well-documented phenomenon; extreme body dissatisfaction has been found to predict deleterious outcomes (Guisinger, 2003; Hesse-Biber et al., 2006). Families are implicated in the course and development of body dissatisfaction and eating disorders in young women (Lock & LeGrange, 2018). Mothers especially are in a unique position to influence their daughters' bodily perceptions by modeling specific relationships with their own bodies (Poslusny et al., 2021) Literature on how young women navigate topics of appearance, unhealthy eating

habits, and self-objectification with their mothers is emergent ( Poslusny et al., 2021) but still fails to include experiences of body dissatisfaction. For this project, 576 college-aged women completed a survey with measures related to body dissatisfaction and maternal closeness. An additional sample of women will be interviewed alongside their mothers to examine how conversation styles contribute to the development of body dissatisfaction. Findings and implications will be discussed. (Faculty Sponsor: Dr. Lisa Rosen)

**16. A NOVEL BISAMIDOXIME, JJMB9, ALONE AND IN COMBINATION WITH CISPLATIN, SIGNIFICANTLY REDUCED 4T1 TRIPLE NEGATIVE BREAST CANCER TUMOR VOLUME AND LUNG METASTASES AREA IN VIVO.** C. Golly, T. Ladell, E. Shin, S. Ruiz, N. Franco Arjona, E. Garcia, G. Blenden, E. Ronemus, S. Tabassam, A. Gonzales, A. Gekombe, S. Dhanireddy, R. Petros, M. Bergel. Biology

Around 13% of women in the United States develop invasive breast cancer during their lifetime. Triple negative breast cancer (TNBC) lacks HER2, and the estrogen and progesterone receptors. TNBC grows quickly with a high rate of recurrence, which is more difficult to treat. JJMB9, a novel bisamidoxime, inhibits p300 histone acetyltransferase, and was found to be effective against the TNBC 4T1 cell line in vitro. In this study, we examined the anti-cancer efficacy of JJMB9 alone and in combination with cisplatin in vivo. Mouse mammary carcinoma, 4T1 cells were injected into the 4th mammary fat pads of BALB/c mice. JJMB9, cisplatin, or a combination of both drugs were administered intraperitoneally and/or subcutaneously for 3 weeks. We found that JJMB9 alone and in combination with cisplatin significantly reduced tumor and metastases volumes. Thus, combining JJMB9 and cisplatin may be a potent treatment against human TNBC. (Faculty Sponsor: Dr. Michael Bergel)

**17. USING MUSIC TO MANAGE PAIN: A CONTENT ANALYSIS OF SURVEY RESPONSES FROM UNHOUSED ADULTS WITH SUBSTANCE USE DISORDER.** T. Hargrove. Music

The purpose of this descriptive cross-sectional survey was to explore how unhoused adults with substance use disorder (SUD) use music for pain management. Despite an SUD diagnosis, people with SUD, just like people without SUD, have pain management needs that require attention. Research indicates that music is attributed to both reward system stimulation and pain reduction. To answer the research question “How do adults with SUD use music to help manage pain?”, the researcher used a computer-based open-ended survey conducted at a service program for unhoused adults. Twelve respondents who self-identified as having SUD participated in completing the electronic survey. Results indicated that unhoused adults with SUD actively utilize music as a pain management strategy. Respondents identified their pain, described their experiences with music, and provided evidence of how music helps with their pain. Future research is needed with this vulnerable population, and recommendations are provided. (Faculty Sponsor: Dr. Della Molloy-Daugherty)

Supported by TWU Center for Student Research.

**18. DOCUMENTING AND DISSEMINATING A MODEL OF BEST PRACTICES IN INTERDISCIPLINARY SERVICE DELIVERY FOR CHILDREN WHO ARE DEAF OR HARD OF HEARING.** B. Ruyle, S. Wainscott. Communication Sciences and Oral Health

Students within the Deaf Education field are a unique population that have high, specialized needs. At the same time, this population is low incidence, which means highly skilled professionals with distinct training are required. In addition to being Deaf or Hard of Hearing, one third of these students have an additional disability, and, within the classroom, there are pervasive language and learning needs that must be addressed. For these and many other reasons, high quality, early services are critical; however, most professions are not equipped to collaborate effectively as they deliver services to this population. The model resource created from this action-based research along direct partnership with DHH students and professionals can be used during cross training to explain and demonstrate the importance of intraprofessional collaboration. Additionally, it can help provide the professionals within Deaf education the necessary tools and skills needed to effectively and efficiently provide for their students. (Faculty Sponsor: Dr. Sarah Wainscott)

Supported by TWU Experiential Student Scholars Program.

**19. EFFECTS OF MACLURA POMIFERA DERIVED PURE PLANT COMPOUNDS ON EFFECTOR RESPONSES FROM HUMAN T CELLS.** S. Mendoza, M. Morse, C. Maier, S. Sinha. Biology

Plant medications are preferred natural treatments for inflammation and pain due to their low toxigenic profile and side effects. In our previous experiments, male and female Maclura pomifera showed anti-inflammatory effects on human T cells. In this study, we tested the effects of M. pomifera derived pure plant compounds, such as Pomiferin, Osajin and Diterpene, on the effector responses from human T cells. Peripheral blood mononuclear cells (PBMC) were derived from buffy coat samples from healthy donors. Cells were pre-treated in the presence of different concentrations of Pomiferin, Osajin or Diterpene. Following pre-treatment, cells were stimulated with T cell activation antibodies (CD3 or CD3+CD28) and cultured for 48 hrs. Unstimulated cells were treated as controls. After incubation, the cells were stained with antibodies for activation. Data is being analyzed and will be presented on the poster. (Faculty Sponsor: Dr. Sushmita Sinha)

Supported by NIH R15NS095317.

**20. EXECUTIVE FUNCTION INTERVENTIONS IN SCHOOLS.** H. Goh. Social Work, Psychology and Philosophy

Executive functioning (EF) skills are important in navigating daily school and work life. These skills include problem-

solving, task initiation, organization, goal setting, self-monitoring, and working memory. Students that display deficits in executive functions may have struggles navigating the school environment, as it can impact their behavior, social-emotional functioning, and academic learning. There are multiple interventions that can provide students with tools in the school settings to support the development of their executive function. This can be integrated within the school curriculum, or within daily instruction. This poster will highlight the current research on executive functions interventions for the educational setting to support teachers' understanding of EF and how they best can support students experiencing executive dysfunction. (Faculty Sponsor: Dr. Wendi Johnson)

**21. WHAT CAN DARK SOULS III TEACH WRITING INSTRUCTORS ABOUT SUPPORTING FIRST-YEAR WRITERS?** D. Thorpe. Language, Culture, and Gender Studies

Many scholars in the field of Rhetoric and Composition have explained why video games are good for learning and how video games can be applied in educational spaces (Gee; Shultz-Colby; Sierra). To further explore the relationship between video games and rhetoric and composition, I conducted a qualitative study and recruited first-year writing instructors to play Dark Souls III (DS3), an action role-playing game infamously known for its difficulty. From each participant, I collected a pre-reflective questionnaire, DS3 gameplay, and an interview. Using relational content analysis, I coded/analyzed interview transcripts from eight player-teachers. My analysis revealed the following key points: gameplay experiences offer reflective moments for player-teachers about identity, learning, and pedagogy. Additionally, video games teach educators to resist ideologies of deficient writing as learning new skills takes time and practice. Overall, my findings demonstrate that video games are just as beneficial to instructors as they are for students. (Faculty Sponsor: Dr. Jackie Hoermann-Elliott)

**22. SIRPΓ KNOCKDOWN ON NAÏVE HUMAN T-CELLS LEADS TO AN ACTIVATED NAÏVE- PHENOTYPE.** M. Morse, S. Uppu, S. Sinha. Biology

Signal Regulatory Protein Gamma (SIRPγ) is an immunomodulatory protein that is uniquely expressed on T-cells in the human immune system, however its function remains unknown. We showed that SIRPγlow CD8 T-cells had heightened effector responses and dysregulation of transcription factors associated with memory development. In this study we determined the mechanism of SIRPγ-mediated regulation of effector responses by knocking- down (KD) SIRPγ in functionally quiescent naïve human T-cells. SIRPγ-KD led to the downregulation of CD27 expression on naïve T-cells. Further, this population showed upregulation of tissue homing markers (VLA-4, CD11a), LCK 394 (T-cell activation), and downregulation of L-selectin (activated-naïve). Interestingly the findings were replicated in ex vivo derived naïve T-cells from healthy donors with SIRPγlow expression on T-cells. SIRPγ-KD also caused increased expression of effector cytokines from naïve T-cells. Taken together, our findings suggest that SIRPγlow expression on naive T- cells leads to an activated naïve-phenotype potentially leading to hyper- inflammation upon activation. (Faculty Sponsor: Dr. Sushmita Sinha)

Supported by NIH 1R15NSO95317-01A1 NIAID Grant.

**Session 5. Wednesday, April 24, 2:40 pm – 4:00 pm**
**Student Union 2300 (Southwest Ballroom)**

**1. SUSCEPTIBILITY TO FAKE NEWS: EXAMINING GENERATIONAL & TRUST-BASED VARIANCES IN POLITICAL AND GENERAL FALSEHOODS.** M. Hardman, C. Hart. Social Work, Psychology and Philosophy

This study is designed to assess the vulnerability of different generations to political and general fake news, aiming to discern what drives some to believe in fake news while others do not. Our hypothesis indicates that older individuals will be more susceptible to misinformation. The study aims to recruit at least 300 participants from the general population and assess their vulnerability to fake news through a comprehensive survey. Participants will provide demographic data, identify their top three digital news sources, and evaluate a set of news headlines for familiarity, perceived accuracy, sharing likelihood, and emotional impact. Trust in the news media will be measured using established scales. The results, analyzed through multi-level regression, will provide insights into demographic characteristics associated with susceptibility to fake news. The ongoing study's implications may shed light on societal consequences, institutional trust, and democratic foundations, informing future research directions. (Faculty Sponsor: Dr. Christian Hart)

Supported by TWU Experiential Student Scholars Program.

**2. HUMAN DEVELOPMENT THEORY IN ACTION: A CONNECTION TO ALL MY RAGE.** A. Robbins. Language, Culture, and Gender Studies

With an aim to explore the universality of human development theories through relation to adolescent character Sal of Sabaa Tahir's All My Rage, this analysis explores how Erik Erikson's fifth stage of psychosocial development and Hill's ABCX Model of Family Stress present themselves and how these two theories work in conjunction. To create a basis of inclusion, this paper begins by defining Erikson's stages and Hills's model which act as key concepts in this research. Furthermore, a section of text analysis applies a segment of Erikson's work to excerpts from All My Rage (Tahir, 2023) for the purpose of addressing Sal's struggle to develop as an individual amidst tragedy. Finally, Hill's model is applied to Sal's family unit to detect either parallelism or juxtaposition between individual and family conditions. Pairing these two theories ultimately presents conclusions that support human development doctrine as

universal, complex, and richly layered. (Faculty Sponsor: Dr. Gage Jeter)

**3. THE IMPACT ON CHILDREN COPING WITH THE LOSS OF FATHERS TO SUICIDE.** A. Kajs. Human Development, Family Studies, and Counseling

Suicide in men has become increasingly common in the last decade. These men do not have known mental health conditions and do not seek external support. Many factors contribute to this issue such as gender stereotypes, stigma, limited access to services, and unsupportive environments. Some challenges these bereaved children face include emotional-social delays, disruptive behaviors, and mental health struggles. Previous literature has demonstrated how the loss of a parent can result in issues such as incomplete education, depression, and various mental health conditions, including alcohol and substance abuse, along with the absence of known mental health conditions in men who commit suicide. To better understand the determinants of suicide and its impact on their bereaved children, a literature review was conducted. The findings of this literature review will help elucidate themes related to how children of fathers who committed suicide describe their experiences with mental health and barriers to support. (Faculty Sponsor: Dr. Azucena Verdin)

**4. UNDERSTANDING THE IMPORTANCE OF DEATH AND DYING IN NURSING CARE: A LEARNING MODULE.** C. Panciotti. Nursing – Dallas

Introduction: Nursing has a higher exposure to death than any other profession. New graduate nurses entering the workforce without adequate preparation are at a disadvantage. With oncology and critical care having an undeniable connection with end-of-life care, nurses in these high- mortality specialties have a higher rate of distress and burnout. Method: An interactive learning module will be utilized to discuss end-of-life nursing care, including opioid-administration, oncologic emergencies, and ethics. The Palliative and End of Life Care Competency Assessment Tool will be utilized prior to the module presentation and after, with an aim of students having a higher numerical score after completion of the learning module. Conclusion: The expected conclusion is for students to report a higher score after completing the module. This increased numerical score would support the use of this learning module to improve undergraduate nursing students competence and prioritization in end-of-life nursing care. (Faculty Sponsor: Dr. Cecilia Wilson)

**5. EXPLORING THE USE OF TECHNOLOGY-BASED AND HANDS-ON LEARNING ACTIVITIES TO HELP MITIGATE MATHEMATICS-RELATED STRESS AND INSECURITY.** H. Barrera, S. Cooley. Mathematics

In the pursuit to boost student achievement and cultivate a favorable outlook towards mathematics, this project intends to address the core issue of math anxiety and explore strategies for educators to more effectively mitigate it. The primary objective is to perform a comprehensive analysis and comparison of two distinct sets of lesson plans–one featuring hands-on interventions and the other incorporating digitally executed activities–with the purpose of discerning their respective effects on students' math performance and perspectives. One of the four lesson plans, which integrated mathematics with computer science and involved coding with Python P5, was executed in Dr. Wheeler's mathematics education course in the Fall of 2023. The implemented lesson plan was carefully assessed by reviewing student work and gathering feedback. In this project presentation, both sample student work and detailed lesson content will be shared. (Faculty Sponsor: Dr. Ann Wheeler)

Supported by TWU Experiential Student Scholars Program.

**6. EVALUATING THE CONTRIBUTION OF AGGREGATION PRONE FRAGMENTS IN NEURODEGENERATION.** W. Lokuso, C. Brower, G. Ramirez, E. Na. Biology

Amyotrophic Lateral Sclerosis (ALS) and Frontal Temporal Dementia (FTD) are caused, at least in part, by protein misfolding and toxic aggregation. Although therapies exist for alleviating ALS and FTD, there is no known cure. Our research is centered on the human TAR DNA-binding protein 43 (TDP43), which has a strong association with ALS, FTD, and other forms of dementia. During pathological conditions, TDP43 is proteolytically cleaved into several aggregation-prone fragments (e.g. TDP43219, TDP43247, etc). Studies have shown that the loss of TDP43 function contributes to toxicity in cells. We hypothesize that TDP43 fragments also contribute to disease through a gain-of-function mechanism. To directly test this, we expressed disease-associated TDP43 fragments in the upper motor cortex of mice that retain intact (non-cleaved) TDP43 and examined these mice for motor defects. Our results indicate that TDP43 fragments may also contribute to neurodegeneration. (Faculty Sponsor: Dr. Christopher Brower)

Supported by National Institute of Neurological Disorders and Stroke.

**7. DOWNSTREAM IMPACTS OF RHESUS MACAQUE CYTOMEGALOVIRUS (RHCMV) PROTEIN RECEPTORS.** C. Horn, K. Früh, A. Martins, S. Pathak, N. Vande Burg, D. Streblow, D. Malouli, J. Spencer, Biology

Human cytomegalovirus (HCMV) is a beta-herpesvirus that infects most of the global population but remains largely latent despite eliciting a robust immune response in its host. HCMV encodes US28, a viral protein that functions in cell signaling and latency. The closely related RhCMV encodes five homologs of US28, two of which, Rh214 and Rh220, are essential for protective immune response in the rhesus model. To learn how these proteins mediate protective immunity, we investigated the impact of Rh214 and Rh220 on host gene expression. Human cells were infected with adenovirus constructs expressing either Rh214 or Rh220,

then RNA sequencing was performed to analyze changes in host gene expression. We found that genes upregulated by Rh214 or Rh220 fell into three broad categories: transcription factors, immune response, and cell stress response. From these results, we can begin to characterize the role of Rh214 and Rh220 in mediating protective immune responses. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU Center for Student Research.

**8. BEHAVIORAL EFFECTS OF PAIN RELIEVERS.** M. Espinoza, Y. Kim, M. Obradovic, A. Wellbaum. Chemistry and Biochemistry

Over-the-counter (OTC) analgesics like acetaminophen and nonsteroidal anti- inflammatory drugs (NSAIDs) are frequently used to relieve acute and chronic pain. However, recent studies by Roalsø et al. (Research Square, 2023) and others reveal connections between commonly used pain medications and psychological effects related to anxiety and depression. These findings indicate that frequent use of OTC analgesics may trigger symptoms of executive dysregulation, persisting after the physical pain has been managed. Anxiety and depression are involved with a variety of psychological and physical symptoms, yet our understanding of the influence within the use of OTC analgesics is limited. But it is worth noting that acetaminophen is metabolized by enzymes that also interact with several psychiatric medications including selective serotonin reuptake inhibitors (SSRIs). This interaction can influence psychological symptoms in individuals using psychiatric medications. With this information, we examine the relationships between OTC analgesics and their respective similarities and differences surrounding psychological symptoms. (Faculty Sponsor: Dr. Mary Anderson)

**9. SINGLE-WALLED CARBON NANOTUBES: EXPOSURE OF FUNCTIONALIZED AND NON- FUNCTIONALIZED TO VARIOUS SOLVENTS.** D. Woodring, B. Robinson, M. Schwickert, J. Beatty, N. Mirsaleh-Kohan. Chemistry and Biochemistry

Carbon nanotubes are sheets of graphene rolled into a tube constructed of either a single wall or multiple walls with varying diameters and lengths. Since their discovery and their subsequent classification as nanomaterials, carbon nanotubes (CNTs) have been studied and used in a variety of applications such as material reinforcement, electrical conductors, and gas capture and storage. Applications for CNTs can be broadened by their functionalization and their dissolution in solvents. In this work, we use Raman spectroscopy to examine spectral features of various functionalized and non-functionalized single-walled CNTs. We discuss how these spectra change with exposure to solvents including dichloromethane, dimethylformamide, and methyl-2-pyrrolidone. The spectra of the CNTs before and after exposure to solvents are then compared to investigate structural changes and dispersion conditions. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by Robert A. Welch Foundation M-0200, TWU Center for Student Research, TWU Jane Nelson Institute for Women's Leadership.

**10. THE INFLUENCE AND IMPACT OF THE TEACHER INCENTIVE ALLOTMENT ON RETENTION OF TEACHERS.** M. Reese, C. Lane, E. Scott. Teacher Education

TIA allotment has brought on significant controversy with teachers. Most of Texas' 350,000 school teachers are underpaid, and thousands of effective teachers are leaving the classroom every year for more financially rewarding professions. Texas Legislature and the Texas Education Agency have passed the incentive program through HB 3. They feel this is an accessible pathway to earning a higher income while remaining in the classroom and rewarding top-performing teachers. (Faculty Sponsor: Dr. Jerry Burkett)

**11. RELATIONSHIP BETWEEN SELF-REPORTED FATIGUE AND BRAIN ACTIVATION DURING REACHING TASKS: AN FNIRS STUDY.** D. McAdams, B. Trunnelle, H. Goh, J. Stewart, K. Becker, H. Liu, D. Pugh. Physical Therapy – Dallas

Individuals with neurological diagnoses often present with pathological fatigue and report high perceived effort during movement. The purpose of this study was to determine the relationship between brain activation during reaching and self-reported fatigue in young healthy adults to establish a model to study pathological fatigue in clinical populations. Thirty non-disabled participants performed reach actions while their brain activations were measured using near infrared spectroscopy (fNIRS). Self- reported fatigue was measured by Fatigue Severity Scale and Fatigue Scale for Motor and Cognitive Function. We found significant negative correlations between fatigue measures and brain activations measured from bilateral dorsolateral prefrontal cortex, left primary motor cortex, and right somatosensory cortex during left arm reaching. Our findings suggest that brain activation during non-dominant arm reaching is negatively correlated with self-reported fatigue. Reduced recruitment of neural resources during task performance might be associated with self-reported fatigue in nondisabled adults. (Faculty Sponsor: Dr. Hui-Ting Goh)

Supported by Woodcock Institute Research Grant, TWU Target Grant.

**12. COMPARISON OF HEAT SHOCK PROTEIN EXPRESSION, COGNITION, AND PAIN FOLLOWING PASSIVE HEATING OR WALKING IN OLDER ADULTS.** C. Clark, B. Rigby, N. Varone, J. Mallillin, A. Flores, G. King. Health Promotions and Kinesiology

The purpose of this study was to characterize endogenous and exogenous function following an increase in core temperature in older adults. Twenty older adults (age: 68.5+4.2 years, 11 female) were randomized to complete one hour of walking on a treadmill (TM), seated passive heating (HEAT) in a controlled environment between 35-40°C, or seated control (CON). Heat shock protein 70 (HSP70), reaction time, and cognition were assessed before and after each treatment. No statistical differences in HSP70 between

groups were observed. Reaction time improved following HEAT compared to CON, but did not change pre versus post intervention. Measures of cognition were higher for HEAT compared to TM and CON, with no differences pre versus post intervention. Pain was greater for TM and HEAT when compared to CON. While acute heat stress may alter heat shock response or impair cognition in older adults, there could be an anticipatory effect influencing pain. (Faculty Sponsor: Dr. Brandon R. Rigby)

Supported by TWU Experiential Scholar Grant Program, TWU Center for Student Research.

**13. ROLE OF DEHYDROGENASE/REDUCTASE SDR FAMILY MEMBER 9 (DHRS9) IN EPIDERMAL RESTORATION AFTER ACUTE EXPOSURE TO ULTRAVIOLET LIGHT B..** E. Akuailou, C. VanBuren, H. Everts. Nutrition & Food Sciences

Acute exposure of the skin to ultraviolet light B (UVB) causes acute inflammation (erythema) and the skin recovers spontaneously. However, repeated UVB triggers chronic inflammation and can result in cutaneous squamous cell carcinoma (cSCC). Synthetic retinoids, derivatives of vitamin A, are efficacious for cSCC, but with significant adverse effects. All- trans retinoic acid (atRA) is the active form of vitamin A. Topical inhibition of atRA synthesis after acute UVB disturbed epidermal restoration. Acute UVB exposure of mouse skin increased short-chain dehydrogenase/reductase family member 9 (DHRS9), an enzyme in atRA synthesis. We aim to investigate the molecular mechanism by which atRA may contribute to epidermal recovery after acute UVB to suggest new avenues for cSCC management. We exposed Dhrs9 wild type and null mice to acute UVB and collected dorsal skin 48 hours later. A previous investigation on various cytokines did not show significant results. Measurement of myeloperoxidase activity is in progress. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Center for Student Research, TWU REP, Moore-Khourie Award.

**14. SUBCELLULAR LOCALIZATION OF MEDICAGO TRUNCATULA'S MTNPD2 PROTEIN IN TOBACCO LEAVES.** M. Mehebub, C. Pislariu. Biology

Legumes establish a symbiotic association with nitrogen-fixing bacteria (rhizobia) to acquire fertilizer nitrogen for growth. Many plant genes regulate this environmentally friendly process. Subcellular localization of proteins is crucial to understanding their biological functions. The Medicago truncatula (barrel medic) NPD (Nodule-specific PLAT domain) protein family (MtNPD1-5) is predicted to be crucial for symbiotic nitrogen fixation (SNF). MtNPD1 was localized in the ER and vacuoles. In the absence of MtNPD1, rhizobia die before they fix nitrogen to ammonia. Using the protein language model DeepLoc 2.0, we predicted that MtNPD2 putatively localizes in the extracellular space, and the probability is 0.8054 (>0.6173 threshold). Transient expression of fluorescently-tagged NPD2 with or without a signal peptide in Nicotiana tabacum (tobacco) leaf, we are tracking the subcellular localization of MtNPD2 in the apoplast (extracellular), vacuole, ER, Golgi apparatus, and plasma membrane using confocal microscopy to formulate working hypotheses for subsequent functional analyses. (Faculty Sponsor: Dr. Catalina Pislariu)

Supported by TWU Experiential Student Scholars Program.

**15. TRAUMA REPORTING.** M. Varma, M. Campos, W. Hinderer. Social Work, Psychology and Philosophy

Research has demonstrated the prevalence of PTSD among specific racial demographics (Roberts et al., 2019), while also showing that social support is vital for those who experience PTSD symptomology, with those who seek it out overcoming the adverse effects of trauma (Jenzer et al., 2020). However, there is very little research that looks into social support seeking in such marginalized groups. The purpose of this study is to understand how identity (e.g., race, sexual orientation, socioeconomic status, etc.) influences an individual's ability to cope with trauma. Participants will complete an online survey consisting of demographic questions, open-ended questions related to their experiences of trauma and their subsequent coping mechanisms, and a PTSD symptomology screener (Grasso et al., 2019). These results of this study can help practitioners discern whether a person is likely to seek out social support after experiencing trauma, enabling them to develop effective treatment plans. Implications and future directions are discussed. (Faculty Sponsor: Professor Otter Day)

**16. THE SUBCELLULAR LOCALIZATION OF STRA6.** C. VanBuren, E. Akuailou, H. Everts. Nutrition & Food Sciences

Psoriasis is a chronic, inflammatory skin condition characterized by abnormal proliferation and differentiation of keratinocytes, as well as epidermal hyperplasia. It is commonly treated with narrowband UVB irradiation and/or oral retinoids, suggesting that altered vitamin A metabolism may play a role in its etiology. Previous studies have shown that STRA6 (stimulated by retinoic acid 6), a multi-transmembrane vitamin A receptor, is sensitive to changes in vitamin A levels and/or ultraviolet B irradiation. STRA6 leaves the plasma membrane in response to UVB irradiation, but its post-UVB subcellular localization is unknown. This ongoing study uses previously collected skin tissues from C57BL/6 mice to examine the effects of UVB irradiation on the subcellular co-localization of STRA6 with cytoplasmic organelles such as the golgi apparatus, endoplasmic reticulum, mitochondria, lysosomes, endosomes and nucleus. These tissues are prepared using a double immunofluorescence protocol, treated for autofluorescence, and examined using a Zeiss LSM900 confocal microscope. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Experiential Student Scholars Program, TWU REP, Moore-Khourie award.

**17. EXPLORING THE POSSIBLE INVOLVEMENT OF SIRTUINS**

**IN CHROMATIN COMPACTION FOLLOWING UV- RADIATION.** J. Khanum, S. Tabassam, M. Bergel. Biology

This study investigates the role of sirtuins, class III HDACs (histone deacetylases), in chromatin compaction following UV radiation. HeLa cells were treated with sirtinol in different time points and with various concentrations to inhibit sirtuins. The cell viability was determined by MTS assay. The optimal concentration and incubation time of sirtinol on inhibiting sirtuins in cells will be determined by Western blotting. Following that, sirtinol-treated HeLa cells will be UV-C irradiated to test the induction of chromatin compaction while sirtuins are inhibited. Confocal microscopy and Cytation imager (BioTek) will be employed to quantify chromatin compaction and calcium influx. This study further aims to address questions regarding the involvement of sirtuins in chromatin compaction, its timing, and the kinetics of calcium influx after UV radiation. The findings will provide insights into the mechanisms underlying chromatin compaction and the potential involvement of sirtuins in this process. (Faculty Sponsor: Dr. Michael Bergel)

**18. IDENTIFYING THE REGULATORY ROLE OF A PROTEASE FAMILY ON A CELL SIGNALING PATHWAY IN C. ELEGANS.** S. Jamali, T. Gumienny. Biology

Transforming Growth Factor-β (TGF-β) signaling plays important roles in body development. Proper TGF-β signaling levels are maintained by different factors including proteins in the space between signal-sending cells and signal-receiving cells and the proteins (proteases) that process them. One conserved group of proteases, called ADAMTS (a disintegrin-like and metalloproteinase domain with thrombospondin-type 1 motifs), is associated with human disorders that affect TGF-β signaling, but a direct link has not yet been found between ADAMTSs and TGF-β signaling. In C. elegans, dbl-1/TGF-β also has phenotypes that overlap ADAMTS phenotypes, including male tail defects (adt-1/ADAMTS) and small body size (adt-2/ADAMTS). We will determine if ADAMTSs process a known extracellular regulator of DBL-1 signaling. We will also determine if loss of adt-1 and adt-2 changes expression of DBL-1 target genes that drive male tail development and body size. Our project will clarify the regulatory roles of ADAMTSs in TGF-β signaling. (Faculty Sponsor: Dr. Tina Gumienny)

**19. DELIBERATE PRACTICE OF CULTURAL HUMILITY SKILLS.** H. Eddy, K. Hilton, T. Douglas, M. Kim, M. Schock, C. Taylor, A. Jones. Human Development, Family Studies, and Counseling

This poster presents findings from a recent study on the new Facilitative Systemic Intervention Skills measure. In the study, we studied graduate- level marriage and family therapy students who presented challenging multicultural family therapy vignettes. These simulated vignettes involved multicultural and relational elements that may arise within relationships of marginalized clients (e.g., navigating conversations about multicultural relationships, gender identity, and sexual identity). (Faculty Sponsor: Dr. Adam Jones)

Supported by TWU Center for Student Research.

**20. INVESTIGATING THE IMPACT OF HUMAN CYTOMEGALOVIRUS (HCMV) ON THE PROLIFERATION AND PROGRESSION OF BREAST CANCER IN A MOUSE MODEL.** E. Olumodeji, E. Garcia, C. Kelly, S. Pathak, M. Bergel, J. Spencer. Biology

Breast cancer is the world's most prevalent cancer. The progression of breast cancer is affected by several known risk factors, however, the least understood among them is infectious diseases. In particular, the widespread herpesvirus, HCMV, is implicated in breast cancer progression. To study the effects of HCMV on breast cancer, immunocompromised mice were implanted with MCF-7 human breast cancer cells which were either uninfected or infected with HCMV before implantation. After eight weeks we harvested adipose tissues and mammary fat pads for histological analysis. These tissues were stained for the proliferation marker Ki67 which serves as a marker for human cells. We found evidence of actively proliferating breast cancer cells in both adipose tissues and mammary fat pads from mice in MCF- 7 and MCF-7 + HCMV groups. Our study aims to shed light on the impact of HCMV on breast cancer cells in a living organism. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU Center for Student Research, TWU Jane Nelson Institute for Women's Leadership.

**21. PLANTS VS MICROBES: THE ANTIMICROBIAL EFFECTS OF NATIVE PLANTS..** P. Dwamena, L. Hanson. Biology

Although often traditionally used in an attempt to cure or as a preventative treatment, the true antimicrobial effects of plants are not often certain. With the growing incidence of antibiotic resistance, finding new ways to treat things such as sexually transmitted infections (STIs) has growing importance. This research's aim is to assess whether certain native plants, which have been used as therapies have antimicrobial properties against representative bacteria, Gram-negative (Escherichia coli) and Gram-positive (Bacillus megaterium). Using parts from the selected plants and taking into account how traditional medicine is commonly taken, aqueous extracts were prepared in ultra-pure water at a 4:1 ratio of water to plant material. Prior to testing for inhibition of mouse cytomegalovirus (a herpesvirus model which would allow future studies on intravaginal infection), extracts were tested for toxicity on mouse macrophage cells to ensure any viral inhibition was not due to death of cells. (Faculty Sponsor: Dr. Laura Hanson)

**22. DNA:GEMINI SURFACTANT INTERACTIONS: SEQUENCE AND ENVIRONMENTAL EFFECTS.** D. Aguilar, A. Jordan, P. Justice, A. Ginegaw, R. Dominguez, M. Muleta, S. Treto, R. Gullotta, R. Sheardy. Chemistry and Biochemistry

DNA secondary structures are stabilized by mono and divalent cations such as simple ammonium and diammonium compounds. Our lab has investigated the interaction between a DNA quadruplex formed from (TTAGGG)4 and a

diammonium Gemini surfactant. Samples of DNA and surfactant of varying ratios were prepared and, in all samples, a precipitate formed. After centrifugation of these samples, the supernatant was probed for DNA by spectroscopic techniques (UV/Vis and CD). Recently, we have treated other DNA oligomers with the surfactant and also observed precipitation in many of those samples – depending on DNA secondary structure. Thus, the extent of precipitation of the DNA depends on both DNA and surfactant concentrations as well as DNA charge density. The interaction between the DNA and the surfactant is governed by both electrostatic and hydrophobic forces. To address the electrostatic interactions, samples of DNA and surfactant were prepared with various concentrations of K+. The results indicate that high concentrations of K+ inhibit the formation of the DNA:surfactant precipitate. These results will be discussed in terms of novel gene delivery systems. (Faculty Sponsor: Dr. Richard Sheardy)

Supported by Robert A. Welch Foundation M-0200, NSF Award 1953448, TWU Center for Student Research.

**23. SUPPORTING CHILDREN DISPLACED BY WAR IN SUDAN THROUGH LITERATURE AND ART.** D. Abbasher, E. Idris, A. Babino. Literacy and Learning

Due to the war in Sudan, many there are now over 19 million students out of school. Many of these students are displaced and needing to be sustained through Social Emotional Learning (SEL). In this exploratory action research study, researchers traveled to Cairo, Egypt to work with a small group of students to read a book and draw about their emotions. Preliminary thematic data analysis suggests our two interrelated themes. First, administrators expressed the need for resources focused on SEL. Secondly, in regard to the students, they need the space to have more opportunities for SEL. We found a variety of expressions in students' art- with multiple Sudanese flags, distress, and symbols of joy. These students who have been displaced from their homes due to war are needing to be supported in the foundation of their wellness to be set up for success in their future. (Faculty Sponsor: Dr. Mandy Stewart)

Supported by TWU Experiential Student Scholars Program.

**Session 6. Wednesday, April 24, 6:00 pm – 7:20 pm**
**Student Union 2300 (Southwest Ballroom)**

**1. COULD VIRAL PROTEINS LEAD TO TREATMENTS FOR ALZHEIMER'S DISEASE?** S. McHaffie, L. Hanson. Biology

Alzheimer's disease (AD) is being seen at higher rates than ever before. One pathology is the hyperphosphorylation of tau protein. In recent years, studies have found a correlation between herpesviruses and AD. This information has led to several studies testing the role of herpesviruses in Alzheimer's pathology. Dr. Hanson's lab found an initial decrease and later increase in tau hyperphosphorylation in murine cytomegalovirus-infected (MCMV) cells. My research seeks to understand the mechanism of the apparent decrease in hyperphosphorylation. I harvested uninfected and MCMV-infected B35 lysates at various times after infection with or without an inhibitor of viral replication. Through western blot, I have confirmed the presence of proteins by probing tubulin, presence of viral infection by probing E1, and inhibition of late gene expression by probing major capsid protein. I am currently looking at tau. We predict that the inhibitor will lead to lower than normal phosphorylation of tau. (Faculty Sponsor: Dr. Laura Hanson)

**2. STICKING TO THE PLAN: INVESTIGATING COPING STRATEGIES AND TREATMENT PERCEPTIONS.** J. Adams, A. Rivers, G. Faulkner. Social Work, Psychology and Philosophy

This study explores the relationship between treatment perceptions and coping strategies in 300 individuals with Type II diabetes (T2D), recruited via Prolific. Treatment perceptions entail beliefs and attitudes toward treatment regimens, including views on benefits, burdens, and adherence. Participants indicated their use of various coping strategies and their perceptions of their treatment plans. Findings indicate active, emotional, spiritual, avoidance, self-blame, substance use/distractions, research, professional help, and positive growth coping practices were associated with at least one of the treatment perceptions. The connections between various coping strategies and treatment perceptions may be targeted in interventions to improve adherence for T2D populations. (Faculty Sponsor: Dr. Alannah Rivers)

Supported by TWU Center for Student Research.

**3. ESTROGENIC-LIKE EFFECT OF PHENOL RED ON SEROTONIN RELEASE FROM CULTURED MURINE MACROPHAGES.** L. Jacob, T. Hickman, L. Hanson, D. Averitt. Biology

Several pain disorders are more common in women. Our lab has reported that the neurotransmitter serotonin (5HT) and the hormone estrogen (E2) can modulate pain signaling in sensory neurons. Several immune cells, including macrophages, express E2 and 5HT receptors and may contribute to pain signaling. Recently we reported that E2 acts on cultured murine macrophages to release 5HT. The pH indicator in our culture media, Phenol red, was reported to display estrogenic activity. To test whether phenol red contributes to our observed effects of E2 on 5HT release, we cultured J774A.1 macrophages in phenol red-free media. Cells were treated ith E2 and resulting 5HT release was quantified by enzyme-linked immunosorbent assay. We performed the experiment in triplicate and in comparison with previous experiments that included phenol red. Our results indicate that phenol red may contribute, in part, to the effects of E2 on 5HT release from J774A.1 macrophages. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NSF Award 1953448, NIH R15DE025970.

**4. MASTERING MENTAL HEALTH: OVERCOMING OBSTACLES THAT CHILDREN WITH MENTAL HEALTH DISORDERS FACE.** C. Valenzuela, T. Davis, A. Arce, J. Moreno, J. Armijo. Human Development, Family Studies, and Counseling

In 2023, the Center for Disease Control found that "1 out of 5 children have been diagnosed with a mental, emotional, or behavioral disorder" (Center for Disease Control, 2021). Our parent education program, 'Mastering Mental Health: Overcoming Obstacles That Children With Mental Health Disorders Face,' was developed to educate parents who have children with mental health disorders navigate and overcome challenges, while simultaneously improving the parent-child relationship and helping it flourish. Our program is self-paced, offering parents a deeper understanding of different mental health disorders. Additionally, guidance is provided to parents on how to take preventative measures to aid their children in achieving their fullest potential within educational and social contexts amid mental health issues. A case scenario questionnaire will be given to the parents after the completion of the program to further assess their comprehension of identifying signs, symptoms, and managing behaviors. (Faculty Sponsor: Mr. Juan Armijo)

**5. I QUIT! TEACHER PERCEPTIONS OF BURNOUT AND ANXIETY AT AN F-RATED CAMPUS.** B. Afolabi. Teacher Education

This quantitative study aims to investigate teacher perceptions regarding burnout and anxiety at a predominantly African American school categorized by disciplinary challenges and low parental involvement. This study seeks to shed light on unique challenges faced by educators in such environments and explore the potential correlations between teacher perceptions, anxiety, and job-related stressors. With 33 anonymous responses from the administered survey, the results indicated a heightened level of anxiety with the average just over 7 out of 10. These outcomes are a strong indicator of the mental wellbeing of the teachers at this campus. When asked about the causes of the stressors about 90 percent of participants attributed their workload as a contributing factor with a score of 7 or higher on the survey. This is compared to the 26 percent of participants that linked their interpersonal relationships with co- workers to contributing to their stress. (Faculty Sponsor: Dr. Jerry Burkett)

**6. SYNTHESIS OF PROTEIN-DRUG CONJUGATES VIA COBALT COORDINATION CHEMISTRY: A NEW BIOPARALLEL CLICK CHEMISTRY.** E. Burley, S. Juarez, E. Navarro, E. Garcia, J. Spencer, R. Petros. Chemistry and Biochemistry

Protein-drug conjugates are a rapidly expanding family of therapeutics that hold significant potential to ameliorate off-target toxic effects commonly observed in patients undergoing chemotherapy. In this context, the protein acts as a nanoscale delivery vector that alters the biodistribution of the drug upon administration by restricting its unhindered distribution in vivo. We are exploring the use of cobalt coordination chemistry in the synthesis of protein-drug conjugates. Previous work has shown that cobalt can be used to crosslink amine-containing molecules in a reversible reaction that only utilizes the lone pair of electrons on nitrogen to form a dative bond with cobalt. The chemistry is ideally suited for targeted drug delivery because the bonds formed are extremely stable except when exposed to reducing conditions (1-10 mM reduced glutathione found inside cells). The crosslinking chemistry will be discussed along with current work on the synthesis of conjugates of doxorubicin and 5-fluorouracil with albumin. (Faculty Sponsor: Dr. Robby Petros)

Supported by Robert A. Welch Foundation M-0200, NSF Award 1953448.

**7. THE LIFE OF AN AFGHAN REFUGEE WOMAN IN THE US: A REVIEW OF THE PHENOMENON OF DISPLACEMENT.** U. Maryam, A. Jones. Human Development, Family Studies, and Counseling

The plight of Afghan refugee women marginalized by both their displacement and their gender needs to be studied to understand the lived experience of these women across various age groups. This poster presents findings from a qualitative study with a phenomenological design. Semi-structured interviews were conducted to gather data, with the help of interpreters. This study aims to explore how Afghan refugee women navigate the various challenges that come with their displacement and subsequent resettlement in the United States. It also looks at how women of different age groups make sense of their displacement, and what are some of the unique challenges faced by women in resettlement at different times of their lives. It was also evaluated how this experience affects their families, and their interpersonal relationships, especially the effect on young adolescents who are learning to adjust to a society that is different culturally, religiously, and politically than the one they came from. Findings from the study have implications for future research, clinical practice, and policy making. (Faculty Sponsor: Dr. Adam Jones)

Supported by TWU Experiential Student Scholars Program.

**8. MUSCLE SWELLING AND PAIN FOLLOWING A SKELETAL MUSCLE MICRO-BIOPSY VERSUS ECCENTRIC EXERCISE.** N. Varone, D. Nguyen, A. Heng. Health Promotions and Kinesiology

Swelling of skeletal muscle (SKM) tissue indicates damage such as that induced by exercise or the physical trauma of a biopsy. There are several methods of collecting SKM with biopsy, with the least invasive being micro- biopsy. The purpose of this study is to compare muscle swelling as well as subjective pain before and after either an eccentric exercise bout or a SKM micro-biopsy. Eight participants volunteered to engage in both conditions one week apart. Ultrasound images taken of the vastus lateralus (VL) muscle of the quadriceps at baseline (BL), immediately after, and 24, 48, and 72 hours after eccentric exercise (EX) and micro-biopsy (MB) will be analyzed for muscle size differences. Participants answered a 20-question Likert scale evaluating pain and discomfort. Two-way analysis of variance will be conducted to determine

differences in means between BL and each condition as well as between conditions for muscle thickness and overall subjective discomfort. (Faculty Sponsor: Dr. Daniel Newmire)

**9. HEALTHY HABITS: EMPOWERING FAMILIES THROUGH NUTRITION.** T. Hogan, K. Dawkins, J. Gutierrez, J. Armijo. Human Development, Family Studies, and Counseling

Our proposed program 'Healthy Habits: Empowering Families Through Nutrition,' works to address and help alleviate nutritional disparities in low income families. Low income families tend to consume food that is lower in nutritional value because it is more affordable and convenient than healthier options. Many of the families do not understand the importance of food and how it can affect health and behavior (Carlson & Neuberger, 2017), and a poor diet could potentially lead to increased risk of diabetes, obesity and cardiovascular disease. Resources that help families to have the access to make healthier habits for their life include WIC, SNAP, local food banks, and school lunch programs (USDA, 2023). We aim to empower families to make healthier choices that can positively impact their health and behavior, by providing education and resources in this 6-week in-person program. (Faculty Sponsor: Mr. Juan Armijo)

**10. SIBLING RIVALRY: BUILDING A HEALTHY RELATIONSHIP.** D. Chavez, C. McClure, N. Tinajero, J. Armijo. Human Development, Family Studies, and Counseling

Interconnectedness, as emphasized in the Family Systems Theory, refers to the idea that family members are inherently connected to one another and that their actions and behaviors are influenced by the larger family system (Bigner & Gerhardt, 1979, p. 9). Our sibling rivalry program "Competition and Conflicts: Building a Healthy Relationship," focuses on fostering a positive sibling relationship using problem-solving, family teamwork, effective communication, and how to parent using parenting styles. Through engaging workshops and interactive discussions, parents of siblings will gain insight into how to establish and maintain a positive relationship between their children. The participants will engage in role - playing activities, learning how to sport and appropriately address conflict, understand major milestones in childhood, the impact these milestones have on sibling relationships, and how incorporating different parenting styles will affect their children individually. (Faculty Sponsor: Mr. Juan Armijo)

**11. PLAYFUL PARENTING: NURTURING CONNECTION AND DEVELOPMENT THROUGH PLAY.** K. Wolfe, H. Wallace, A. Arrendondo, L. Bias, J. Armijo. Human Development, Family Studies, and Counseling

"Playful Parenting: Nurturing Connection and Development Through Play" is a 12-month program designed for new parents or parents of children between the ages of 0-2, providing information about play and its importance to a child's development during the first two years. The findings of a study conducted in recent years demonstrated that parents have a difficult time seeing value in free play or unstructured activities (Dhas et al. 2022). Building upon this research, our program allows parents to learn about what milestones their children are expected to reach and how play can be used as a developmental tool to assist them in reaching their milestones. The program offers interactive workshops, presentations, and speakers that will help build a foundation for understanding how to use play to reinforce development and as a medium for interacting with your child at various stages of development. (Faculty Sponsor: Mr. Juan Armijo)

**12. THE INFLUENCE AND IMPACT OF EQUITY IN K-12 PUBLIC SCHOOLS.** E. Scott. Teacher Education

The obstacles of the various disadvantages and inequalities caused by systematic oppression have resulted in significant debates on why and how to provide a fair education for every student. Most K-12 public schools are faced with creating and supplying appropriate support for students that struggle with these barriers. Equity is the fair treatment, resources, and opportunities for everyone. Consequently, my research objective is to examine how equity influences the outcomes of public school success. I conducted a review of literature to assess and identify the value of equity in schools and the results on student achievement. (Faculty Sponsor: Dr. Rebecca Fredrickson)

**13. CHEMISTRY IN SKINCARE: THE BENEFITS AND DANGERS OF MODERN SKINCARE PRODUCTS.** M. Hastings, H. Mollohan, H. Kennedy, M. Schwickert. Chemistry and Biochemistry

Society is hyper-fixated on creating and following beauty standards and skincare trends, such as buying the latest sponsored products, focusing on brand names, and social media trends. However, young consumers don't understand the chemicals in the products and the affecting factors, and the potential consequences may not be worth it. Social media and accessibility of skin care products have led children to become entangled in the beauty and skincare industry. Herein this project, we explore the harmful chemicals found in skincare products, such as retinol, parabens, and different acids that derive from the lack of chemical regulations on skincare products. Outside of general products, skincare has other elements such as micro-abrasion tools, which reduces chemical use, but still has effects on the skin. Skincare as a whole is very unregulated, and paying attention to the effects on the skin, especially the skin of younger generations, is crucial. (Faculty Sponsor: Dr. Mary Anderson)

**14. INTRODUCTION TO GENTLE PARENTING.** R. Ortiz-Hernandez, D. Tobias, A. Yanez, J. Armijo. Human Development, Family Studies, and Counseling

Our proposed program, ' Introduction to Gentle Parenting,' assists first- time parents of diverse backgrounds and lifestyles in implementing a gentle parenting style (Saether et al., 2023). Gentle Parenting will be manageable by parents willing to adopt a self-conscious awareness and maintain the

ability to communicate with their child in a way that promotes independence and confidence throughout different developmental stages. Our program will provide valuable information about gentle parenting, emphasizing effective communication and offering strategies for implementation and setting boundaries while also considering the parental role in guiding their parenting style to one that prioritizes their child's well-being (Adebiyi et al., 2022). This approach will be facilitated by offering access to an online community of like-minded individuals who can provide mutual support and advice. We look forward to meeting new parents working towards a healthy, positive foundation with their children and providing resources and skills to aid their child's development. (Faculty Sponsor: Mr. Juan Armijo)

**15. LEARNING DISABILITIES: LEARN MORE TO HELP YOUR CHILD LEARN MORE.** R. McGill, B. Hernandez, E. Brockrob, A. Zertuche, J. Armijo. Human Development, Family Studies, and Counseling

Students' academic struggles are often unnoticed because according to Mangan, "parents are inclined to elevate the child to perfection while masking or overlooking all of the child's inadequacies."(Mangan, 2015, pg. 27). Our program, Learning Disabilities: Learn More to Help Your Child Learn More, will provide parents the knowledge required to identify possible learning disabilities their teenager may have and steps they can take to assist them. Our project guides parents through a series of workshops; learning how to advocate for their children's educational rights and needs, fostering an engaging supportive environment, navigating the challenges of adolescence, building a mutually effective communication strategy, and encouraging a positive teen autonomy. At the end of this program they will have the ability to distinguish a learning disability, enhance knowledge of educational resources, build a positive communication, and boost the childs' confidence while adjusting to a learning disability. (Faculty Sponsor: Mr. Juan Armijo)

**16. DISCUSSIONS ON DEATH: HOW TO TALK TO YOUR CHILD ABOUT DEATH AND RESPOND TO THEIR GRIEF.** K. Zuelch, K. Santos, J. Armijo. Human Development, Family Studies, and Counseling

Using the guidelines provided by the National Association for the Education of Young Children, the proposed program's purpose is to educate parents about the appropriate ways to respond to children's bereavement (National Association for the Education of Young Children, 2019). The program, 'Discussions on Death: How to Talk to Your Child About Death and Respond to Their Grief,' contains four bi-weekly sessions that address the cognitive abilities of children at varying stages, advice for discussing death with children, and developmentally appropriate resources for youth bereavement. Following these sessions, parents can better identify their child's cognitive abilities as well as their understanding of death, learn how to approach discussions on death with their child, identify signs of grief, and engage in intervention activities that support the grieving process. Discover a program that guides and educates families on the explanations, interventions, and discussions needed for supporting young children through their mourning. (Faculty Sponsor: Mr. Juan Armijo)

**17. RIEMANN INTEGRATION AND HISTORY.** E. Arellano, K. Irwin, M. Moran, L. Gross. Mathematics

In our research, we will focus on the history and inspiration from Riemann Integration. We will provide proofs and examples of Riemann integrals which is the limit of the Riemann sums of a function as the partitions get finer. Specifically, if the limit exists then the function is said to be Riemann integrable. Subsequently, we will dive into what was done before Riemann, the motivation behind the procedure, the intent of the format, and how his work influenced Mathematics. Using the midpoint rule, trapezoidal rule, and the Simpson's rule we will evaluate our findings. Additionally, via computational application, we will weigh the pros and cons for each method including their margins of error and time impact to calculate by hand. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**18. DAMAGING DNA: INTERACTION OF GUANINE WITH THE CHEMOTHERAPY DRUG CISPLATIN.** K. Coker, N. Mirsaleh-Kohan, J. Beatty. Chemistry and Biochemistry

Cisplatin, a chemotherapy drug, targets cancer cells by binding to guanine in DNA and RNA. Guanine is found in DNA and RNA as a nucleobase, as well as in guanosine and guanosine monophosphate (GMP). Cisplatin is toxic to cells and can damage DNA by binding to guanine. However, the interaction of cisplatin with isolated guanine in solution remains understudied due to guanine's insolubility in most solvents. Guanine is soluble in strongly acidic or basic solutions, but these conditions can inactivate cisplatin and affect the interaction. Cisplatin is soluble in dimethylformamide (DMF), and results from this project will demonstrate that guanine is also soluble enough in DMF to study its interaction with cisplatin. This research aims to investigate their interaction using NMR, LC-MS, and other analytical methods. Understanding the interaction between cisplatin and isolated guanine in solution can provide insights into the drug's mechanism and potential improvements in cancer treatment. (Faculty Sponsor: Dr. John Beatty)

Supported by NSF Award 1953448.

**19. BRINGING LIGHT TO THE DARKEST SHADOW IN PSYCHOLOGY: DISCOVERING DISPARAGES IN TREATMENT TO PREPARE AND SUPPORT MENTAL HEALTH PRACTITIONERS IN TREATING PEDOPHILIA.** E. Loffler, E. Yount, O. Day. Social Work, Psychology and Philosophy

95% of psychotherapists are unwilling to treat people with sexual interests in children (Niehaus et al., 2020; Roche & Stephens, 2022). This study aims to understand the lack of therapeutic treatment for pedophiles and Minor Attracted Persons (MAPs). A sample of psychology undergraduates,

graduate students, and licensed psychological professionals will complete an online survey consisting of demographic questions, the Disgust Scale - Revised (Haidt, McCauley, & Rozin, 1994), the Adverse Childhood Experiences Survey (Mei, et al., 2022), and a series of Likert and open-ended questions related to their willingness to treat this population. An exploratory theme analysis will be conducted to determine what factors influence participant's willingness to treat pedophiles and MAPs. Two binary logistic regressions will be used to investigate whether disgust and exposure to trauma predicts participants' willingness to treat. The interaction between disgust, trauma, and group membership will be examined. Results, implications, and future directions are discussed. (Faculty Sponsor: Professor Otter Day)

**20. QUANTIFICATION OF QUALITY PARAMETERS AND A- & ISO- A-ACIDS IN DRY HOP BEER WITH REUSED AROMATIC HOPS.** T. Klee, X. Du. Nutrition & Food Sciences

This study aimed to evaluate if used dry hops could be reused in a new batch of beer for bittering due to high cost of hops. Four batches of beer were brewed with one batch acting as a control, and the other three brewed with used dry hops as variants. Samples of hop pellets, wort, and beer were evaluated with beer quality parameters (specific gravity, ABV, pH, color, and sensory evaluation); while α- and iso-α-acids in these samples were quantified using HPLC. The concentration of Isocohumulone (impact compound for bitterness in beer) in the control samples had a mean of 0.277 mg/mL, while the variants had 0.260, 0.193, 0.253 mg/mL which showed no significant difference at p=0.05. This indicates that used dry hops could be reused without significant decreases in bittering compounds, allowing this to be a possibly viable method for brewers to reduce costs and waste. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by TWU Center for Student Research.

**21. USING CRISPR/CAS9 TO DECODE LIAT1'S FUNCTION.** K. Budhathoki, C. Brower. Biology

The Ligand of Arginyltransferase 1 (Liat1) was identified through its interaction with Arginyl-transferase 1 (ATE1), a component of the N-degron pathway of protein degradation. However, its cellular function remains unknown. Liat1 exhibits phase separation in the nucleolus facilitated by its intrinsically disordered region and co-localizes with Fibrillarin in the dense fibrillar component of the nucleolus. It also interacts with ATE1 in the cytoplasm and Jumonji domain containing 6 (JMJD6) in the nucleus. Using the CRISPR/Cas9 system, we generated a Liat1 knockout clone, 2D11, which displayed severe growth defects, characterized by a slower growth rate, and elevated levels of rRNA compared to Liat1-containing cells. The observed phenotype of the knockout clone suggests a potential role of Liat1 in maintaining cellular growth and ribosome biogenesis. Currently, we are developing an inducible CRISPR/Cas9 system to study the immediate effects of Liat1 knockout aiming to understand its cellular function(s). (Faculty Sponsor: Dr. Christopher Brower)

**22. TRANSFORMING TO PARENT WHILE BEING A TEEN.** K. Mendoza Perez, J. Munoz, R. Nair, J. Armijo. Human Development, Family Studies, and Counseling

Our teen parenting program is dedicated to supporting adolescents as they navigate their journey of parenthood, while simultaneously discovering life through their teenage years. We recognize the emotional, physical, and mental challenges that accompany this transition and our goal is to provide further support and a sense of comfortability (Cox et al., 2019). Our program brings awareness and provides support to young parents who may need guidance facing difficulties through the transition to parenthood, acknowledging the pressure young parents face to foster a healthy family while reassuring the prosperity of both the parent and child(ren). The parents will be able to create a support network where they feel understood and comfortable by building a safe community. Ensuring that these teen parents feel at ease charing these difficulties will foster relationships and raise awareness within their community. Our program, Transforming to Parent While Being a Teen, strives to empower adolescents to embrace their roles as caregivers, equipping them with the resources and knowledge to properly handle potential challenges in the future. (Faculty Sponsor: Mr. Juan Armijo)

**23. NORTH TEXAS ATMOSPHERIC DYNAMICS: EXPLORING THE EFFECTS OF GREENHOUSE GAS FLUCTUATIONS ON CLIMATE AND ENVIRONMENTAL STABILITY.** T. Lyles, M. Zuniga. Chemistry and Biochemistry

The varying levels of greenhouse gasses, such as carbon dioxide, methane, and nitrous oxide significantly impact the structure and behavior of Earth's atmosphere. This thesis investigates the multifaceted relationships between various rural activities and the surrounding environment in North Texas. By examining these interactions, we aim to make connections that influence air quality within the region. Through analysis and data-driven exploration, we seek to contribute valuable insights into the interdependencies among rural practices, local environmental patterns, and the overall air quality dynamics in North Texas. The findings are expected to shed light on potential challenges and opportunities for sustainable environmental management in rural areas, providing a foundation for informed decision-making and fostering a healthier and more resilient local ecosystem. (Faculty Sponsor: Professor Alana Taylor)

**24. USING A HERPESVIRUS TO BETTER UNDERSTAND CERTAIN MARKERS OF ALZHEIMER'S DISEASE.** E. Tindall. Biology

Mounting evidence shows that certain herpesviruses may play a role in Alzheimer's disease (AD). This includes AD like changes that include hyper phosphorylation of tau, which is a protein that stabilizes the cytoskeleton. This experiment will include using western blots to determine if the largest isoform of tau experiences modification. We are using a plasmid that expresses one of the 6 isoforms of tau to see if this

isoform experiences modifications post infection of cytomegalovirus. We are using western blots to study changes to this form of tau with and without infection to see if this form experiences hyper phosphorylation. Preliminary results suggest that other forms of tau experience modification but we are working to examine other explanations. The results shown means that the largest isoform of tau does or doesn't experience modifications. (Faculty Sponsor: Dr. Laura Hanson)

**25. FAMILY FRIENDLY CAMPUS TOOLKIT ASSESSMENT.** D. Hall, R. Mcfarlane, C. Dutton. Human Development, Family Studies, and Counseling

As a university primarily for women, Texas Woman's University (TWU) has stated that they value and aid students in caregiving roles (Texas Woman's University, 2024). To evaluate TWU's claim, the Family Friendly Campus Toolkit assessment was administered during the spring of 2022 to assess the current state of Texas Woman's University's ability to accommodate students who are also parents. We employed a qualitative interpretive phenomenological approach, incorporating thematic analysis, to give voice to students with families attending TWU. Our ultimate goal is to expand knowledge of parent-student experiences to improve current and future policy decisions. (Faculty Sponsor: Dr. Catherine Dutton)

**26. MATERNAL PERSPECTIVES OF MENTAL HEALTH IN CHILDREN: PREDICTORS OF LEVELS OF CONCERN AND TREATMENT-SEEKING.** H. Berka, S. Scott, L. Rosen. Social Work, Psychology and Philosophy

Though a majority of Americans identify as Christian, a considerable gap exists in psychological research concerning Christian beliefs and mental health (Pew Research Center, 2021). It remains unclear how mothers' Christian identities, beliefs, and practices impact how they conceptualize and seek treatment for mental health concerns in children. Research suggests that religious cultures may promote seeking spiritual care in lieu of professional care when faced with mental health concerns (Choi et al., 2019; Hartog & Gow, 2005; Payne, 2021). Vignettes of adolescents displaying internal and external symptoms of mental disorders were evaluated by 99 mothers who identified as Christian. Participants then completed surveys related to Christian identity, maternal identity, and beliefs about children's emotions. Predictors of the level of concern and the likelihood to seek mental health treatment expressed in response to the vignettes were examined. Findings and implications for psychoeducation are discussed. (Faculty Sponsor: Dr. Shannon Scott)

**27. INHIBITION OF CYTOMEGALOVIRUS BY LITHIUM CHLORIDE: POTENTIAL TO PREVENT BIRTH DEFECTS.** K. Marvin, L. Hanson. Biology

Cytomegalovirus (CMV) is a herpes virus that is typically asymptomatic, but can be life-threatening in immunocompromised, such as developing fetuses. Congenital CMV is the leading infectious cause of birth defects; about 1 in 1000 babies in the US is permanently affected. The current anti-virals mainly affect DNA synthesis so finding drugs that may be safer during pregnancy is desirable. In previous studies, lithium chloride (LiCl) inhibited production of herpes simplex virus I (HSVI) and HSVII. However, no known studies have been published on other herpes viruses, such as cytomegalovirus. The mechanism was not determined in these studies. The aim of our study is to evaluate the effects of LiCl on mouse cytomegalovirus in cell culture. We tested various concentrations and timing of addition and found that CMV was strongly inhibited if LiCl was present early in infection, well before viral DNA replication, supporting its possible utility as a treatment. (Faculty Sponsor: Dr. Laura Hanson)

Supported by NSF Award 1953448.

# ABSTRACTS FOR VIRTUAL PRESENTATIONS

**Abstracts are listed in the department of the faculty sponsor.**

## Session 1. Tuesday, April 23, 9:00 am – 10:20 am
## Minerva Track

**1. DEVELOPMENT, CONTENT VALIDITY, AND SCALE RELIABILITY OF THE PHYSICAL THERAPY SOCIAL DETERMINANTS OF HEALTH SCALE (PT-SDHS).** E. Bjork, R. Patel, Z. Rethorn. Physical Therapy – Houston

This study describes the development, content validity, and reliability of the Physical Therapy Social Determinants of Health Scale (PT-SDHS). Addressing inequities is critical for providing effective clinical care and improving population health. Currently, no tool exists to assess Doctor of Physical Therapy (DPT) students' education or competence with social determinants of health (SDOH). The Association for Medical Education in Europe best practices for developing questionnaires for educational research guided development. The PT-SDHS showed high item and scale content validity after expert validation. Factor analysis of 254 DPT student responses revealed five content domains (Knowledge, Attitudes, Personal Barriers, Professional Preparation, and Beliefs About Others) and 27 accepted items. Cronbach's alpha ranged from 0.70 (satisfactory) to 0.96 (excellent). The PT-SDHS is the first psychometrically valid and reliable instrument related to educating DPT students on five SDOH domains. This tool could aid development and assessment of SDOH educational interventions for healthcare students. (Faculty Sponsor: Dr. Rupal Patel)

Supported by TWU Center for Student Research.

**2. AMONG ADULTS WITH DIABETES TYPE 2, DOES HERBAL MEDICINE HELP TO STABILIZE BLOOD GLUCOSE COMPARED TO NO USAGE?** A. Le. Nursing – Houston

Global glycemic control has declined. The undiagnosed diabetic ratio is 1:3 (BMI>23) in Southeast Asians versus 1:5 (BMI>25) worldwide. Potential causes include reduced beta cell function, impaired insulin action related to lower muscle mass, and high ectopic fat deposits in the liver and muscle. Diabetes causes a moderately low quality of life in social and mental health. Herbal medicine is the study and practice of medicinal plants, which are still underutilized to achieve therapeutic management and healthy lifestyles in diabetic control. Herbal medicine has multiple benefits, such as low cost, minimal to no side effects, reduction of diabetic complications (cardiovascular, retinal neuropathy), effective control of carbohydrate metabolism (e.g., onion-quercetin, grapevine- resveratrol), and improvement of overall health, insulin sensitivity, secretion, and hypoglycemic effects (high content of phenolic compounds, flavonoids, terpenoids, alkaloids, and glycosides). Scientists are encouraged to incorporate herbs into comprehensive medication reviews and prescriptions from early diabetic stages. (Faculty Sponsor: Dr. Sandra Cesario)

**3. A YOUTUBE-DELIVERED CURRICULUM FOR PARENTS OF CHILDREN WITH AUTISM AND WEIGHT ISSUES IMPROVES PARENTAL NUTRITION KNOWLEDGE.** M. Prajapati, K. Davis, D. Miketinas, M. Massey-Stokes, M. Goo, C. Warren. Nutrition & Food Sciences

Children with autism are at an increased risk of having overweight or obesity attributable to food selectivity, delayed growth, and motor skills, among other factors. Parents, as primary caregivers, can be educated and trained to provide feeding interventions, thereby reducing healthcare costs, and increasing intervention hours for their child with autism. A randomized control trial was designed to evaluate the effectiveness of an 8-week asynchronous, YouTube-delivered, nutrition education curriculum on parental self-efficacy, nutrition knowledge, child's mealtime behaviors, and nutrient intake. Participants in the intervention group received evidence-based education and training while the control group received none. Fifteen participants completed the study, and the intervention group (n =10) showed improvements in parental nutrition knowledge ($p = 0.046$) and self-efficacy ($p=0.050$). However, no improvements were observed in the children's mealtime behaviors or nutrient intake scores. Further studies are needed to confirm the effectiveness of this intervention in a larger sample. (Faculty Sponsor: Dr. Kathleen Davis)

Supported by Woodcock Institute Research Grant.

**4. UNDERGRADUATE NURSING STUDENTS' READINESS AS VACCINE ADVOCATES POST COVID-19.** C. Huynh, D. Magner. Nursing – Dallas

Background & Purpose: Nurses are trusted healthcare professionals who are crucial in advocating for vaccines. Since the pandemic, vaccine hesitancy has reached one of the top ten global health crises, highlighting the backsliding of routine vaccinations. Vaccine hesitancy is the decline of readily available vaccinations, leading to an increase in vaccine-preventable diseases (VPD). Pre-pandemic studies have shown undergraduate nursing students have poor confidence in educating others on immunization; efficient educational intervention is effective in increasing confidence and knowledge. This quantitative descriptive study aims to explore undergraduate nursing students' readiness as vaccine advocates post- pandemic. There are currently no known post-COVID-19 studies on this topic. Methodology: A 40-question survey was administered to senior I/II undergraduate nursing students in the fall of 2023. Results: Results will be discussed here in relation to vaccine knowledge, confidence, and advocacy. Results are currently being analyzed. (Faculty Sponsor: Professor Dionne Magner)

Supported by TWU Experiential Student Scholars Program.

**5. THE SIGNIFICANCE OF THE POWER OF NURSING COURSE THROUGH VIDEO DOCUMENTARY.** R. John, B. Baudler, S. Scheller. Nursing – Houston

The purpose of this project is to promote the Power of Nursing course by highlighting its uniqueness and its impact on nursing students through a video documentary. The Power of Nursing course promotes self-discovery and strengthens a nursing student's call to the nursing profession. Alums who participated in the Power of Nursing course from Spring of 2020 through Spring of 2022 were interviewed about their experiences with the course. From the interviews, themes were identified, and portions of the interviews will be included in a video highlighting the impact of the course on their current practice. The video documentary will then be shared with potential grant foundations with the hopes of securing funds so that future nursing students can benefit from this influential course. (Faculty Sponsor: Professor Barbara Baudler)

**6. RELIABILITY AND VALIDATION OF THE PROFESSIONAL FULFILLMENT INDEX WITH PHYSICAL THERAPISTS.** K. Miller, M. Thompson. Physical Therapy – Dallas

Background: More than 50% of physical therapists (PTs) have burnout linked to poor well-being. The Maslach Burnout Inventory (MBI), the gold standard, is cost prohibitive for widespread use. The Professional Fulfillment Index (PFI) is free and validated with the MBI for physicians and pharmacists. The study purpose was to assess the PFI for test-retest reliability, internal consistency, convergent/concurrent validity with the MBI in PTs. Methods: Eight organizations sent survey link to their PTs and 82 responded from FL (n=23), NY (n=19), OH (n=6), OR (n=21), and TX (n=19). A subset of 28 respondents completed the PFI a second time. Results: Test-retest reliability of the PFI was good to excellent (ICC = 0.90, P <.001), internal consistency was high (α = 0.92) and convergent/concurrent validity between the PFI and MBI was good (r = .66, p < .001). Conclusion: The PFI is a valid and reliable measure of PT burnout. (Faculty Sponsor: Dr. Mary Thompson)

Supported by TWU Center for Student Research.

**7. OT ON THE GOLF COURSE: ADAPTIVE GOLF FOR PARKINSON'S DISEASE (PD).** H. Wright, A. Vas, M. Braitsch. Occupational Therapy - Dallas

The current research states that physical activity is critical for individuals living with a disability such as Parkinsons's Disease (PD). Golf, as a physical activity, has many benefits for disabled people including enhancing motor control, enhanced strength and flexibility, increased endurance, and better overall confidence. An adaptive golf group was implemented at Tribe Wellness to examine the feasibility of adapting golf using postural strategies and adaptive equipment and to examine the benefits of adaptive golf in daily life in those with PD. A total of six participants completed the golf program, participating in one exercise class and one golf training day each week for eight weeks. The exercise section was designed alongside a physical therapist with PD specialization. The golf training section was designed by the occupational therapy student. Results suggest adaptive golf improves overall mobility related to golf and confidence in leisure participation and the significance of the social aspect throughout this program. (Faculty Sponsor: Dr. Asha Vas)

**Session 1. Tuesday, April 23, 9:00 am – 10:20 am**
**Oakley Track**

**1. EXAMINING AN APPLICATION OF OCCUPATION-BASED THEORETICAL MODELS TO POPULATION-BASED OCCUPATIONAL THERAPY PRACTICE: A FOUCAULDIAN CRITICAL DISCOURSE ANALYSIS.** J. Whittaker. Occupational Therapy - Denton

The profession of occupational therapy (OT) defines occupation as the meaningful things that people do each day that contribute to health and well-being. OT scholars and practitioners use occupation-based theoretical models to guide best practice and explain the relationship between the person, the environment, and occupation. Theoretical models and the language used to describe their use create a body of professional knowledge or discourse that shapes what OT is and influences how OT practitioners think about, understand, and do therapy. Persistent health inequities make the need to work with populations urgent, yet little instruction exists on how use OT models with populations. This study aims to 1) help students, educators, and clinicians understand and be able to apply OT models to population-based practice, 2) provide a critical analysis of how this emerging discourse constructs what population-based OT is, and 3) explore the implicit and explicit power relationships involved. (Faculty Sponsor: Dr. Cynthia Evetts)

Supported by TWU Center for Student Research.

**2. EARLY RECOGNITION AND INTERVENTION OF A PULMONARY EMBOLISM.** L. Verdick. Nursing – Dallas

The rate of patients who develop poor health outcomes due to pulmonary emboli is rising. As a result of this project, nurses will strengthen their knowledge of identifying pulmonary emboli and provide the appropriate interventions in a timely manner. I created a simulation using a standardized patient to represent a patient in a hospital setting who is experiencing signs and symptoms of a pulmonary embolism. I compared answers from a pre-test and post-test performed by 17 nurses before and after they participated in the simulation and debriefing. They also completed a survey that assessed their self-ratings on knowledge of the topic before and after the course. The results revealed that nurses' knowledge and confidence in early recognition and intervention of pulmonary emboli increased after participating in the simulation and debriefing. Thus, simulations are a quality way of delivering education to nurses to sharpen their skills and knowledge. (Faculty Sponsor: Dr. Cecilia Wilson)

**3. EXAMINATION OF THE INFLUENCE OF SOCIAL EMOTIONAL LEARNING TECHNIQUES ON COPING, ACADEMIC SELF-EFFICACY, BELONGINGNESS, MICROAGGRESSIONS, AND AFFECT OF BLACK STUDENTS.** T. Starling. Student Life

Black students continue to enroll in college and university programs in record numbers each year, as the belief that an education is significant for later success in life is still highly valued despite the discrimination they experience (Harris, 2020). Providing students with the tools to confront racism when they experience it can help them to be able to better navigate the classroom environment and persist in the face of denigration while maintaining their Black identity. When Black students have knowledge of a repertoire of coping skills, such as seeking out social support, working harder and persisting, and educating their non-Black peers, they are able to demonstrate better academic performance and mental health outcomes (Griffith et al., 2017). This poster presentation will discuss the impact of creating culturally inclusive student-centered spaces that focus on mental health for Black undergraduate and graduate students. (Faculty Sponsor: Dr. Michelle Kelly)

**4. INVESTIGATING FOOD DESERTS IN AMERICA.** A. Aden, V. Avila. Mathematics

During this presentation, we will discuss what a food desert is, as well as ways in which STEM teachers can study the causes, consequences, and possible solutions to food deserts to implement them in their classrooms. Examples of a lesson plan involving food deserts with sample student work will be explored. Implications for our future teaching will also be shared. (Faculty Sponsor: Dr. Ann Wheeler)

**5. EXPLORING REPRESENTATION IN STEM.** A. Gaye, K. Hollingsworth, J. Quintana. Mathematics

Throughout this presentation, we will discuss research that has been conducted about the demographic makeup of people involved in STEM fields and the reasons for the lack or surplus of certain groups. Connections to lessons that can be done in STEM classes on this topic will be explored, including sample student work. Implications for our future teaching will also be detailed that consist of ways in which to incorporate these concepts into our future classes. (Faculty Sponsor: Dr. Ann Wheeler)

**6. NURSE MENTORSHIP.** K. Maple. Nursing – Dallas

Newly graduated registered nurses often lack the necessary confidence, and sometimes clinical competence, to provide safe care for patients. After graduation new registered nurses can experience transition stress, become discouraged, disillusioned, and leave the profession. We must find solutions to help nurses stay in the profession. This project will look at nurse mentorship to aid new graduates in feeling proficient when transitioning from school to the workforce. Nursing mentorship aims to help graduates overcome elements of transitional stress and has been proven to be beneficial by enhancing communication skills, increasing self-confidence, and increasing job satisfaction, which encourages nurses to stay in the profession. The project will start with surveying undergraduate senior nursing students to gather information about their interest and perceived need for a mentor after graduation. The project will culminate with the development of a mentorship program for new graduate nurses and will include training for nurse mentors. (Faculty Sponsor: Dr. Cecilia Wilson)

**Session 2. Tuesday, April 23, 2:40 pm – 4:00 pm Minerva Track**

**1. CAN SELF-REPORTED MEASURES OF PSYCHOSOCIAL FUNCTION PREDICT CONDITION-SPECIFIC PATIENT REPORTED OUTCOME MEASURES IN PATIENTS WITH HIP PAIN? A RETROSPECTIVE DATABASE ANALYSIS.** E. Bergman, R. Patel, E. Mulligan, J. Wells. Physical Therapy – Houston

A total of 2,782 patients who consulted an orthopedic surgeon specialized in hip preservation and comprehensive hip surgery for hip pain between 2016 and 2020 were retrospectively analyzed in this study. Hip-specific PROMs, including the International Hip Outcome Tool (iHOT-12), Hip Disability and Osteoarthritic Outcome Score (HOOS), and Hip Outcome Score (HOS), were used to measure physical function. Psychosocial function was assessed using the Hospital Anxiety and Depression Scale (HADS) and Pain Catastrophizing Scale (PCS). All scales were administered at the initial consultation with the orthopedic surgeon. Hip-specific PROMs and psychosocial function scores were retrospectively analyzed to determine whether the psychosocial scales could significantly predict the hip- specific PROMs. The HADS and PCS significantly predicted the iHOT-12, HOS and HOOS scores, and this analysis revealed that between 16% and 32% of the variability in hip-specific PROM scores was attributable to anxiety, depression, and pain catastrophizing. (Faculty Sponsor: Dr. Rupal Patel)

Supported by NIH R25HD105583.

**2. PERCEPTIONS ON THE RESUSCITATION OF OBESE PEDIATRIC PATIENTS: A PEDIATRIC HEALTHCARE PROVIDER STUDY.** N. Nguyen, A. Klacman, T. Raymond. Nursing – Dallas

The purpose of this qualitative study is to interview pediatric critical care providers about their experiences of caring for an obese pediatric patient during cardiac arrest. Additionally, we are interested in determining what biases pediatric providers may have regarding CPR in obese pediatric patients. Previous researchers have found that pediatric CPR quality in non-obese pediatric patients is poor. Recent studies have also shown that outcomes following cardiac arrest in obese pediatric patients is poor. The study is ongoing due to recruitment difficulties and in difficulty defining the population which I will discuss during the presentation. The research team is working on broadening the participant requirements to be eligible for the study. (Faculty Sponsor: Dr. Alex Klacman)

Supported by TWU Center for Student Research.

**3. POSTPARTUM HEMORRHAGE- STOP THE BLEED.** J. Rawls. Nursing – Dallas

"Postpartum Hemorrhage- Stop the Bleed" will be a virtual, escape room simulation. Uncontrollable postpartum hemorrhage (PPH) can be caused by a distended bladder. A distended bladder displaces the uterus thus causing the uterus to become weak and unable to contract. The inability to contract leads to an uncontrollable vaginal bleed. There is no clear trigger for starting subsequent interventions when PPH occurs, so early identification is significant. The purpose of the project is to educate students on proper technique for assessment of fundus and bladder, recognition of the signs of a PPH and how to intervene to stop the bleed. Participants will navigate through the escape room to provide appropriate care for a patient experiencing a PPH. Students must provide effective care in each room to proceed to the following room. Each room presents a different issue to solve that will lead to the completion of the simulation. (Faculty Sponsor: Dr. Cecilia Wilson)

**4. USING TELEHEALTH TO DECREASE MATERNAL MORTALITY: A SIMULATION.** K. Smith, C. Wilson. Nursing – Dallas

The United States has the highest maternal mortality rate of any well- developed country with 32.9 deaths per 100,000 live births. African American/Black women suffer an even higher rate at 69.9 deaths per 100,000. Forty percent of these maternal deaths occur within six weeks after delivery. Identified interventions to decrease maternal mortality include an increase in patient education about postpartum warning signs and the use of telehealth to bridge the gap between delivery and the standard 6-week follow-up appointment with a maternal health provider. The purpose of this simulation is to increase the knowledge and understanding of postpartum complications that can lead to maternal mortality. Nursing students in an Associate Degree nursing program will participate in a pilot simulation portraying a telehealth visit with a two-week postpartum patient. The use of pre and post-surveys will reveal the expanded knowledge the students will obtain from the simulation. (Faculty Sponsor: Dr. Cecilia Wilson)

**5. GASTROPARESIS/GASTROINTESTINAL DISORDERS, RELATED SYMPTOMS, AND THEIR EFFECTS ON BODY IMAGE: A SYSTEMIC REVIEW.** E. Agudo, W. Freysteinson. Nursing – Houston

Gastroparesis is a digestive dysfunctional condition which affects the vagus nerve and causes delayed gastric emptying symptoms such as nausea, vomiting, early satiety, post-prandial fullness, bloating, and unexplained pain. Body image is a multidimensional construct which has been measured widely across different areas of focus in research. It can be easily studied as every unique person has their own understanding of their feelings on their body image. While the literature does identify studies related to body image with a focus on gastrointestinal diseases and disorders, such as inflammatory bowel disease, irritable bowel syndrome and colorectal cancer, a gap in the literature does exist with relation to body image measurement and gastroparesis specifically, with no studies being returned. The study of body image in the gastroparesis population is one of interest to assess if perception of body image is similar to studies on gastrointestinal disorders/diseases and related symptoms. (Faculty Sponsor: Dr. Wyona Freysteinson)

Supported by TWU Center for Student Research.

**6. THE EFFECT OF TRANSCRANIAL DIRECT CURRENT STIMULATION PLUS PAIN NEUROSCIENCE EDUCATION IN PATIENTS WITH CHRONIC LOW BACK PAIN AND HIGH PAIN CATASTROPHIZING – A PILOT RANDOMIZED CLINICAL TRIAL.** C. Alcon, K. Brizzolara, H. Goh, W. Sharon. Physical Therapy – Dallas

Impairments to cognitive functions such as attention or memory that are associated with high pain catastrophizing may inhibit the efficacy cognitive interventions such as pain neuroscience education (PNE) when treating chronic low back pain (CLBP). Priming the neural circuity likely targeted by PNE, using transcranial direct current stimulation (tDCS) may enhance the efficacy of PNE. The purpose of this exploratory study was to examine the effects of combining tDCS and PNE on pain, pain behavior, and cognitive performance in those with CLBP and high pain catastrophizing. 20 participants were randomized to receive tDCS + PNE or sham tDCS + PNE for 5 sessions. tDCS + PNE demonstrated greater effect than sham tDCS + PNE in all outcomes. tDCS appears to have a priming effect on PNE and demonstrates the potential to improve the management of those with CLBP and high pain catastrophizing. (Faculty Sponsor: Dr. Sharon Wang-Price)

Supported by Woodcock Institute Research Grant.

**7. EXAMINING BURNOUT IN HEALTHCARE LEADERS: A SCOPING REVIEW.** T. Whaley, S. De Leon, H. Snyder, S. Tyson. Health Care Administration

The healthcare industry is a fast-paced, ever-changing industry that is continually developing in technology and medical advancements. These developments and advancements force the changes in leadership roles to develop and pivot with each new change that is introduced. The continual fast pace, industry demands, and need to lead interdisciplinary teams through these changes can lead to burnout. Burnout in the healthcare industry spans beyond just the clinical staff. It is growing within non- clinical healthcare leadership. The research team aspired to conduct a systematic review on the topic of burnout in healthcare executives (director and above). Still, research on this topic is not sufficient at this point to support a systematic review. Instead, the research team is conducting a scoping review to systematically identify related theories and key concepts, map the current literature available on the topic, identify gaps, and make recommendations for future research. (Faculty Sponsor: Dr. Sandra Tyson)

**Session 2. Tuesday, April 23, 2:40 pm – 4:00 pm**
**Oakley Track**

**1. CREATING SECURE ATTACHMENTS WITH YOUR CHILDREN AS A MILITARY FAMILY.** E. Sawyer, N. Gillum. Human Development, Family Studies, and Counseling

This presentation is about research on educating military parents about ways to develop and maintain secure attachments with their 3 years old-6 years old children. This information can be beneficial to these parents and their children while these parents are in the demanding business of military life (e.g., deployment, last minute work, late nights). (Faculty Sponsor: Dr. Nerissa Gillum)

**2. LATINX MATERNAL DEPRESSION AND SOCIAL CONTEXTUAL FACTORS.** A. Cisneros, A. Verdin. Human Development, Family Studies, and Counseling

This study is focused on exploring and learning more about social contextual factors influencing Latinx maternal mental health. The purpose of the project is to revise and expand on current literature through a scoping review that will map out what is known about social contextual factors influencing Latinx maternal mental health. We are identifying and synthesizing existing research that has been completed on Latina(x) maternal depression and social contextual factors impacting maternal mental health. This synthesis is a continuation and expansion on a scoping review that was begun in the Spring of 2023. The goal is to complete the synthesis and submit the scoping review's findings to a peer reviewed journal in the family sciences and/or child development field. (Faculty Sponsor: Dr. Azucena Verdin)

Supported by TWU Experiential Student Scholars Program.

**3. 'GOT A SWEET ASIAN CHICK, SHE GO LO MEIN': HYPERSEXUALIZATION AND COALITIONAL POSSIBILITIES FOR BLACK-ASIAN SOLIDARITY THROUGH HIP-HOP FEMINISMS.** E. Chung. Language, Culture, and Gender Studies

At a burgeoning level, Asians have been increasing their artistic output within hip-hop. However, lyrics insinuating the hypersexualization of Asian women still abound. Rather than reject the genre altogether, adopting a hip-hop feminist lens may redress the proliferation of these exoticizing lyrics. By applying theories from hip-hop feminists, I assert that the misuse of Asian aesthetics and tropes within hip-hop can be rectified within the same space. In making this linkage, I further allude to the coalitional possibilities of Black-Asian feminist solidarity and urge Asian hip-hop consumers to interrogate the anti-Blackness they may harbor in this arena. (Faculty Sponsor: Dr. Patricia Stukes)

Supported by TWU Center for Student Research.

**4. ASSESSING MENTORSHIP PROGRAMS' EFFECTIVENESS IN REDUCING IMPOSTER SYNDROME AMONG STEM RESEARCH STUDENTS.** C. Tharp, E. De Leon. Mathematics

Impostor syndrome (IS) is the feeling of inadequacy despite evidence of competence, affecting high achievers who credit success to external factors. Particularly prevalent in STEM research students, IS limits career opportunities and is more common in women and ethnic minorities and people of color. Personality traits often contribute to IS. This paper will discuss the mentorship programs which support to combat self-doubt, fostering a growth mindset. Trusted mentors help internalize successes. Synthesizing best practices for mentorship programs tailored to STEM research students is crucial for institutional adoption. These programs provide guidance, validation, and help students navigate IS-associated challenges, enhancing career and education outcomes. Additionally, assessing the effectiveness of mentorship programs in reducing IS among STEM research students is imperative for understanding their impact and ensuring their efficacy. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**5. GENDER GAP & STEM.** I. Sanchez, S. Smith. Mathematics

This research paper focuses on the gender gap that is still present in the STEM field. A study showed that students from different grade levels thought of mathematics, engineering, computer science, and physics to be a more predominantly male field. Students are still being raised to believe that males should be given the leadership roles in the STEM field. One idea that we are wanting to focus more on is that there is a competition between both genders. We will describe how this competition is taking place and whether the STEM career landscape is about to undergo forward and upward trajectory for women especially women of color. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**6. EXAMINING THE WATER CRISIS IN FLINT, MICHIGAN.** J. Lewsader, N. Cavazos. Mathematics

During this presentation, we will discuss how the water crisis in Flint, Michigan, is affecting lives in America. In addition, we will describe ways in which STEM educators can use surrounding and/or global problems to provide meaningful teaching opportunities in the classroom. (Faculty Sponsor: Dr. Ann Wheeler)

**7. THE IMPORTANCE OF LOCAL ELECTIONS.** S. Medellin. Mathematics

This project involves an in-depth look into using the idea of local elections in mathematics classrooms. More specifically, the project will focus on the social/educational impact on local (Dallas County) elections, and how we, as educators, can foster active citizens. Sample lessons will also be discussed. (Faculty Sponsor: Dr. Ann Wheeler)

**8. IMPLEMENTATION OF EFFECTIVE DIVERSITY, EQUITY, AND INCLUSION PROGRAMS IN HIGHER EDUCATION INSTITUTIONS.** B. Sosa. Teacher Education

Diversity, equity, and inclusion programs in higher education for faculty, students, and staff can be improved upon in future years by specifically changing the delivery and content of these trainings and presentations. Many higher education

institutions incorporate diversity, equity, and inclusion trainings, programs, and presentations on their campus to promote inclusivity relative to their areas. To make these trainings as effective as possible, the content and delivery should be changed with the audience at the forefront of the execution choices made. Students, staff, and faculty all encounter diversity, equity, and inclusion scenarios in different ways, therefore tailoring the programs and training to the audience will make a big impact on its effectiveness. (Faculty Sponsor: Dr. Rebecca Fredrickson)

**Session 3. Tuesday, April 23, 6:00 pm – 7:20 pm**
**Minerva Track**

**1. COMPUTATIONAL INSIGHTS INTO ALZHEIMER'S THERAPEUTICS: TARGETING ACH AND ACHE IN DRUG DELIVERY STRATEGIES.** S. Yaqoob, Y. Li, S. Lin. Chemistry and Biochemistry

Alzheimer's disease is manifested by a deficiency in the acetylcholine neurotransmitter (ACh), resulting in neurological symptoms such as memory impairment, delusions and cognitive decline. Although no cure currently exists, symptomatic relief is provided from medications inhibiting the acetylcholinesterase enzyme (AChE), therefore increasing ACh levels. With increased acetylcholine levels, neuronal communication is further enhanced; providing relief from the symptoms. This research study aims to investigate the underlying chemistry directing the interactions between the enzymes and their therapeutic drugs. Computational analysis is utilized in this study to examine the molecular interactions of acetylcholine, acetylcholinesterase, and their interaction with AChE inhibitors (Rivastigmine, Galantamine, and Donepezil). Memantine, a NMDA antagonist receptor, will be studied as well. Furthermore, AChE's active sites, peripheral and catalytic sites, will be analyzed to determine their optimal location and orientation for drug binding. (Faculty Sponsor: Dr. Shiru Lin)

**2. THE STEM GENDER GAP AND THE DAMAGE OF STEREOTYPES.** E. Robbins, K. Brimage. Mathematics

As women and young girls have gained more freedom in the professional world, there has been a noticeable lack of women entering mathematics and science oriented fields. This can be explained by a multitude of factors, such as women being stereotyped as less capable than men in STEM fields or such interests not seen as appropriate for women, which can cause women to feel discouraged from pursuing STEM careers. In this paper, the authors wish to analyze how these negative stereotypes are introduced to young women, how they harm their confidence in their STEM skills, and how they can cause girls to average lower grades in fields like mathematics. Fighting these stereotypes and inspiring young girls to have more confidence will likely assist in closing the STEM field's prominent gender gap. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**3. HIDDEN WOMEN: THE MINORITY.** M. Parker, P. Morton. Mathematics

The goal of this paper is to analyze minorities in STEM, specifically, black women in the world of NASA. By briefly going over the women who were called "computers", the unequal employment of black women, and the statistics of not only engineers over the years but women who are minorities at NASA, the authors will examine the struggle of women/minorities in STEM. These barriers to success in STEM may come from not only systemic, cultural, racial, and societal factors. These women were trying to change NASA during a certain time that America didn't want to face what that change meant. Between the race to the moon and the civil rights movement, the "hidden FIGURES (computers)" helped carve a path for women of color in aeronautics today. Still today, many more women encounter similar struggles as they did, even though many laws and workplace improvements have been enacted. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**4. STEM'S DISPROPORTIONATE DEMOGRAPHICS: HOW A VARIETY OF FACTORS LEAD TO THE PREVAILING GAP BETWEEN MAJORITY AND MINORITY POPULATIONS.** J. Strode, K. Donaldson. Mathematics

In this paper we seek to pinpoint and highlight some of the major causes for the lack of representation of minority groups within the fields of STEM. In order to accomplish this we have analyzed information that describes statistics of both professionals and students in STEM fields, graduation rates of different demographics of students, existing pay gaps in relating companies and job titles nation-wide, and how this issue extends back into the home and economic status of individuals- a major factor in education after grade-school. In propping up the voices of experts with first hand experiences and dissecting the metaphorical roots of these prevailing issues we hope to make people more aware on not only where this stems from but also how we in our communities can provide support to better mitigate inequity. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**5. EMPOWERING WOMEN IN STEM: CELEBRATING PROGRESS ON THE INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE.** R. Goad, R. Walulya. Mathematics

On the International Day of Women and Girls in Science, this paper reflects on the strides made in promoting gender diversity within STEM fields. Acknowledging the historical underrepresentation of women, this paper highlights initiatives and successes in empowering women in science, technology, engineering, and mathematics (STEM). From targeted educational programs to mentorship initiatives, efforts have been dedicated to fostering an inclusive and supportive environment for women pursuing STEM careers. This research paper explores the importance of breaking gender stereotypes and promoting equal opportunities, emphasizing the vital contributions women make to scientific advancements. By celebrating achievements and recognizing challenges, this reflection underscores the ongoing commitment to expanding women's participation in STEM

fields, fostering innovation, and building a more equitable future. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**6. DENTON ACCESS STORIES: COALITION-BUILDING VIA EXPERIENTIALLY LEARNING ABOUT SHARED ACCESS NEEDS.** E. Perlow. Social Sciences and Historical Studies

Patterned after Texas Woman's University's Quakertown Stories methodology (Busl 2021), Access Stories is a proposed experiential learning-based syllabus, currently in a conceptual stage prior to application for IRB approval, that seeks to build a coalition of Denton's academic and civic communities 1) to document and preserve the past, present, and future life stories and legacies of Denton State-Supported Living Center [SSLC] residents; 2) to mine SSLC residents' wisdom to solve Denton area shared access issues; and 3) to promote accessible involvement of all community members with access needs in Denton's academic and civic life. Theoretically interdisciplinary, Access Stories is rooted in Maslow's "Hierarchy of Needs" (Maslow 1943), the Universalism Approach to access needs advanced by sociologist Irving Zola (Zola 1989; Titchkovsky 2023), Experiential Learning Theory (Kolb 1984), Community-Based Participatory Research with individuals with access needs (McDonald & Stack 2016), and coalition-building via Fusion Moral Politics (Barber & Wilson-Hargrove 2016). (Faculty Sponsor: Dr. James Williams)

**7. IMPACT OF TRAUMA ON YOUTH MENTAL HEALTH: A LITERATURE REVIEW.** N. Hoskins. Social Work, Psychology and Philosophy

The impact of trauma on youth mental health has led to increasing rates of enduring consequences, hindering healthy development and contributing to social challenges within young individuals. Understanding this connection is pivotal for crafting tailored support and effective intervention programs aimed to mitigate these underlying consequences. Our study constitutes a literature review to understand the impact of trauma on youth mental health. This literature review is conducted as an extended study outside of our Social Research course to satisfy our Honors Capstone requirement. We will assess prior research that addresses the impact of trauma on youth mental health through the utilization of quantitative research articles. The results of this study will contribute to the comprehension of the intricate link between trauma and young individuals' mental health, striving to overcome research limitations inherent in prior data and paving the way for future advancements in intervention strategies. (Faculty Sponsor: Dr. Shamsun Nahar)

**Session 3. Tuesday, April 23, 6:00 pm – 7:20 pm**
**Oakley Track**

**1. WAYS OF KNOWING: A NARRATIVE CONTENT ANALYSIS OF BLACK MOTHERS' DECISION-MAKING PROCESS IN PODCASTS.** T. Mims. Human Development, Family Studies, and Counseling

Global North representations often portray Black mothers' negatively, characterizing them as parental failures, emasculating their sons, depriving daughters, and hindering their children's educational success rooted in the intersectionality of race, gender, sexuality, and class. I will explore African American mothers' decision-making processes, considering societal and maternal influences during their formative years. Moreover, it examines the impact of systemic racism and anti-blackness, focusing on Black mothers' knowledge acquisition and ability to demonstrate epistemic resilience. The following research questions will form the foundation of my study: How do Black mothers story their lives in podcasts about families and parenting? How do Black women describe their decision-making in the context of mothering and motherhood? I will conduct a qualitative narrative content analysis using purposive sampling to select five family and parenting podcasts. To amplify the voices of Black mothers' as they reclaim and redefine motherhood by analyzing 15 transcribed excerpts of discourse. (Faculty Sponsor: Dr. Azucena Verdin)

**2. A CHANGE IN WORKFLOW TO IMPLEMENT THE 2021 CDC HIV PREP GUIDELINES IN A STUDENT HEALTH CLINIC.** E. McAllister, J. Wilson, C. Thaxton. Nursing – Dallas

In 2022, 540,000 women acquired HIV worldwide (WHO, 2023). HIV Pre-Exposure Prophylaxis (PrEP) is disproportionately prescribed based on gender and sexual orientation. Men receive PrEP three times more often than women (CDC, 2021a). 10% of HIV PrEP-eligible women received a prescription, yet cisgender women account for 19% of new HIV diagnoses (CDC, 2021a). The 2021 CDC HIV PrEP guidelines recommend educating all sexually active adults instead of previous guidelines, which limited counseling to high-risk individuals based on self-reported or providers' perceptions (CDC, 2021b). Standardized education reduces barriers and improves access (O'Connell & Criniti, 2021). The workflow lacked a process for identifying and counseling patients at a university student health clinic. Retrospective chart reviews found 54% of female patients eligible for counseling, while 1.8% were counseled. The purpose of the project is to bring the clinic into compliance with the updated guidelines by identifying and counseling all sexually active patients. (Faculty Sponsor: Dr. Jennifer Wilson)

Supported by TWU Experiential Student Scholars Program.

**3. THE EFFECTIVENESS OF THE SHORT COMPASSION STRENGTHS COURSE ON JUNIOR LEVEL NURSING STUDENTS' COMPASSION SCORES.** K. Amundson. Nursing – Houston

This study measured the impact of the Short Compassion Strengths Course (SCSC) modules on first-semester nursing students' compassion scores. The 2021 American Association of Colleges of Nursing (AACN) Essentials require baccalaureate nursing students to demonstrate compassionate care. Although the importance of compassion in quality care is well-established in literature, effective programs for formally teaching compassion are understudied. In this study, the nursing students completed nine SCSC

modules prior to starting hospital clinicals in the fall 2023 semester. Using the Bolton Compassion Strengths Indicators (BCSI) survey, students' compassion scores were measured before and after completing the nine modules and after completing clinicals. Results from a RANOVA in SPSS show that students' overall and subcategory compassion scores increased significantly at each timepoint (p=.001). These findings will drive data- driven curriculum decisions regarding the continued use of the SCSC modules and their implications for compassion education. (Faculty Sponsor: Professor Barbara Baudler)

**4. BEYOND THE SURFACE: A PHENOMENOLOGICAL STUDY ON MIRROR VIEWING EXPERIENCES FOR MALE VETERANS WITH BODY DISFIGUREMENT..** J. Orondo, W. Freysteinson. Nursing – Houston

This study uses hermeneutic-phenomenological methods to explore the experiences of male veterans with body disfigurement. Through interviews and narrative analysis, the study aims to understand mirror viewing nuances. Ethical safeguards are implemented to protect participants, balancing the benefits of knowledge generation with participant well-being. (Faculty Sponsor: Dr. Wyona Freysteinson)

**5. COMPARING PELVIC FLOOR AND CORE EXERCISES FOR POSTPARTUM LUMBOPELVIC PAIN: A NARRATIVE REVIEW.** K. Trivedi, M. Thompson. Physical Therapy – Dallas

This narrative review critically evaluates the effects of pelvic floor muscle exercises, core stabilization exercises, or both for women experiencing lumbopelvic pain during pregnancy or postpartum. The review includes evidence from 475 postnatal women across 10 randomized controlled trials, with lumbopelvic pain onset during pregnancy or within three months postpartum. A comprehensive search in multiple databases for English- language randomized controlled trials published between 2012 and 2022 was conducted. Ten articles meeting the inclusion criteria were included. Findings suggest that both pelvic floor muscle exercises and core stabilization exercises show promise in reducing postpartum lumbopelvic pain, with significant improvements in pain reduction and functional outcomes. However, due to the limited number of studies and heterogeneity in intervention protocols, further research is necessary to determine the most effective therapeutic approach. Incorporating these exercises into clinical practice could help manage postpartum lumbopelvic pain and improve overall well-being. (Faculty Sponsor: Dr. Jodi Thomas)

Supported by TWU Center for Student Research.

**6. THE ROLE OF TEACHER SELF-EVALUATION WITHIN THE EXISTING EVALUATION SYSTEM IN SHAPING TEACHER EFFECTIVENESS AND STUDENT OUTCOMES: PILOT STUDY.** B. Voss. Teacher Education

This pilot study investigates the effectiveness of integrating teacher self-evaluation within the existing teacher evaluation system to drive teacher improvement and subsequently enhance student achievement. By examining the influence of self-evaluation, peer feedback, and instructional coaching on pedagogy and curriculum, the study addresses current debates over teacher quality, incentives and promotes the use of best practices in teacher evaluation and professional development. The findings of this study will contribute to the advancement of pedagogy, curriculum, and teacher quality, providing valuable insights for policy decisions, certification preparation, and advocacy in education. (Faculty Sponsor: Dr. Amanda Hurlbut)

**7. THE CHARACTERISTICS OF POSITIVE FAMILY-SCHOOL PARTNERSHIPS.** A. Hill. Teacher Education

Students with disabilities are more likely to have mental health issues, face adverse life experiences, and have poorer outcomes in adulthood than their nondisabled peers. Due to the increased needs of students after the COVID-19 pandemic, it has become more important to build meaningful family- school partnerships. Students who benefit from strong family-school partnerships are more likely to have higher academic achievement, increased social-emotional outcomes, improved social skills, and decreased problem behavior. Parents and guardians who participate in family-school partnerships reported decreased stress and higher quality of life. While these partnerships are difficult to develop, meaningful collaboration with families benefits everyone. This study explores the characteristics of positive family-school partnerships in public, private, and charter schools, and will attempt to identify the actions of both schools and families that allow these partnerships to thrive. (Faculty Sponsor: Dr. Maria Peterson-Ahmad)

Supported by TWU Center for Student Research.

## Session 4. Wednesday, April 24, 9:00 am – 10:20 am Minerva Track

**1. THE AFRICAN AMERICAN DANCING BODY; A SITE FOR RELIGIOUS EXPERIENCE THROUGH DANCE.** S. Diouf. Dance

African American religious dance is not a topic previously explored in detail beyond dance that has historically existed within the context of Christianity and the church, a myth I wish to address. The African American religious experience is not limited to Christianity and should be inclusive of various religious practices extending beyond the church, thus requiring deeper exploration of what constitutes an African American religious experience, especially as it relates to dance. In an effort to explore this, careful exploration of the Ring Shout was necessary as a tool in discussing the evolution of African American religious dances. In my essay I use Saidiyah Hartman's text Scenes of Subjection to aid in my investigation into why and how African American performance has historically been affected by enslavement while also drawing in part on historical recollections of experiences of the enslaved through reflections on the Ring Shout, the first African American religious dance. While

arriving at my own definition of African American religious dance I pull from Anthony Pinn's definition of African American religion. I also include inte... (Faculty Sponsor: Dr. Charmian Wells)

Supported by TWU Center for Student Research.

**2. BARRIERS AFFECTING WOMEN AND MINORITIES SUCCESS IN STEM FIELDS AND POSSIBLE SOLUTIONS.** Z. Taimuri, L. Flores. Mathematics

This paper aims to identify the challenges that hinder the success of women and minorities in the Science, Technology, Engineering, and Mathematics (STEM) fields. By expanding on common obstacles which include stereotypes, lack of access to resources, lack of representation, and gender biases, we hope to shed some light onto challenges these groups face daily. Short term solutions involve implementing recruitment strategies, offering guidance, and promoting diversity, equity, inclusion and justice to empower more women and minorities to join the STEM fields. Long term solution entails removing social stigmas like "Women belong in the kitchen." that resonate with numerous cultures. By promoting inclusivity and fostering an environment of respect and equality we can challenge these stigmas. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**3. THE UNDERREPESENTATION OF MINORITIES AND WOMEN IN STEM-RELATED FIELDS.** R. Cavaliero, P. Ward. Mathematics

Through extensive research, we will encapsulate the underrepresentation of minorities and women in STEM-related fields. This research will include the barriers that prevent minorities and women from pursuing STEM careers from biases and discrimination, lack of role models and opportunities, and structural barriers. We will provide highlights of the troubles women and minorities have struggled with throughout the past leading up to the present. We anticipate a spread of awareness of women and minorities being underrepresented across the STEM community. By providing data from reputable sources, we hope to leave our readers with a clear image of the true hardships that women and minorities are faced with and give present- day students the hope and confidence to continue in their dreams in the STEM community. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**4. FACTORS AFFECTING MENTAL HEALTH PROVIDERS' COMPETENT CARE OF TRANSGENDER AND NONBINARY CLIENTS.** M. Higgins. Social Work, Psychology and Philosophy

Existing literature broadly suggests that many mental health providers (MHPs) are unprepared to work competently with transgender and nonbinary (TGNB) clients on a range of topics including gender-affirming medical care and gender-specific identity-based exploration. The researcher explored factors including graduate training, self-reported competent practices, and performance-based affirming practices to determine in what specific ways MHPs may be prepared or unprepared when working with TGNB clients. Participants responded to one of four clinical vignettes and completed instruments measuring competence with TGNB clients. The researcher used regression analyses and ANOVAs to explore relationships between independent variables related to MHP identity and training and outcome variables measuring competence. The researcher used the software program Linguistic Inquiry and Word Count (LIWC) to quantify themes and linguistic dimensions within participants' responses to vignettes. Results will be discussed and integrated into the current literature on factors affecting MHP's affirming work with TGNB clients. (Faculty Sponsor: Dr. Debra Mollen)

Supported by TWU Center for Student Research, Dallas Psychological Association.

**5. FROM IDEAS TO IMPACT: CULTURAL HUMILITY, JEDI, AND PRAXIS CONVERGENCE IN EMS FOR IMPROVED HEALTHCARE OUTCOME FOR PATIENTS FROM MARGINALIZED POPULATIONS.** C. Tomplait. Teacher Education

This research proposal focuses on evaluating the transformative potential of Cultural Humility as a foundational element for justice, equity, diversity and inclusion (JEDI) in Emergency Medical Services (EMS). Utilizing an intervention design with pre- and post-assessments, the study will assess changes in EMS personnel attitudes, stereotyping beliefs, behaviors, biases, and patient outcomes following Cultural Humility and JEDI training. The research aims to provide empirical evidence supporting the integration of Cultural Humility into JEDI frameworks for more optimal patient outcome following EMS care. The results will contribute to the development of a JEDI-informed cultural competence framework for EMS training and practice. (Faculty Sponsor: Dr. Rebecca Fredrickson)

**6. EMPLOYMENT PERSPECTIVES OF, FOR, AND BY INDIVIDUALS WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES.** D. Hademenos. Teacher Education

By providing appropriate and reasonable supports that require minimal time or cost, individuals with intellectual and development disabilities (IwIDD) can thrive in employment, including in business or military (Werner & Hochman, 2017a; Werner & Hochman, 2017b), obtaining agency and independence, as well as acquire new skills and social connections (Kocman & Weber, 2018; Timmons et al., 2011). Likewise, as long as care is taken to set clear expectations (Kocman et al., 2017), organizations will acquire a capable employee, as well as enhance morale, engagement, and team cohesiveness (Werner & Hochman, 2017a). Finally, family members of IwIDD also value employment as it develops pride, independence, purpose, and community engagement (Carter et al., 2023). Altogether, these perspectives provide strong support for addressing barriers to employment for IwIDD. This research advances understanding that employment of IwIDD is both a morally good choice as benefits IwIDD, and one that benefits others, including

employing organizations. (Faculty Sponsor: Dr. Rebecca Fredrickson)

**Session 5. Wednesday, April 24, 2:40 pm – 4:00 pm**
**Minerva Track**

**1. FEAR THEORY: MONSTERS AS TRANS TECHNOLOGY.** C. Henderson. Language, Culture, and Gender Studies

Critical analyses of monsters suggest that they are a cultural technology, a tool used to produce cultural meanings and reify norms. As a result, monsters in media and popular culture have often been used to transmit and generate harmful biases. Drawing on monster theories and the field of transgender studies, which suggest that reclamation of the monstrous is one path to resisting these norms, I read acts of trans self-monstering as a complex engagement with, and rejection of, the regulating power of monstrous representation. I ask the question, how can monsters function as a trans technology? (Faculty Sponsor: Dr. Patricia Stukes)

Supported by TWU Center for Student Research.

**2. EMPOWERING WOMEN AND SOCIETY: HOW DOES REPRESENTATION AFFECT WOMEN'S INTERESTS?** M. Lingthep, D. Colston. Mathematics

The goal of this study is to analyze women's empowerment in society. By looking at how representation affects women's interests in fields dominated by males, especially white males, this project will determine whether having a smaller representation has affected women's motivation to work in these fields. This work identifies different factors that may make women hesitant to pursue careers in these fields. One possible solution is to spread awareness about the importance of diverse representation and empowerment of people of all backgrounds. Globally, women's participation in mainstream politics, economic advancement, and education accomplishments have been considerably low due to cultural norms, biases, and lack of access to resources and opportunities. By providing statistics and credible literature review on the subject and examining the representation gaps in today's society, more females of different cultural backgrounds may likely make their mark in male-dominated workplaces. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**3. PAY GAPS: DISPARIATIES IN PAY AMONG GENDER AND ETHNIC GROUPS.** E. Britt-Figueroa, A. Davis. Mathematics

Our research topic is to analyze prevailing biases that influence gender and ethnic pay gaps in STEM fields. There is sufficient data and information backed by current research that we will use to compare and contrast disparities in pay. The structure of our research will include an examination of the various degrees obtained by women and minorities that we will measure against the degrees obtained by men in STEM fields. More specifically, we will identify pay gaps between men, women, and minorities in STEM in total. Next, we will examine three distinct segments: Healthcare, Engineering, and Computer Technology. By exploring what determines fair pay, examining the gender and ethnic composition of each professional designation, and determining what biases influence decision- making when offering compensation packages during the selection and recruitment process, we hope to gain insights and spread awareness surrounding the forms of implicit attitudes and its impact on marginalized groups. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**4. MINDFULNESS TRAINING FOR NEUROSCIENCE NURSES.** L. Wang. Nursing – Dallas

Nurses specializing in the area of neurology work in high-stress environments in which they frequently care for patients who have altered mental status and physical disabilities due to neurological deficiencies. Negative results such as increased stress and burnout are frequently encountered by these nurses. This project will explore the effectiveness of mindfulness training in stress reduction for these nurses. This approach includes pre- and post-training surveys to quantify stress levels, brief in-person and virtual mindfulness training, and a list of mindfulness practice resources. Expected outcomes are improved overall wellbeing and reduced levels of stress among participants. This project has the potential to inform nurse wellness practices and contribute to filling the research gap about mindfulness training specifically for nurses specializing in the area of neurology. A pilot of the project will occur in the fall 2024 semester. A second implementation will occur incorporating needed revisions identified from the pilot results. (Faculty Sponsor: Dr. Cecilia Wilson)

**5. SIGNIFICANE OF CRITICAL THINKING IN STUDENT NURSES.** J. Joseph, F. Liu. Nursing – Denton

Critical thinking (CT) is essential for student nurses to care for their patients in clinical settings. CT is a necessary practice for a nursing intervention that is professional, safe, and efficient. CT plays a role in the perception, synthesis, analysis, and evaluation of knowledge acquired through communication, reflection, experience, observation, and reasoning, resulting in a decision to take action (Papathanasiou et al., 2014). Nurses must learn and practice professional skills and collaborate with healthcare teams to provide safe and need-based patient care; therefore, student nurses need to learn and acquire CT during their clinical practice. This paper aims to describe the future significance of CT in student nurses. (Faculty Sponsor: Dr. Fiquin Liu)

**6. KEY VOLATILE AND NONVOLATILE OFF-FLAVOR/AROMA CHARACTERIZATION FOR NINE DIFFERENT HEMP PROTEIN POWDERS.** R. Martinez, X. Du. Nutrition & Food Sciences

Cannabis Sativa L., also known as hemp, has been highly sought after due to cannabinoids, particularly tetrahydrocannabinol and cannabidiol, which can be used for recreational or medicinal use. These compounds are extracted from the plant flower, leaving a protein rich by-product as waste, which can be used as material for commercial plant-based proteins. Hemp protein can be

isolated by different techniques thus giving different characterizing functionality, flavor profiles, especially off-notes. This study aims to compare the physicochemical, food functionals, and key volatile and nonvolatile components in hemp proteins found in the market and investigate volatile and non-volatile off-notes. Nonvolatile compounds were identified using LCMS and quantitated using UPLC. GCMS will identify volatile differences in ratios and unique compounds of terpenes, alcohols, aldehydes, and acids. This study provides a better outlook for premium flavor profiles in hemp protein isolates based on their protein isolation techniques. (Faculty Sponsor: Dr. Xiaofen Du)

**7. COMPARING GAIT BIOMECHANICS AND FUNCTION IN CHILDREN WITH BILATERAL SPASTIC CEREBRAL PALSY WHEN WEARING OSKAR AFO-FOOTWEAR COMBINATION VERSUS STANDARD AFO-FOOTWEAR COMBINATION: AN EXPLORATORY STUDY.** T. Pierce, A. Fiss. Physical Therapy – Dallas

A majority of ambulatory children with cerebral palsy (CP) wear ankle foot orthoses (AFOs) when walking. A segmental approach to orthotic assessment and design has been recommended; however, there is limited evidence supporting this approach. This exploratory study evaluated peak knee extension, functional gait (Pediatric Balance Scale, Standardized Walking Obstacle course, Six-Minute Walk Test) and client satisfaction of 10 children with spastic CP under two conditions: 1) ankle foot orthoses- footwear combinations (AFOFCs) fabricated using the Optimal Segment Kinematic and Alignment Approach to Rehabilitation (OSKAR), and 2) standard AFOFCs. Peak knee extension was not significantly different when wearing the two orthoses. However, Pediatric Balance Scale scores were significantly higher when wearing the OSKAR AFOFCs but all other functional gait scores were comparable between conditions. Although not statistically significant, participant satisfaction was higher in the OSKAR condition. Future studies with more participants are needed to evaluate the effectiveness of OSKAR AFOFCs. (Faculty Sponsor: Dr. Alyssa Fiss)

Supported by Philadelphia College of Osteopathic Medicine, GA Campus, Research Department.

**Session 6. Wednesday, April 24, 6:00 pm – 7:20 pm**
**Minerva Track**

**1. RETENTION CHALLENGES FOR WOMEN IN ENGINEERING.** A. Grosch. Business

According to recent statistics by the United States Bureau of Labor Statistics, women make up less than 1 in 5 engineers. While the rate of women choosing to enroll in an engineering collegiate program has increased, the majority of women are gone once they finally enter the workforce. This research will look into how organizational conflict impacts the retention of women in the field of engineering. Women working in male-dominated fields fosters different challenges than working in a female- dominated occupation such as primary or secondary education, or nursing. By understanding the various issues and obstacles that occur during their day-to-day, managers can learn how to better empower their teams with improved ways to communicate, handle conflict, and affirm women's technical aptitude. When companies are proactive about improving the retention of women, it allows for their business to reap the long-term benefits of having more women in their ranks. (Faculty Sponsor: Dr. Dewaynna Horn)

**2. THE FATHER OF ELOQUENCE: ISOCRATES AND HIS UNDERRATED LEGACY.** J. Viveiros. Language, Culture, and Gender Studies

It's time to transcend the "big three" of classical thought: Socrates, Plato, Aristotle. Isocrates didn't have big lungs or booming confidence and is also understudied due to his supposed lack of contributions to rhetorical theory. However, this presentation will argue just the opposite– Isocrates has more than earned his place on the classical stage. According to Russell H. Wagner, Isocrates was a pioneer whose "transforming of education from the speculative to the practical training for life opened the way for a tremendous expansion of oratory (336)." In this paper, I explore the foundations of Isocrates' school and his "departures" from the sophists who trained him. By closely examining his will to mold students who developed a whole intellect through writing and speaking, a modern audience can appreciate his mission to make "practical 'philosophers' of his students" (328). (Faculty Sponsor: Dr. Brian Fehler)

**3. MAINTAINING PERIOPERATIVE NORMOTHERMIA: IMPROVING PATIENT OUTCOMES AND LOWERING HEALTHCARE COSTS.** A. Butler. Nursing – Dallas

The purpose of this project is to increase staff education regarding the importance of normothermia maintenance, and to increase participation in normothermia maintenance practices among the staff in the Walter Tower Operating Room (WTOR). The methods planned to achieve this goal are to conduct a formal staff education lecture regarding normothermia, its importance, and the various interventions available to achieve normothermia on the unit, as well as a hands-on learning activity that will involve active staff participation in applying the various normothermia methods available for use on the unit in the style of a competition game. This project will be implemented in the WTOR unit February 28, 2024. The project's effectiveness will be measured via analysis of a pre-education quiz and two post-education quizzes. If this educational project is effective in achieving its goal, then it will be proposed that this education be performed bi-annually for the WTOR staff. (Faculty Sponsor: Dr. Cecilia Wilson)

**4. COMPETENCY BOX.** M. Hurd. Nursing – Dallas

Competency Box is a multi-modal approach to teaching a particular set of highly emergent, but infrequent, skills related to the care of patients in the emergency room. A physical box

will hold 4 bags with the tools and supplies needed to complete the skills: chest tube insertion and care, rapid infusion, precipitous birth, and IO IV insertion. There will also be written instructions and a QR code for a video that walks the learner through the process. This multi-modal system allows learners to find the learning pathway that best fits their needs: oral, auditory, visual, and tactile. Part of the system also includes a pre-post test and competency check-off to assess learning, along with an evaluation to gather feedback on the effectiveness and validity of the tool. (Faculty Sponsor: Dr. Cecilia Wilson)

**5. CHARGE NURSE ORIENTATION PROGRAM IN POST ANESTHESIA CARE UNIT (PACU): LEARNING TO LEAD.** R. Khadka, L. Nate. Nursing – Dallas

A charge nurse plays a crucial role in any unit in the hospital. A presurvey conducted in a 56-bed high acuity PACU revealed that 10 out of 12 charge nurses did not receive any formal orientation. A lack of orientation may result in an inability to deal with complex situations and run the unit smoothly. The purpose of the project is to create an orientation program to improve the confidence level of charge nurses in their roles by familiarizing them with the available resources and increasing their knowledge and skill base. The orientation program will comprise a resource binder with checklists, an educational session, and milestones to track the progress of the orientation. After the implementation of the project, a post-survey will be sent out to the participating nurses and the survey results will be compared. The feedback from the team will be assessed for the effectiveness of the project. (Faculty Sponsor: Dr. Cecilia Wilson)

Supported by Houston Methodist Hospital.

**6. UNPACKING THE CHALLENGES OF ANTI-DEI IN EDUCATION.** L. Lindley. Teacher Education

This proposal investigates the rise of anti-Diversity, Equity, and Inclusion (DEI) sentiments within colleges and universities and their impact on campus culture, policies, and student experiences. In recent years, higher education institutions have witnessed the rise of movements and narratives that oppose DEI initiatives, claiming they undermine academic freedom, meritocracy, and institutional autonomy (Mickey-Pabello, 2023). This study aims to examine the underlying factors driving anti-DEI sentiments within academia, including political ideologies, perceptions of fairness, and resistance to social change. Through qualitative analysis, it explores the drivers, rhetoric, and implications of anti-DEI movements on campus climate and marginalized groups. (Faculty Sponsor: Dr. Rebecca Fredrickson)

**Session 6. Wednesday, April 24, 6:00 pm – 7:20 pm**
**Oakley Track**

**1. DIVERSITY AND STEM- THE LACK OF NUMBERS TO MATCH THE CONTRIBUTION OF WOMEN AND OTHER MINORITY GROUPS IN THE STEM COMMUNITY.** M. Williams, M. Rodriguez. Mathematics

The goal of this research paper is to bring awareness to the lack of representation of women, minorities, and persons with disabilities within the STEM workforce. Furthermore, we will do justice by bringing light to these communities by exploring their contributions and achievements within their respective fields. The authors will also be touching on the quick expansion and growth of these communities within the workforce as well as highlighting their surpassing contribution compared to that of men in STEM. The world is constantly changing as well as growing, and the rate of women, minorities and people with disabilities in STEM will only continue to grow; therefore, the researchers will be highlighting the abounding investment of these communities as well as the challenges faced that seem to make them unintentionally hide behind a spotlight. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**2. WOMEN IN THE COMPUTER SCIENCE FIELD.** E. Zimmerman, A. Bernardo. Mathematics

The goal in this research paper is to analyze "Women in the Computer Science". This paper will be looking at the underrepresentation of women in the field, finding implicit biases and stereotypes about women in the field, scrutinizing hostile work environments women deal with, investigating women's barrier to advancement in the field, and analyzing the pay inequality. Sexism in the computer science field is a result of biases held by disrespectful people. The authors will also discuss the demand for more programmers and why women should feel more encouraged to join the computer science field. In providing pertinent health data, analyzing existing literature, and consulting primary medical sources, our aim is to shed light on the disparities and biases within the computer science field. By acknowledging these challenges, we hope to pave the way for progress, emphasizing the importance of fostering diversity and inclusivity in STEM. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**3. GENDER INEQUALITY IN STEM.** L. Musani, M. Estrada. Mathematics

Many careers in STEM have been mostly dominated by men for years, which caused women to be discouraged to work in STEM. We need to solve the source of inequalities in STEM, in order to decrease the gender gap. Some of the main issues that led to women being the minority in STEM jobs are stereotypes, a lack of role models, and gender biases. Some solutions may be teaching young girls about STEM, encouraging their love of math and science, and teaching them of women that work in STEM. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**4. BEYOND THE "GLASS CEILING": AN EXAMINATION OF BARRIERS FOR WOMEN IN STEM.** K. Dilley, D. Ramos. Mathematics

Our research paper aims to investigate the multifaceted barriers women encounter throughout the entirety of their STEM careers, focusing on the lack of prominent female

figures, the perpetuation of gender stereotypes, and the prevalence of gender bias in the workplace and education. Women often struggle with an absence of notable role models, which could stem from the lack of visibility of female achievements in the STEM field. Gender stereotypes further hinder progress as they constantly reinforce the belief that women are less capable in STEM roles than their male counterparts. Furthermore, gender bias manifests in unequal opportunities and discriminatory practices both in education and throughout the entirety of many women's careers. By highlighting these struggles, we aim to shed light on the systemic issues hindering women's innovation and advancement in STEM while also advocating for strategies to promote much-needed gender equity and diversity in this field. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**5. WOMEN IN STEM: THE CHALLENGES OF YOUNG WOMEN AND GIRLS.** F. Serafin, M. Garcia. Mathematics

The goal of this research project is to examine and understand why there is a lack of women in STEM. Throughout this paper we hope to address the challenges women in STEM face, specifically young women, and girls by discussing how school and early education play a role in discouraging young girls from being interested in STEM fields, comparing, and contrasting the challenges young men face in STEM versus young women face, and addressing the lack of women in STEM as opposed to men. Additionally, we will highlight successful women in STEM, evaluate how they became successful, and apply that knowledge to current women in STEM to build more representation in the near future. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**6. UNDERREPRESENTED MINORITIES: HOW TO ENGAGE MORE WOMEN AND MINOIRITIES IN STEM.** J. Molina, R. Kapadia. Mathematics

Our research paper aims to engage more women and minorities in STEM, by understanding how underrepresentation is prevalent in today's society and how to overcome it. We will touch on the common gender gaps, equal pay, and common practices such as biased companies, and xenophobic tendencies in workers and study the economic impact on businesses in STEM fields. We encourage change by using technology such as social media and other entertainment platforms to have women and other minorities see a positive representation of people just like them in these fields. By encouraging them to pursue STEM we can change our education system by prioritizing the state's educational budget to spend more tax dollars on STEM that gives the next generation hands-on experience. While focusing on these insights, we hope to influence change and give confidence among our STEM peers or those wanting to pursue STEM. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

**7. INVESTIGATING FOOD SUPPLY ISSUES AROUND THE WORLD.** A. Garcia, M. Catoe, A. Clarke. Mathematics

During this presentation, we will give an overview on how food shortages have had a global impact, emphasizing on key factors such as increased human population and decreased food supply. Through this investigation, we will focus on how STEM teachers can educate students about this problem with sample problems and answers. Implications for future teaching projects will also be explored. (Faculty Sponsor: Dr. Ann Wheeler)

**8. HOW MANY WOMEN GRADUATE WITH STEM DEGREES?** S. Macias, V. Salcedo. Mathematics

After reading the article discussing the difference between women and men in STEM fields, the researchers think it is important and beneficial to study as to why there is such a big difference in the percentages. The purpose of this research is to view these statistics and relate them to personal experiences of women working with a STEM degree. In this paper and research, we will include and look into the statistics on women graduating with STEM degrees in different fields. As well as the percentage of women graduating with STEM degrees, because we want to compare and observe the successes and failures of an average woman with a STEM degree. The article explains how men usually test a noticeably higher score than women in STEM subjects like math and science. We would like to focus our research into trying to find the main causes as to why that is. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

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## LIST OF TWU COMPONENTS WITH STUDENTS PRESENTING

Biology
Business
Chemistry and Biochemistry
Communication Sciences and Oral Health
Computer Science
Dance
Engineering
Fashion
Health Care Administration
Health Promotions and Kinesiology
Human Development, Family Studies, and Counseling
Language, Culture, and Gender Studies
Library and Information Sciences
Literacy and Learning
Mathematics
Music
Nursing (Dallas, Denton, and Houston)
Nutrition & Food Sciences (Denton and Houston)
Occupational Therapy (Dallas and Denton)
Physical Therapy (Dallas and Houston)
Social Sciences and Historical Studies
Social Work, Psychology and Philosophy
Student Life
Teacher Education
Theatre
Visual Arts

## LIST OF FACULTY SPONSORS

Dr. Mary Anderson (Chemistry and Biochemistry)
Mr. Juan Armijo (Human Development, Family Studies, & Counseling)
Dr. Dayna Averitt (Biology)
Dr. Courtney Banks (Social Work, Psychology and Philosophy)
Professor Barbara Baudler (Nursing – Houston)
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Dr. Zane Lybrand (Biology)
Professor Dionne Magner (Nursing – Dallas)
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Dr. Sharon Wang-Price (Physical Therapy – Dallas)
Dr. Cynthia Warren (Nutrition & Food Sciences)
Dr. Charmian Wells (Dance)
Dr. Samiel Wells (Communication Sciences and Oral Health)
Dr. Ann Wheeler (Mathematics)
Dr. James Williams (Social Sciences and Historical Studies)
Dr. Cecilia Wilson (Nursing – Dallas)
Dr. Jennifer Wilson (Nursing – Dallas)
Professor Alisa Woods (Communication Sciences and Oral Health)

## 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 23, 2024

| | | |
|---|---|---|
| 9:00 a.m. – 10:20 a.m. | Poster Presentations<br>Platform Presentations Track A<br>Platform Presentations Track B<br>Virtual Presentations* | Student Union 2300 (Southwest Ballroom)<br>Student Union 2231<br>Student Union 2238<br>Minerva and Oakley |
| 10:45 a.m. – 12:00 p.m. | Celebration of Research | Student Union 2231 |
| 12:00 p.m. – 1:00 p.m. | Chancellor's Luncheon to Honor Student Research Scholars (invitation only) | Student Union 2220 (Southeast Ballroom) |
| 1:30 p.m. – 2:30 p.m. | Keynote Speaker: Dr. Roza Selimyan | Student Union 2231 |
| 2:40 p.m. – 4:00 p.m. | Poster Presentations<br>Platform Presentations Track A<br>Virtual Presentations* | Student Union 2300 (Southwest Ballroom)<br>Student Union 2231<br>Minerva and Oakley |
| 2:40 p.m. – 4:00 p.m. | TWU Bettye Myers Butterfly Garden Photo contest and voting | Student Union 2300 (Southwest Ballroom) |
| 6:00 p.m. – 7:20 p.m. | Poster Presentations<br>Platform Presentations Track A<br>Platform Presentations Track B<br>Virtual Presentations* | Student Union 2300 (Southwest Ballroom)<br>Student Union 2231<br>Student Union SGA Chambers<br>Minerva and Oakley |

### Wednesday, April 24, 2024

| | | |
|---|---|---|
| 9:00 a.m. – 10:20 a.m. | Poster Presentations<br>Platform Presentational Track A<br>Virtual Presentations* | Student Union 2300 (Southwest Ballroom)<br>Student Union 2231<br>Minerva |
| 10:30 a.m. – 11:30 a.m. | WoMENTORING | Student Union 2231 |
| 2:40 p.m. – 4:00 p.m. | Poster Presentations<br>Platform Presentations Track A<br>Virtual Presentations* | Student Union 2300 (Southwest Ballroom)<br>Student Union 2231<br>Minerva |
| 2:40 p.m. – 4:00 p.m. | TWU Bettye Myers Butterfly Garden Photo contest and voting | Student Union 2300 (Southwest Ballroom) |
| 4:00 p.m. – 5:00 p.m. | Experiential Student Scholars Program Celebration (invitation only) | Student Union 2238 |
| 6:00 p.m. – 7:20 p.m. | Poster Presentations<br>Platform Presentations Track A<br>Virtual Presentations* | Student Union 2300 (Southwest Ballroom)<br>Student Union 2231<br>Minerva and Oakley |

* Oakley Track: https://twu-edu.zoom.us/j/86903142237?pwd=aFcrZFJkbFhTdDZ1cmFrUEd1NXZkdz09
Minerva Track: https://twu-edu.zoom.us/j/86857012973?pwd=V3FwelE4VmZaaDFlb3kydnRHY0JRZz09