TEXAS WOMAN'S UNIVERSITY | APRIL 18-19

2023 Student Creative Arts and Research Symposium

TEXAS WOMAN'S UNIVERSITY

WELCOME

2023 Student Creative Arts & Research Symposium

The Symposium Planning Committee is pleased to welcome you to the **2023 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 **2023 Annual Symposium**!

Cover Artist

A special thank you goes to this year's Symposium Program cover artist, Deyjah Stewart. Deyjah is a visual artist working with mixed-media processes including drawing, painting, fibers, collage, and installation. She creates narrative work infused with figuration and abstraction inspired by the theme of solitude as a human condition as seen in her cover image titled Seeking to Be, 2022. Deyjah's process is reflective and introspective, utilizing her personal experiences and interests. Objects such as flowers, home furniture, blankets, and portraits are often metaphors for recurring concepts of past and present, home and family, memory, imagination, childhood, and the self. Based in Fort Worth, TX, Deyjah received her BFA in Studio Art with a concentration in painting and drawing at Texas Woman's University in Spring 2022.

Acknowledgements

The Symposium Planning Committee is grateful to the many people whose support has made the 2023 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!

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Graduate Council Award for Exceptional, Original Scholarship

Anne Davenport, Ph.D. Candidate in Biology
Emily Rich, Ph.D. Candidate in Occupational Therapy - Dallas
Tracy Tyner, Ph.D. Candidate in Nursing Science

These three students were selected by the Research Committee of the Graduate Council as recipients of the 2023 Graduate Council Award for Exceptional, Original Scholarship. Recipients receive a monetary award/scholarship and below is a summary of their research.

Anne M. Davenport, PhD candidate in Biology, will graduate in May 2023. The main focus of the research is how mitochondrial disfunction can promote migration in breast cancer cells. Specifically, she studies a small protein, G1P3, which is located in the mitochondria and its involvement in breast cancer cell migration through induction of mitochondrial reactive oxygen species. This research has been presented at both national and regional conferences and have won awards and grants. This PhD research has been published in one peer-reviewed journal and submitted for publication to a second peer-reviewed journal.

Emily Rich, MOT, OTR/L is an occupational therapist and Ph.D. candidate in Occupational Therapy. Her research interests lie in understanding functional challenges and designing novel treatment interventions for individuals with a common form of dysautonomia, postural orthostatic tachycardia syndrome (POTS). In her dissertation research, Emily aims to develop the first curriculum for self-management of POTS using a multi-modal approach based in occupational adaptation theory. Ms. Rich is seen as an expert in her field on treating POTS and speaks nationally and internationally to both patients and providers. She has multiple peer-reviewed publications and designed the only comprehensive rehabilitation training course for treating POTS.

Tracy Tyner is an acute care nurse practitioner with 27 years of critical care nursing experience who will receive her Doctor of Philosophy in Nursing Science in May 2023. Her dissertation research focuses on the pre- and post-mastectomy experiences of women with breast cancer who choose flat closure, that is, women who forgo breast reconstruction after mastectomy. As a breast cancer survivor and patient advocate, she has dedicated her scholarly work and research to improving the lives of women making breast cancer surgical decisions. She has acquired several research grants and will disseminate her research at an upcoming national and international conference. Tracy has five peer-reviewed journal publications, and a manuscript of her study findings is currently under peer review.

Chancellor's Student Research Scholars

A Celebration of Research

Tuesday, April 18, 2023, 10:45 am – 12:00 pm
ACT 301

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 2023 Honorees and their Faculty Mentors:

Doctoral Students:

Cantu, Daisy J (Biology) ..... Dr. Dayna Averitt
Cuervo, Margarita B (Human Development, Family Studies, and Counseling) ..... Dr. Peggy Lisenbee
Davenport, Anne (Biology) ..... Dr. DiAnna Hynds
Hickman, Taylor M (Biology) ..... Dr. Dayna Averitt
Miller, Kenneth L (Physical Therapy - Dallas) ..... Dr. Mary Thompson
Parker, Salena P (Language, Culture, and Gender Studies) ..... Dr. Gretchen Busl
Rumpa, Mafia Mahabub (Biology) ..... Dr. Camelia Maier
Sabir, Abdullah As (Biology) ..... Dr. Catalina Pislariu
Stockemer, Jennifer A (Human Development, Family Studies, and Counseling) ..... Dr. Catherine Dutton
Stoddard, Carissa A (Physical Therapy – Dallas) ..... Dr. Sharon Wang-Price

Masters Students:

Kouadio, Halima O (Chemistry and Biochemistry) ..... Dr. Manal Rawashdeh-Omary
Pryor, Jaida (Human Development, Family Studies and Counseling) ..... Dr. Rebecca Lucero-Jones

Undergraduate Students:

Ahanotu, Adaeze N (Biology) ..... Dr. DiAnna Hynds
Campen, Catherine E (Biology) ..... Dr. DiAnna Hynds
Speir, Kinley (Nursing – Dallas) ..... Dr. Jennifer Wilson

Keynote Speaker

Genevieve West, PhD

Professor of English and Chair of the TWU Department of Language, Culture, and Gender Studies

"Poking and Prying with a Purpose": Persistence and Passion in our Research

Wednesday, April 19, 2023, 1:30 pm – 2:30 pm
ACT 301

Genevieve West is Professor of English and Chair of the Department of Language, Culture, and Gender Studies at Texas Woman's University, where she teaches African American, American, and women's literatures, particularly from the Harlem Renaissance and Inter-war period. She holds a PhD in English from Florida State University, and a MA and BA in English from Mississippi State University. She considers herself a literary archeologist who is devoted to recovering texts that have been lost time. Archival approaches to correcting the literary record and working with students are her two greatest passions.

Her scholarship takes intersectional, new historical, and interdisciplinary approaches to literature and draws from more than twenty-five years of archival research. West has published on Zora Neale Hurston in journals such as *African American Review*, *AmerikaStudien/American Studies*, *Receptions,* and *Women's Studies*. Her monograph *Zora Neale Hurston and American Literary Culture* examines the ebb and flow in Hurston's reputation through the lens of reception theory. This approach allows West to account for Hurston's early marginalization beginning in the 1930s and her recovery in the years following her death in 1960. West's essay "Subversions of Boasian Anthropology in Zora Neale Hurston's Great Migration Fiction and Ethnography" appeared in *African American Literature in Transition, 1920-1930* last year. Forthcoming are her book chapter on Hurston's play *Polk County* and an essay on two "lost" works by Hurston's lesser-known contemporary Marita Bonner. West's interest in Zora Neale Hurston's writings, reception studies, and archival research emerged early in her doctoral studies and continue to inform much of her scholarly work. In recent years, grappling with Hurston's education as an anthropologist has played an important role her writing about Hurston's fiction and plays.

In 2020 West published a well-received volume of Hurston's Harlem Renaissance short fiction, *Hitting a Straight Lick with a Crooked Stick* (2020). The collection makes available for scholars and popular readers alike a number of "lost" stories and takes an innovative approach to editing the fiction that was often standardized by previous editors. With Dr. Henry Louis Gates, Jr., in 2022 she co-edited the first and only comprehensive collection of Hurston's essays and reportage, *You Don't Know Us Negroes* (2022). This volume, too, restored previously unpublished works for readers and employs her innovative editorial approach. The two volumes were dream projects for West when she was in graduate school and happily correct number of common misconceptions about Hurston, her aesthetics, and her career as creative writer and ethnographer.

Panel Discussion: Graduate School and Beyond

Wednesday, April 19, 2023 (10:30 – 11:30 a.m.)
ACT 301

Moderated by Dr. Carolyn Kapinus, Dean of the Graduate School

This session will feature panelists representing multiple disciplines. This is an opportunity to hear from current students (and an alumnus) about their graduate school experience and plans for life after graduate school. Panelists for this event are:

- Paige (Muriel) Thornton (College of Business – Business Administration)
- Jaida Pryor (College of Professional Education – Marriage and Family Therapy)
- Megan Mchugh (College of Arts and Sciences - Biotech)
- Victor Lozada (College of Professional Education – Reading)

TWU Bettye Myers Butterfly Garden Photo Contest

Wednesday, April 19, 2023 (2:40 p.m. – 4:00 p.m.)
Student Union 2300 (Southwest Ballroom)

This photography contest is open to all current TWU students. The subject matter must be The Bettye Myers Butterfly Garden (phase I or phase II). This contest is hosted by the Women in STEM Leadership program and The School of the Sciences to promote community, mindfulness and well-being, as well as sharing the beauty of the gardens on the TWU Denton campus. All attendees of the symposium are welcome to view and submit a vote for your favorite photograph! Winners will be announced on Friday April 23 with prizes being awarded to 1st, 2nd and 3rd places.

ABSTRACTS FOR PLATFORM PRESENTATIONS

Abstracts are listed in the department of the faculty sponsor.

Tuesday, April 18, 9:00 a.m. - 10:20 a.m. Platform Track A (ACT 601)

1. FIRST YEAR COMPOSITION: PLANTING THE SEEDS OF CRITICAL THINKING THROUGH RHETORICAL ANALYSIS OF ANTISEMITIC PROPAGANDA . C. Kutev. Language, Culture, and Gender Studies

With Majorie Taylor Green and Kayne West espousing antisemitic rhetoric through the digital world, new pathways of propaganda are mirroring the wider issue of rising violence against Jews. According to the Anti- Defamation League, antisemitic incidents are rising across the United States. In 2022 alone, there were 2,717 antisemitic incidents last year, the highest number since it started tracking such incidents in 1979. While there is advocacy for multicultural pedagogy by implementing critical race theory and the awareness of white language supremacy in the first year composition classrooms. There is still a large gap regarding antisemitic literacy for non-Jewish students, as Daniel Ian Rubin calls it "Hebcrit" in higher education. I propose that through the scope of first-year composition studies, by teaching students to identify dog whistles in antisemitic propaganda in the digital space, students will have an increase in understanding information and digital literacy, critical thinking, and cultural knowledge, while also being empowered. Keywords: First-Year Composition, Cultural Literacy, Rhetorical Analysis, Multicultural Pedagogy, Antisemitism (Faculty Sponsor: Dr. Jackie Hoermann-Elliott)

2. BONDAGE/BANDAGE. S. Rainey. Arts and Design - Visual Arts

Beyond the body's shell is the immaterial essence of the human soul: its mind, emotions, and will. In Bondage/Bandage, I venture into that innermost existence and approach the grieved, hateful recesses within myself. We often inherit patterns from familial experiences, and can adopt ways of hurting self and others. With this series I ask: what inherited ideas hold me as if in bondage? Where can I allow forgiveness to bandage these wounds? In connection with Gloria Anzaldua's "modes of consciousness," I hold up the inward life in one hand and consider its outward effects in the other. I dwell in nepantla, the uncomfortable in- between place of healing. Visually, I blur the body-soul boundaries in surreal mixed-media works that discuss the role of memory and inheritance in my inward development . By pondering these unseen "soulscapes" I hope to embolden others in taking up the healing balm of self-examination and forgiveness. (Faculty Sponsor: Dr. Sara Ishii-Bear)

3. AUSTIN OSMAN SPARE: MAGIC, ART, AND SELF-CREATION. M. Cerliano. Arts and Design - Visual Arts

The early 20th century English artist Austin Osman Spare has continued to influence both art and magical practice decades after his death. Spare's grotesque and surreal paintings and his development of magical techniques like the use of written sigils and meditative practices such as the Death Posture shaped important later developments in chaos magic and witchcraft. Using Michel Foucault's concept of "technologies of the self," which he defines as practices that "permit individuals . . . to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality," this paper examines the art and writings of Austin Osman Spare as technologies of the self. Spare's work as an artist-magician dissolves boundaries between creativity and spirituality, and between the revelation and creation of knowledge. In doing so, Spare presents a new and still-radical approach to reshaping the world and the self through art and magic. (Faculty Sponsor: Dr. Sara Ishii-Bear)

4. THE DEVASTATION OF BEAUTY: PESTILENT BEAUTY SERIES. K. Pinkham. Arts and Design - Visual Arts

The lives of women have changed radically over the course of civilization, and yet some underlying power structures between men and women remain. One insidious, pervasive experience that follows women everyday, is the unattainable, performative standards of beauty. Feminist art aims to deconstruct and disrupt dominant cultural narratives surrounding femininity, beauty, and the female body. The addition of the female perspective, gaze, and experience into contemporary art and popular culture can help enact societal change. In this paper, I will discuss the ways in which my series Pestilent Beauty addresses the dark and discomforting feelings surrounding beauty for women and girls. Each piece combines beauty garments or devices with macabre objects and imagery, like bones, hair, rot and death. In exploring the convergence of beauty and disgust, I will highlight the effects of these standards on women's physical and mental well-being and question the underlying power structures that enforce them. (Faculty Sponsor: Dr. Sara Ishii-Bear)

5. SEXUALLY TRANSMITTED INFECTIONS AMONG OLDER ADULTS: A LITERATURE REVIEW. A. Palin, D. Ober, K. Wilson. Social Work, Psychology and Philosophy

According to the 2020 Sexually Transmitted Disease Surveillance Report by the Center for Disease Control, rates of sexually transmitted infections are increasing for older adults. Our study is a literature review. As part of our Social Research course project, we used quantitative articles to understand how lack of sexual health education leads to high rates of sexually transmitted infections among people over 60. We sought to understand whether older adults' knowledge and access to information about sexual health affect the rates of infection. In our literature review, we found multiple factors impact the rates of sexually transmitted infections in older adults such as negative views towards sex education, minimal protective measures, and limited access to treatment. Our study collates information about this topic and can contribute to improve understanding of how sexually transmitted infections impact older adults and proliferate among this population. (Faculty Sponsor: Dr. Shamsun Nahar)

Tuesday, April 18, 2:40 p.m. - 4:00 p.m. Platform Track A (ACT 601)

1. "DOES THIS PAINTING MAKE MY BUTT LOOK BIG?": DEPICTING FATNESS AS AN ACT OF RESISTANCE. C. Pace. Arts and Design - Visual Arts

Fatness, in modern Western society, is almost universally viewed as a negative attribute. Despite this fact, fat activists are working hard to change this idea and one tool they are using is art. Using an approach to formal image analysis presented by Roland Barthes, I

examine artworks by Shona McAndrew and Lucian Freud to discuss the way that each artist portrays fat bodies. I utilize theories and research presented by fat activists and academics including Sabrina Strings, Aubrey Gordon, and Da'Shaun L. Harrison to contextualize a pro-fat lens and encourage an alternate reading of these works. In weaving together the history of fatness with contemporary artistic portrayals of fat bodies, I hope to challenge readers to consider their own biases and opinions surrounding fatness and to use the aforementioned artists' work to showcase the humanity of fat people despite current aesthetic preferences of Western culture. (Faculty Sponsor: Dr. Sara Ishii-Bear)

2. THE BODY AS VOICE, VISUAL CULTURE EPISTEMOLOGIES. C. Spencer. Arts and Design - Visual Arts

The Body as Voice, Visual Culture Epistemologies This project explores the ways Black and Latinx women of color artists express identity through the body in visual art. It is two part in nature, consisting of written research and an entire curated art exhibition. For the purposes of this presentation, I will present four works from within the exhibition by Black and Latinx women, namely Tiara Unique Francois, Ari Brielle, Tina Medina and Eliana Miranda. The theme of the project and exhibition centers around the concept of Intersectionality and the ways these women use the site of the body to reflect interconnected, social and personal issues women of color face. Each artwork is accompanied by a visual analysis that connects elements within the work to Black and Latinx feminist theory on Intersectionality and the creative process as tools of resistance and resilience. (Faculty Sponsor: Dr. Sara Ishii-Bear)

Supported by TWU Experiential Student Scholars Program.

3. TRANS-ITIONS IN ART. C. Spencer. Arts and Design - Visual Arts

Trans-itions in Art This project explores the ways transgender and non- binary artist Cassils pushes the boundaries of form to critique social expectations of identity and the body. Their work contemplates the history of LGBTQI+ violence, representation, struggle and the push for survival through live performance, film, sound, sculpture, and photography. Cassils makes their own body the material and protagonist of their performances through what they call 'social sculpture' which draws from the idea that bodies are formed in relation to forces of power and social expectations. For the project, I will visually analyze two major works by the artist titled Cuts: A Traditional Sculpture and Becoming An Image and will support my research with Susan Stryker and Aren Z. Aizura's Introduction Transgender Studies 2.0 alongside other contemporary discussions that examine ways gender is located within form and the body and how transgender bodies are sites of resistance and social change. (Faculty Sponsor: Dr. Sara Ishii-Bear)

4. MOTHER ART. M. Kirschner. Arts and Design - Visual Arts

As an artist and mother, I am intrigued by the challenges of having children and creating artwork that captures all aspects of motherhood. The representation of motherhood within a male dominated community has limited the accurate telling of motherhood in visual art. Through advances in feminist history the one-sided male perspective is evolving and recognizing motherhood in a diverse way that challenges the past depictions and expectations. Mothers challenge the lack of true representation and contemporary artists are bringing forth artwork that displays all aspects of motherhood. This work is significant because it is creating artwork that defies cultural discomfort with such things as breastfeeding, miscarriage, empty nesting, and much more mothers experience. In raising this identity of women to the forefront I aim to make it a significant addition to feminist art. Through this paper I will explore artworks including my own, that are changing the landscape of this feminine story. (Faculty Sponsor: Dr. Sara Ishii-Bear)

5. YOU ARE WHAT YOU KEEP: INTERIOR AESTHETICS AS ARGUMENT . J. Viveiros. Arts and Design - Visual Arts

When mandated quarantine policies came into effect during the Covid-19 pandemic, many individuals became hyper aware of their home environment and the objects within them. Various designers and ordinary people alike took to Instagram to share their spaces and have continued to remain active; these posts speak deeply to their notions of aesthetic identity. Among the most active are a band of individuals identifying themselves as "maximalists" who remain bent on overturning the axiom "less is more" and champion bold, quirky style. This paper considers the concept of object oriented ontology which relates to the "thing power" of everyday ordinary objects, and how their "force" influences domestic interior spaces. A closer examination of common maximalist decorating practices taken alongside manicured Instagram profiles speaks to a new era of artistry where the consumer curates their own environment as both a creative and argumentative act. Because after all, more is more. (Faculty Sponsor: Dr. Sara Ishii-Bear)

Tuesday, April 18, 2:40 p.m. - 4:00 p.m.
Platform Track B (ACT 501)

1. CHALLENGES ASSOCIATED WITH POLICY AND PRACTICES SURROUNDING ADOLESCENT SELF-IDENTIFIED GENDER CARE. A. Tree, N. Gillum. Human Development, Family Studies, and Counseling

Children start to form their gender identity very early based on observed gender roles, then in adolescence they experience sexual orientation pressures that can establish gender identity (Xu et al., 2019). Adolescents who experience significant challenges in solidifying their identity are at high risk of poor physical and mental health (Bosse & Chiodo, 2016). Current research surrounding adolescent gender identity establishment is primarily focused on the social support of parents/guardians affirming adolescents' self-identified gender (Caldarera et al., 2021), influence of ambiguity in family/peer boundaries on adolescents' solidified gender identity (Catalpa & McGuire, 2018), and clinical professionals' differences in providing gender identity care (De Graaf et al., 2018). The purpose of this presentation is to discuss the lack of data on the long term outcomes of affirmed self-identified gender and best practices and policies for gender identity care for adolescents. (Faculty Sponsor: Dr. Nerissa Gillum)

2. THE EFFECTS OF TWO-STEP GOLF SWING DRILLS ON SWING RHYTHM AND CLUBHEAD SPEED IN COMPETITIVE JUNIORS. K. Mori, T. North, K. Cheng, S. Baek, H. Alvis, Y. Kwon. Health Promotion and Kinesiology

The two-step swing drills (TSSD) are designed to promote a good rhythmic unloading/loading of each leg in golf swing. It was hypothesized that the effects of single TSSD session would increase the clubhead speed. Ten junior golfers participated and performed drives before and after a TSSD session. A 10-camera motion capture system and two force plates were used in collecting the data. The

TSSD session mainly consisted of 4 stages. Stage 1 was 2 steps swing, stage 2 was away step only, and stage 3 and 4 were no step swing. Each stage started with a trigger motion either by swinging the club toward the target first or by moving the body slightly. The before and after clubhead speed values were compared by using paired t-tests. After the TSSD session, the clubhead speed increased +1.0 to +5.3%. The findings show that the TSSD increased all golfers' clubhead speed. (Faculty Sponsor: Dr. Young-Hoo Kwon)

3. NEWLY SYNTHESIZED COPPER NIACINAMIDE COORDINATION COMPLEXES OF THE FUTURE VIA SUSTAINABLE ENVIRONMENTALLY FRIENDLY SYNTHETIC ROUTES . H. Kouadio, M. Rawashdeh-Omary, E. Burley, V. Nesterov. Chemistry and Biochemistry

Coordination chemistry research involving Niacinamide is limited, specifically involving coinage metals like copper. Niacinamide is a pyridine which is capable of forming coordination-complexes with metal- cation-centers to produce interesting structures that can demonstrate unique physical and photophysical properties. The new copper(I)- niacinamide complex, using UV-light revealed emissive green-yellow-light with a high-intensity. A novel-copper(II)-complex was obtained with the formula and is similar in structure to hemocyanin. Hemocyanin is a main component of the blood of cephalopods like octopuses, and crustaceans like horseshoe crabs which contain disease-fighting properties. Solventless and low-quantity solvent-mediated syntheses were conducted in an effort to reduce the usage of traditional-solvents that are commonly used in solute-solvent-reactions. (Faculty Sponsor: Dr. Manal Rawashdeh-Omary)

4. MEDIA-NOIR. S. Hall, S. Webb. Language, Culture, and Gender Studies

My project involves the examination of media in Western Culture and how it depicts African-American women throughout different time periods. This is to show and thoroughly convey all of the different kinds of effects these depictions have on our current political and social climate in the United States, internally and externally to the Black community. To connect the effects it has on present-day society and critical thinking among people of all ages, races, genders, and socio-economic backgrounds - I will conduct a series of interviews that capture the psychological effects of the different kinds of rhetoric produced by the media young black women consume. In connection to these interviews, I will use research done on the political and social timeline of African Americans to psychoanalyze certain shared behaviors, thoughts, and even experiences as black women will be made effective when asked questions such as, "How did (insert specific reference) make you feel when you first saw it? (Faculty Sponsor: Ms. Shamethia Webb)

5. EXPLORING CRIMMIGRATION THEORY IN THE CONTEXT OF CLIMATE BREAKDOWN. A. Sosa, J. Williams. Social Sciences and Historical Studies

The potential for increased crimmigration policies among nations bordering regions that are geographically vulnerable to the impacts of a warming planet must be considered as the consequences of climate breakdown continually increase in severity. Many western nations, including the U.S., have gone to great lengths to harden their southern and/or eastern facing borders often in the name of national security. However, the political strategies that have helped champion border security policy have often included criminalizing migrants from the global south and global east through tactics that result in stoking racism, ethnocentrism, and xenophobia. Implementing national security policies that also serve to criminalize climate related migration can result in serious human rights violations in the years to come as not all nations have the resources or time to adapt. The paper offers suggestions for advancing a crimmigration perspective that incorporates the impact of climate related migration. (Faculty Sponsor: Dr. James Williams)

Wednesday, April 19, 9:00 a.m. - 10:20 a.m. Platform Track A (ACT 601)

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

Protein arginylation has emerged as an important regulator of many biological processes. Catalyzed by arginyltransferase 1 (ATE1), the conjugation of arginine onto proteins bearing acidic N-termini facilitates their degradation via the ubiquitin proteasome system. ATE1 was shown to prevent the accumulation of proteins associated with neurodegeneration and to play a role in obesity. Thus, the modulation of ATE1 holds promise for treating these common diseases. We developed a cell-based fluorescent reporter sensitive to ATE1 activity. This reporter produces two fluorescent proteins from a single transcript: mCherry-Ub, a stable internal reference protein, and Ndeg-GFP whose stability is regulated by ATE1. Using this reporter, we have carried out a number of experiments in cells to identify modulators of ATE1 activity. We also intend to carry out a genome-wide, CRISPR-based genetic screen to identify genetic modifiers of ATE1. These efforts may ultimately lead to new avenues for the treatment of neurodegeneration and/or obesity. (Faculty Sponsor: Dr. Christopher Brower)

Supported by TWU Center for Student Research.

2. EXPLORING AND IMPROVING FOOD INSECURITY AND ITS RELATED STIGMA AMONG TWU COLLEGE STUDENTS. A. Mack. Nutrition & Food Sciences

Over 45% of students attending four-year institutions are food insecure. Many work, receive financial aid, have meal plans, and do not receive SNAP benefits. At Texas Woman's University, the Campus Alliance and Resource Education (CARE) office is the main resource combating the student food insecurity issue by providing a free food pantry (Minerva's Market), mobile food pantry, and other resources. This research aims to explore Minerva's Market user demographics, understand how users perceive the services, and explore barriers to use, such as stigma related to college food insecurity. This study involves a survey to determine what subgroups of students use Minerva's Market, how satisfied they are, and what could change to better accommodate their needs. It also involves interviews with survey participants regarding their experience of food insecurity and any associated stigma. Based on findings, video resources will be developed for college students experiencing food insecurity to show students how to make nutritious meals from pantry foods. (Faculty Sponsor: Dr. Kathleen Davis)

Supported by TWU Honors Scholar Program and Campus Alliance and Resource Education Office.

3. THE PRESSURES OF PERFECTIONISM. K. Ramirez-Santin. Arts and Design - Visual Arts

It is easy to see the benefits of perfectionism, but people often fail to acknowledge the negative toll it has on one's mental health. In this presentation, I discuss my artwork that focuses on feeling lost trying to meet others' expectations as a socially-prescribed perfectionist. My work is informed by multiracial feminist theory, specifically the writings of Mexican-American scholar Gloria Anzaldúa, which examine the oppression experienced by women of color and gender role limitations within the Chicano community. As a multimedia artist, I take into consideration the connotation the materials themselves hold, and how that will add to the concept I am trying to convey. Through my art-making, I strive to find and heal myself, while helping other women, especially those of color, gain awareness of all the ways other people's expectations of them have ruled their lives and inspire them to live for themselves. (Faculty Sponsor: Dr. Sara Ishii-Bear)

4. TIME, ART, AND MEMORY. K. Waller. Arts and Design - Visual Arts

Time is seen as part of a complex collection of structures and layers, flowing, and woven together through space. As time passes, memories become warped, sometimes entangled with dreams and stories, and we are often uncertain of their legitimacy. In this presentation, I discuss my current body of work that explores the combination of process, form, and material and how they relate to the passing of time and time's relationship to memory. The works incorporate found photography that I distort through a multi-process to create collaged prints that are arranged in non-linear forms. My work is informed by the writings involved in Materializing Memory in Art and Popular Culture and will also relate it to theories of time in physicist Carlo Rovelli's The Order of Time. Through this work, I discuss the connection between memory, time, and the artistic process to question the importance of memory in physicality. (Faculty Sponsor: Dr. Sara Ishii-Bear)

5. BEYOND THE BEDSIDE: REFLECTIONS ON NURSING THROUGH THE EYES OF A STUDENT. Y. Kwon, J. Wilson, D. Olson. Nursing – Dallas

As student nurses, our idea of what nursing can look like is heavily dependent and limited by what we are exposed to during clinical rotations. I wanted to explore the world outside of traditional bedside nursing, so I interviewed 22 individuals in non-traditional nursing roles to gain a better understanding of what nursing can look like outside of what I knew. This presentation will describe the findings, outcomes and lessons learned from the Experiential Student Scholars Program (ESSP) project, which I conducted as an ENSPIRE intern at the UTSW Neuroscience Nursing Research Center. The ESSP funds were utilized to support this project, including canvas and paints for a reflective painting of the interviews during analysis, as well as electronic devices for ongoing nursing-led research studies at the ENSPIRE internship. (Faculty Sponsor: Dr. Jennifer Wilson)

Supported by TWU Experiential Student Scholars Program.

Wednesday, April 19, 2:40 p.m. – 4:00 p.m. Platform Track A (ACT 601)

1. RECIPROCAL: COMPLICATING RELATIONSHIPS WITH INTERMEDIAL INTERACTION. K. Gutmann. Dance

Reciprocal is a multimedia dance performance that uses simultaneous stage dance and screen dance to explore relationships. Using movement motifs inspired by the ever-changing, multifaceted relationships between people, this work employs intermedial interaction to demonstrate the mutual or reciprocal action and influence between people and mediums. This presentation will provide insight into the unique processes used to create each element of the project and the complex methods the choreographer used to foster connections in the work. (Faculty Sponsor: Professor Jordan Fuchs)

2. CHOREOGRAPHING THE IMMERSIVE SPACE: DELIVERING THE MESSAGE THROUGH ENVIRONMENT CONFIGURATION. R. Gamborino. Dance

Choreographing the Immersive Space is the third stage of the creative process for my MFA culminating project MULTITUDES, a 25-minute immersive, multifaceted screendance installation that explores the embodiment of multidimensional identities. In this stage, I experiment by trial and error with three environment configurations, 1: scrim configuration, 2: screendance on film configuration, and 3: sound design configuration. The overall goal was to develop audience engagement through an immersive, thought-provoking experience resulting in Immersive Multifaceted Storytelling. As a multidisciplinary dance artist, my work aims to shed light on social issues, but as such, I've learned that it is not my job to change the audience's mind; It is to start conversations through the experiences my art creates. Choreographing the Immersive Space achieved that intention by crafting the space for such an experience. (Faculty Sponsor: Professor Jordan Fuchs)

3. MEMORIES OF AUTUMN: VISUAL ART IN PARTNERSHIP WITH CHOREOGRAPHIC DESIGN. M. Rosenberger. Dance

This project reveals how dance can be a visual exploration of shape, texture, color, and imagery. The research investigates the use of visual artwork as impetus for movement generation and engages with the visual design of choreography taking inspiration from the acrylic painting 'Autumn on the Parkway' by Veronica Vale. The three specific methods used to create choreography include visual abstraction, semiotic response, and dynamic inference. Visual abstraction refers to the representation of shape or architecture in the dance, whether through the recreation of lines in the body or through the pathways of the choreography. Semiotic response refers to the interpretation of signs and symbols. Dynamic inference is a concept that arose through the process to translate color into movement through effort qualities. As the project progressed, music also became a key component of influence and the work began to evolve from interdisciplinary to something that stretched across forms. (Faculty Sponsor: Professor Jordan Fuchs)

4. PRACTICING DIGITAL GAME DESIGN IN THE WRITING CLASSROOM. L. Schuermann. Language, Culture, and Gender Studies

Gamification has become a new pedagogical trend and for good reason. Games have the potential for rich literacy and learning practices (Gee; Custer; Juul), and game designers, like course designers, create experiences with problem-solving, creativity, and interpretive play (Robison; Ballentine; Custer). However, the design of digital games has seen less exploration in composition pedagogy. Building from the work of frontier teacher-scholars (Robison; Ballentine; Custer), I designed a themed composition course based on digital game design. In this presentation, I will describe my

course design and my choices in developing it. Despite the resistance composition instructors may have towards digital games (Alexander; Custer), I hope that my course design can bring awareness of their pedagogical potential and encourage other composition instructors to use games in the composition classroom, to develop teaching and literary experiences that are more accessible, dynamic, and creative. (Faculty Sponsor: Dr. Dundee Lackey)

Supported by TWU's Center for Student Research's Student Research Presentation Grant.

5. FOSTER CARE EMERGING INTO ADULTHOOD: A LITERATURE REVIEW. C. Shirley-Dunne, S. Nahar. Social Work, Psychology and Philosophy

The national survey of child and adolescent Well-Being II shows the correlation between the increasing rates of homelessness and psychosocial issues of foster care adolescents transitioning into adulthood. Currently, adolescents in the foster care system face higher disparities in accessing care. These disparities are recognized as, “housing instability, incarceration, substance abuse, and lack of decision-making skills” (Thompson et al., 2018; Olson et al., 2017; Prince et al., 2019). I will conduct a literature review using quantitative articles to understand this social problem. This is a part of our Social Research course project. The study results will contribute to understanding foster care adolescents' intersecting experiences and advocate for better services and research in the future. (Faculty Sponsor: Dr. Shamsun Nahar)

Wednesday, April 19, 2:40 p.m. – 4:00 p.m. Platform Track B (ACT 501)

1. THE IMPACT OF GENDER ROLE EXPECTATIONS ON SOUTH ASIAN WOMEN'S WELL-BEING AND RELATIONSHIP SATISFACTION. Z. Somani, A. Jones. Human Development, Family Studies, and Counseling

South Asian women are seen as the carriers of culture and tradition and as such are raised with gendered expectations that reflect this responsibility. These expectations also reflect the collectivist and community-focused values common among Eastern, Latin, and African cultures. First- and second-generation immigrant women raised in this environment face conflicting messages outside of the home where they are educated within and socialized to the individualist value system of the West. Previous research has shown that this cultural conflict often culminates in the practice of dating and marriage, which can cause significant internal and intergenerational stress for both parents and their children. The present study examines how the choices women make about their lives impact their well-being and romantic relationships. Additionally, we explore the relationship between gender role adherence and attitudes and behaviors around sex. (Faculty Sponsor: Dr. Adam Jones)

Supported by TWU Center for Student Research.

2. EXPLORING THE WORK OF WOMEN IN THE CONTRIBUTIONS OF ATTACHMENT THEORY AND OBJECT RELATIONS AS IT WOULD APPLY TO FAMILY THERAPY PRACTICE. C. Hausmann. Human Development, Family Studies, and Counseling

My presentation will explore the work of women in the contributions of attachment theory and object relations as it would apply to family therapy practice. Not limited to, but with a focus on, the work of Mary Ainsworth, Melanie Klein, Margaret Mahler, and Hannah Arendt. Attachment theory has gained considerable interest in research as a means for application in psychotherapy practice (Talia, Taubner, Miller-Bottome, 2019). This leads to the potentiality that psychoanalytic theories with a relation to attachment theory, such as object relations, may find an increased relevance in contemporary practice. Most have heard of the work of Sigmund Freud, John Bowlby, Erik Erickson, and Jean Piaget in the field of psychology, psychoanalysis, and psychosocial development. However, few may reference the substantial work of women within the same discipline. Understanding the ontological and epistimelogical unfoldment from a woman's perspective, may fill the necessary gaps in a field that struggles to find a particularly salient and cohesive foundational theory to systemic therapy practice. (Faculty Sponsor: Dr. Rebecca Lucero-Jones)

3. STEM EDUCATION. J. Hayward, K. Loredo, M. Nguyen. Mathematics

The goal of this paper is to show our audience, along with opening up awareness, how the lack of funding in the United States for STEM (Science, Technology, Engineering, & Mathematics) education and programs negatively impacts the future of the country. We will first look at statistics showing the current lack of interest in STEM programs, little funding for low-income communities, and the small percentage of teachers teaching STEM-based courses. If the funding for STEM education and programs continues to lack funding, where will the future of STEM be in America? Our goal is to share our findings with the audience to get them to become more vocal on the matter of funding for STEM education. Hopefully, this paper will shine more light on the importance of STEM for the future of the United States. We will use statistics and examples of the importance of funding STEM education. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

4. WHAT MATTERS MOST FOR CHILDREN WITH INTELLECTUAL AND DEVELOPMENTAL DISABILITIES: TIME SPENT IN PHYSICAL ACTIVITY OR PHYSICAL ACTIVITY WITH OTHERS. N. Fulton Royall, K. Staples. Health Promotion and Kinesiology

On average, children with intellectual and developmental disabilities (IDD) do not meet daily recommendations for physical activity (PA). The purpose of this study was to examine time spent in PA, levels of enjoyment, and with whom PA time was spent. Participants included 35 children with IDD. Time spent in PA was measured using ActiGraph GT3X accelerometers. The Children's Assessment of Participation and Enjoyment (CAPE) was used to examine enjoyment during PA and with whom the children participated. On average, only 3 of the children with IDD met daily recommendations for PA. Of PA the children participated in, an average of 68.6% indicated they very much enjoyed or loved participating and an average of 55.5% indicated they participated with family. This study highlights the need for additional research to understand the importance of enjoyment in PA and the potential for PA to improve levels of PA. (Faculty Sponsor: Dr. Kerri Staples)

5. UNDERSTANDING LEVELS OF PHYSICAL ACTIVITY AMONG CHILDREN WITH AUTISM SPECTRUM DISORDER: TIME SPENT IN SUPPORT SERVICES VERSUS PARTICIPATION . J. York, K. Staples. Health Promotion and Kinesiology

A common barrier to physical activity (PA) participation for children with autism spectrum disorder (ASD) is insufficient time. This study

examined how time spent receiving support services impacts time spent in PA. Participants included 49 children with and without ASD, ages 6 to 9 years. Accelerometers were used to measure PA. Parents reported the frequency and time spent participating in organized PA and support services. Time spent in PA was not significantly different between children with and without ASD [t(1,47) = -1.296, p = .201]; however, only 53.8% of children with ASD engaged in 60 minutes. Children with and without ASD did not differ on time spent participating in organized PA [t(1,47) = -1.794, p = .081]; however, 50% of children with ASD participated in 0 minutes of organized PA. Although objective data did not differ significantly, additional research is needed to discern if accelerometry is measuring health-enhancing PA. (Faculty Sponsor: Dr. Kerri Staples)

6. ARE FUNDAMENTAL MOTOR SKILLS MORE IMPAIRED AMONG CHILDREN WITH AUTISM SPECTRUM DISORDER THAN IS EXPECTED BASED ON IQ SCORES? B. Saghaei, K. Staples. Health Promotion and Kinesiology

There is recent debate whether motor impairment (MI) is a core characteristic of autism spectrum disorder (ASD) or is more prominent among autistic children who also have intellectual disability (ID). Much of this debate has been based on large data sets with parental reports of motor and intellectual impairment. This study aims to understand IQ relative to the performance of fundamental motor skills (FMS) among autistic children using standardized assessments. Participants included 48 autistic children 3- 9 years. Depending on age and level of language, the Mullen Scales of Early Learning, Wechsler Abbreviated Scale of Intelligence and Leiter International Performance Scale were used for estimating the intellectual impairment. Overall, 33% of children had IQ scores below 70 and were classified as having an ID. The Test of Gross Motor Development was used to assess the locomotor and ball skills. The locomotor skills of 68.7% and the ball skills of 79.2% of children were described as below average, borderline, or impaired. Therefore, more children with ASD experience MI than ID. However, further research needs to better understand the role that IQ plays in the development of FMS. (Faculty Sponsor: Dr. Kerri Staples)

Wednesday, April 19, 6:00 p.m. – 7:20 p.m. Platform Track A (ACT 601)

1. EUPHORBIA BICOLOR EXTRACT REDUCES PAIN SIGNALING IN THE SPINAL CORD IN A RAT MODEL OF BURN INJURY. T. Olaoluwa, A. Adhikari, C. Maier, D. Averitt. Biology

Burn pain is challenging to manage with non-steroidal anti-inflammatory drugs, opioids, and gabapentinoids. As all are linked to undesirable side effects, novel strategies that mitigate burn pain are needed. Euphorbia bicolor, a native Texas plant, contains analgesic phytochemicals and we reported that E. bicolor extract significantly reduces pain in a rat model of burn injury. We hypothesized that E. bicolor treatment reduces pain signaling in the spinal cord to induce analgesia. Male and female rats received thermal injury to the hindpaw followed by local injection of vehicle or E. bicolor extract. Following development of analgesia, lumbar spinal cord was collected to quantify proinflammatory peptide release, markers of nerve fibers, and Fos as a measure of neural excitation. We report significant reduction in proinflammatory peptide release at the lumbar spinal cord in E. bicolor-treated rats indicating that E. bicolor phytochemicals reduce burn pain by reducing pain signaling in the spinal cord. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by TWU REP and TWU Center for Student Research.

2. BIOREMEDIATION IN THE SECONDARY CLASSROOM: HOW ENGAGING LABS CAN INCREASE CIVIL ENGAGEMENT IN FIGHTING CLIMATE CHANGE. R. Gulotta. Biology

Climate change is the most imperative issue facing humanity. It is especially pressing for upcoming generations. Bioremediation refers to the application of an organism's biological cycles to remove environmental toxins. Microorganisms such as bacteria and fungi are typically used in bioremediation endeavors. Bioremediation efforts using microorganisms can target the disarming of heavy metals in soil or the assimilation of atmospheric carbon. By creating a high school lesson plan using such beneficial microbes, I hope to engage my future students in efforts fighting climate change and foster an appreciation for microbes. (Faculty Sponsor: Dr. Laura Hanson)

3. THE SPACE WE WERE IN: A CREATIVE RESEARCH SERIES ON THE EFFECTS OF SEXUAL ASSAULT. A. Barnett. Arts and Design - Visual Arts

Hardships of the human experience such as sexual assault and intimate partner violence affect thousands of individuals each day. Artists such as Luzene Hill in Retracing the Trace use visual queues and symbolism to bring awareness of these violations that occur against so many. Through the use of photography, I explore subject matter of intimate human interactions and how those are affected as I slowly recover from intimate partner abuse and sexual assault. Blurring the bodies of myself and my current partner, there is a feeling of disconnect not just between us, but also the viewers. Our identities are distorted, giving viewers who may share a similar hardship the chance to see they are not alone, and forge a kind of solidarity. Though I still find myself trying to resolve the past, I find solace in appreciating small moments between those closest to me and the space we were in. (Faculty Sponsor: Dr. Sara Ishii-Bear)

4. REMEMBERING THROUGH COLLAGE AND TEXT. E. Sneed. Arts and Design - Visual Arts

As a culture we tend to idolize childhood because it's meant to be a time of innocence and no responsibility, but for many, myself included, it was traumatic. I explore this theme through my series titled Dear Diary . . . where scrapbooking elements bring together actual journal entries from my childhood diary in order to examine past trauma and how it relates to my current relationships with family and friends. My use of archive text serves as a direct artifact to the time associated with the memory. While exploring Njideka Akunyili Crosby's art (b. 1983), I will break down her use of collaged material in reference to the overlap of her lived experiences. I will connect my findings to my own use of a scrapbook-like collage. By turning the very idealized expectation of scrapbooking on its head I inspect the way that we remember trauma and our lived experiences. (Faculty Sponsor: Dr. Sara Ishii-Bear)

5. MAGIC AND RITUAL IN THE PRACTICE OF ARTISTIC MASK MAKING. A. Green. Arts and Design - Visual Arts

Masks are utilized cross-culturally in practices that allow their wearers the ability to embody attributes of the figure that the mask depicts; the human worshiper transforms into the non-human through supernatural means. I present a discussion of how my

experience growing up as an anthropologist's daughter in a cultural microcosm affected my self- perception through my ongoing series of semi-autobiographical masks. Using boldly-patterned fabrics lends itself to the conjuration of my subconscious influences in West-African art and childhood sewing techniques. Utilizing rounded geometric shapes, I depict the visual impression of an animal artistically. I conjure the animal into the physical realm through shamanistic means by wearing masks. My work is informed by Gloria Anzaldúa's theory of "nepantla," an in-between space, and discussion of "la naguala," the shamanistic practice of human to animal transformation. Using these concepts, I express my connections to globalized culture and invite the viewer to do the same. (Faculty Sponsor: Dr. Sara Ishii-Bear)

6. PUF-ML: MACHINE LEARNING - BASED PHYSICAL UNCLONABLE FUNCTIONS FOR COST EFFECTIVE INTEGRATION IN SMART DEVICES. K. Edwards. Computer Sciences

Privacy and security are important aspects of every person's life, and with cyber-attacks increasing in recent years, securing these aspects is crucial. There are many ways to attempt securing information, including using Physical Unclonable Functions (PUFs). PUFs are natural random number generators and have many potential cryptographic applications, including generating keys for encryption. During Integrated Circuit (IC) fabrication, geometric variations occur in the devices, and PUFs use these variations to generate natural random numbers. PUFs can be integrated into Smart Devices, such as fitness trackers or home automation devices. However, this isn't a perfect solution. PUF integration comes at the cost of power consumption, and they can only be integrated into new devices, leaving current and older devices vulnerable. As a solution to this, we have worked to develop a Machine Learning model for PUFs to be used in Smart Devices without significant power consumption, and at no additional cost. (Faculty Sponsor: Dr. Venkata Yanambaka)

ABSTRACTS FOR POSTER PRESENTATIONS

Abstracts are listed in the department of the faculty sponsor.

Tuesday, April 18, 9:00 a.m. – 10:20 a.m.
Student Union 2300 (Southwest Ballroom)

1. CONTRIBUTION OF INFECTION WITH CYTOMEGALOVIRUS (CMV) TO THE PRODUCTION OF AMYLOID PRECURSOR PROTEIN (APP) AND ALZHEIMER'S DISEASE- ASSOCIATED BETA AMYLOID. A. Ahanotu, P. Mody, L. Hanson, D. Hynds. Biology

More than 6 million US citizens are living with Alzheimer's disease (AD), the most common cause of neurodegeneration and dementia. Infection with cytomegalovirus (CMV) doubles the risk of developing AD and increases cognitive decline after diagnosis. AD is characterized by tau-based neurofibrillary tangles and extracellular β-amyloid plaques. We hypothesize that CMV infection increases AD pathological markers. To test this, we infected permissive cell types with murine CMV (MCMV) and measured changes in AD pathological markers. MCMV infection increased the phosphorylation and amount of high molecular weight tau in fibroblasts, neuroblastoma cells, and rat cortical neurons assessed by western blotting. While we did not see MCVM-induced decreases in amyloid precursor protein, we are more finely assessing production of intra- and extracellular β-amyloid using western analysis, immunocytochemistry, and enzyme-linked immunosorbent assays (ELISAs). Results from these experiments are providing insight into how MCMV infection affects AD pathology and may identify novel therapeutic targets. (Faculty Sponsor: Dr. DiAnna Hynds)

Supported by TWU Center for Student Research, NSF PRIME, and TWU REP.

2. ROLE OF CHOLESTEROL IN THE PRODUCTION OF ALZHEIMER'S DISEASE ASSOCIATED BETA-AMYLOID FROM AMYLOID PRECURSOR PROTEIN. C. Campen, D. Hynds. Biology

Alzheimer's disease (AD) is a progressive neurodegenerative disorder that is characterized by loss of neurons and cognitive function. Aberrant accumulations of certain proteins such as Tau neurofibrillary tangles, amyloid plaques, and Lewy bodies are associated with AD and other neurological disorders. AD is now largely considered to be a metabolic disease, associated with increased cholesterol production. Anecdotally, treatment with cholesterol-lowering statins is correlated with decreased incidence of AD. Here, we address the hypothesis that statins prevent AD by decreasing production of amyloid precursor protein (APP). We address this hypothesis by treating B35 neuroblastoma cells (a neuronal model) with cholesterol (10 µM synthecol) or statin (10 µM lovastatin) and determine whether APP production is affected. If cholesterol increases and statin decreases APP production, cholesterol may be an important contributor to development of beta amyloid plaques and AD. (Faculty Sponsor: Dr. DiAnna Hynds)

3. INVESTIGATION OF CELLULAR PROTEINS BY THE US27 GENE PRODUCT OF HUMAN CYTOMEGALOVIRUS. G. Connors, J. Spencer. Biology

Human Cytomegalovirus (HCMV) is a widespread virus that can lay dormant for the lifetime of its host. While healthy individuals are usually asymptomatic, immunocompromised people can have severe complications, such as end-organ disease. HCMV has evolved many strategies to persist in the host and manipulate host immune responses, including mimicry of host proteins. US27 and US28 encode two viral proteins with homology to host G-protein coupled receptors (GPCRs). GPCRs are seven transmembrane proteins that interact with beta-arrestin and adaptor protein 2 (AP-2) to facilitate receptor endocytosis. While US28 has been found to bind these cellular proteins, it is unknown whether US27 functions in a similar fashion. To learn whether US27 binds to beta-arrestin and AP-2, we will use a glutathione S-transferase pull-down assay. These results will help clarify the role of US27 in immune modulation by HCMV and might reveal US27 as a potential target for anti-viral therapeutics. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU REP.

4. STUDIES OF AD LIKE CHANGES IN RESPONSE TO CYTOMEGALOVIRUS INFECTION . D. Davis, L. Hanson. Biology

According to Alzheimer's Disease International 55 million people worldwide are living with dementia, predominantly Alzheimer's Disease (AD), and it is expected to rise to about 139 million by 2050. There is evidence that infections with herpesviruses, such as cytomegalovirus , increase the risk of developing AD. One fact associated with AD is alterations in the protein tau, which normally helps to stabilize cell microtubules. Our lab has found that infection in neuronal type cells leads to tau changes similar to seen in AD. We hypothesize that the changes in tau result in reduced stability in microtubules. We are infecting B35 rat neuroblastoma cells, and comparing the stability of microtubules, as well as tau localization at various times after treatment in uninfected and infected cells. To address these questions we are using cell fractionation and western blot analysis. Our preliminary results support a reduced stability of microtubules in virally infected cells. (Faculty Sponsor: Dr. Laura Hanson)

Supported by TWU Center for Student Research.

5. RELIGIOSITY, DISGUST SENSITIVITY, & SEXUAL ATTITUDES. A. Dorsa, J. Terrizzi Jr. . Social Work, Psychology and Philosophy

The goal of this study was to examine the relationship between religious fundamentalism, disgust sensitivity, and negative sexual attitudes. Participants were recruited via convenience sampling and 329 participants (306 female, 16 male, and 5 non-binary) completed the survey. The online survey asked participants to rank their level of religiosity and their religious affiliation, as well as their attitudes toward certain behaviors and events and their levels of disgust toward certain situations. All of the responses to these questions were answered on a Likert scale. Analysis of the survey data showed a positive correlation between religious fundamentalism and negative sexual attitudes, as well as a positive correlation between religious fundamentalism and disgust sensitivity. (Faculty Sponsor: Dr. John Terrizzi Jr.)

6. TWU STUDENT'S SEXUAL HEALTH NEEDS ASSESSMENT PROJECT. D. Ezeoha, V. Jackson, M. Golman. Health Promotion and Kinesiology

This research was part of an HS3053 TWU community health needs assessment. Researchers aimed to identify the barriers TWU students face when accessing sexual health resources. A mixed-

methods online survey was utilized and distributed through email and social media. The survey included both Likert scale and open-ended questions. Informed consent was provided before beginning the survey. A total of 168 responses were collected. Demographic information included: 47.6% White, 26.2% Hispanic, 22.6% Black; 88.7% female; and 76% were between the ages of 18-27. Identified barriers included: money (51.2%), time (46.4%), and lack of insurance (33.3%). 76% of students reported not utilizing Student Health Services (SHS). Open-ended responses included increasing awareness of TWU SHS and health education. Survey results emphasized the need for increased sexual health promotion and services around campus. These services and resources would significantly improve TWU students' sexual health. (Faculty Sponsor: Dr. Mandy Golman)

7. WE ARE IN THIS TOGETHER: LATINX PRESERVICE BILINGUAL TEACHERS ACTIVATING THEIR CULTURAL WEALTH TO NAVIGATE COLLEGE. L. Grosso Richins. Teacher Education

There is a paucity of research on how Latinx students who face linguistic oppression, hostility, discrimination, and shortcomings in higher education settings achieve their academic goals. The purpose of this phenomenological study is to describe how Latinx preservice bilingual teachers at a north Texas university activate their aspirational, cultural, linguistic, familial, social, navigational and resistant capitals to achieve positive outcomes. Five key themes emerged from preliminary data collected: participants related their ability to effectively navigate college life and achieve success to the expectations of their families; their network of friends and co-workers; their own initiative and discipline; their linguistic and cultural skills; and their professional and personal goals. This study's report of Latinx preservice bilingual teachers' shared experiences is intended to enrich the discourse on the critical need that U.S. colleges have of providing experiences that nurture and sustain the cultural wealth of Latinx students in teacher education programs. (Faculty Sponsor: Dr. Rebecca Fredrickson)

8. USING PICTURES AND VISUALS TO TEACH HANDWASHING TO PRESCHOOLERS WITH INTELLECTUAL DISABILITIES. P. James. Teacher Education

Using pictures and visuals to teach children with intellectual disabilities life skills has shown to help gain independence in handwashing skills. This presentation reviews information from a literature review of studies that investigate the use of pictures and visuals when teaching handwashing skills. (Faculty Sponsor: Dr. Randa Keeley)

9. WHAT SHE CARRIES WITH HER. S. Parker. Language, Culture, and Gender Studies

Women's travel narratives from the Interwar Period demonstrate the complex intersection of writing, photography, travel, and identity. My poster presentation will analyze travel narratives published by Ruth Gruber, Ella Maillart, and "Aloha" Wanderwell with a theoretical framework that synthesizes visual rhetorics, feminist geography, and narratology. Investigating women's travel photography and narratives in this way is a means to better understand the cultural and social restrictions placed not only on women's experience, but also on memoir as a viable means of inquiry. My analysis illuminates how the writing and photography of these trailblazing women are embedded with rhetorical strategy, reflecting a way of moving through space and place that is gendered and culturally embedded. (Faculty Sponsor: Dr. Gretchen Busl)

Supported by TWU Center for Student Research and Denton Greater Arts Council Microgrant.

10. DATA VISUALIZATION OF SUICIDE RATES IN THE UNITED STATES OF AMERICA IN 2020. B. Berry. Computer Sciences

Over the past decade there has been an upward trend of increasing suicide rates throughout the United States (McKoy, 2022)1. This project will utilize multiple data visualization tools to provide an overview of suicide data that coincide with age, gender, and location across the country in which suicides have occurred in the year 2020. This result will allow broadening the awareness of this social issue, in hopes of preventing future incidents and shifting the trend downwards. The website in which the data will be displayed will be produced in the programming languages HTML, CSS, and JavaScript. Whereas the data collected from the CDC and Statista, was made visual in the various graphs and charts using Tableau. This project is done in memory of my brother who passed away last year. (Faculty Sponsor: Dr. Jian Zhang)

11. SEX DIFFERENCES IN GABAERGIC SENSORY NEURONS INNERVATING THE VIBRISSAL PAD IN A RAT MODEL OF STRESS-EXACERBATED OROFACIAL PAIN. D. Cantu, D. Zaldivar, S. Adhikari, L. Lugo, D. Averitt. Biology

Psychological stress contributes to orofacial pain in women. We report that stress exacerbates orofacial pain in female rats; however, the mechanisms underlying this remain unclear. We hypothesized that the neurochemistry of the trigeminal sensory neurons innervating the vibrissal pad (VP-TG) are sexually dimorphic during stress-exacerbated orofacial pain. The VP of male and female rats was inflamed. Rats were then exposed to sub-chronic stress or sham paradigms and received an injection of wheat germ agglutinin (WGA-488) in the VP. Post-mortem tissues were extracted and processed for immunohistochemistry. Our data indicate that during stress-exacerbated orofacial pain, males had more VP-TG neurons colocalized with glutamic acid decarboxylase (GAD65/67) than females despite similar numbers of WGA-488+ and GAD65/67+ cells. Interestingly, stress increased CFA-induced calcitonin gene-related peptide (CGRP) at the trigeminal nucleus (TnC) compared to controls. Altogether, the neurochemistry of VP-TG neurons may protect against the amplifying effects of stress on orofacial pain in males. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NIDCR F31 DE031959, NIH NICDR R15 DE025970, NIH Diversity Supplement, TWU Center for Student Research, TWU Experiential Student Scholars Program, TWU Alumni Association, and the NSF.

12. FUNCTION OF THE H-LOOP IN GLUTATHIONE SYNTHETASE . L. Dollar, L. Haynes, J. Gruber, M. Anderson, H. Conrad-Webb. Chemistry and Biochemistry

Glutathione (GSH), is one of the most prominent antioxidants. It prevents oxidative stress and is essential for life. The synthesis of GSH is catalyzed by two different enzymes, y-glutamylcysteine synthetase (y-GCS) and glutathione synthetase (GS) through ATP-Mg2+ dependent reactions. The GS active site is composed of multiple loops that contribute to enzyme functionality and regulation. One important loop is the "H-loop." It is involved in ATP binding and catalysis. To fully understand this reaction, we have mutated serine and threonine residues in the H-loop to evaluate their importance in ATP catalysis. We hypothesized that these two residues directly interact with ATP due to their chemical structures

containing hydroxyl groups, which are known to facilitate phosphorylation events. Our data shows that these specific H-loop mutations allow GS to maintain functionality at slightly decreased levels, suggesting that binding and catalysis may occur primarily on other available hydroxyl containing residues. (Faculty Sponsor: Dr. Mary Anderson)

Supported by Robert A. Welch Foundation and TWU REP.

13. TYPE 1 DIABETES AND HEALTH . E. Turner. Health Promotion and Kinesiology

Type 1 Diabetes is a rare autoimmune disease. Individuals with this disease are insulin-dependent; the beta cells of the pancreas, which secrete insulin, are destroyed by T-cells from the immune system. These individuals must take insulin to regulate their blood glucose levels. There is no cure for Type 1 Diabetes, but if managed well with support, insulin, and technology, those with Type 1 Diabetes can live long and healthy lives. Many factors affect a Type 1 diabetic's blood glucose levels, such as glucose in food, hydration, hormones, amounts of protein and fat consumed, time of day, exercise, type of exercise, and even the weather. A review of available literature will be completed to investigate Type 1 diabetes in relation to exercise, sports, mental health, and necessary support, including medical, emotional, physical and relational. This information can spread awareness about Type 1 diabetes and provide increased understanding of the disease. (Faculty Sponsor: Ms. Noelle Tuttle)

14. ROLE OF SPINAL INTERNEURONS IN NOCICEPTIVE SIGNALING PATHWAYS IN A POLYTRAUMA MODEL. J. Rodriguez, T. Olaoluwa, D. Averitt, D. Hynds. Biology

Due to their differing responses post-injury, the central nervous system (CNS) and the peripheral nervous system (PNS) are generally thought to be completely separate within our bodies. Neuronal regeneration does not normally occur in the CNS due to the surrounding environment whereas the PNS readily supports axonal regeneration. On account of a lack of effective treatment options to treat polytrauma in humans, the purpose of this research is to take a look at the mechanisms and interactions that occur post-injury in both of these systems. Previous experiments have shown increased arborization in the dorsal root entry zone. Through immunohistochemistry using various neuronal markers, we hope to determine what types of interneurons these new processes are synapsing with. Given our focus on nociceptive spinothalamic pathways, we expect increased synapses with glutamatergic interneurons. (Faculty Sponsor: Dr. DiAnna Hynds)

Supported by TWU REP and NSF Award #1953448.

15. EXAMINING REGULATORY MECHANISMS OF THE ESSENTIAL CYTOMEGALOVIRUS GENE M142. D. Davis, S. Pandhe, L. Hanson. Biology

Cytomegalovirus infection is ubiquitous worldwide, being a major cause of birth defects and illness in people with weakened immunity. We previously identified murine cytomegalovirus M142 as essential for the virus, and that cellular transcription factors are sufficient for its expression. Several promoter regions, both activator and repressor binding sequences, affecting expression in reporter constructs were also identified. We aim to further explore these results by generating reporter constructs under the control of modified M142 promoters with removal of putative repressor regions, site-directed mutagenesis of a key identified region containing an ELK1 binding sequence, and constructs including additional upstream elements. We anticipate the removal of suspected repressor regions or addition of upstream sequences will result in a more robust level of expression, while mutagenesis of the ELK1 site will disrupt the ability of the promoter to facilitate expression in the absence of viral transcription factors. (Faculty Sponsor: Dr. Laura Hanson)

16. CORRELATION BETWEEN STRESS IN PARENTS WITH CHILDREN WITH AUTISM SPECTRUM DISORDER (ASD) AND RESPITE CARE . H. Zackey, W. Johnson. Social Work, Psychology and Philosophy

There have been research completed on autism and parental stress, however not enough studies have been done on the importance of respite care for parents with kids diagnosed with autism. Autism Spectrum Disorder (ASD) is a neurological disorder described by the DSM-5 as characterized with sensory impact, developmental delays, as well as communication and social deficits. Respite care can help support parents and families in navigating these challenges. Specifically, this review hopes to draw a negative correlation between the stress levels of parents raising individuals with autism, and the respite care received. While many parents will tell you they need sleep, many still forget the importance of having rest in the form of a paid caregiver. This review explores how important respite care is, and how access may be possible in the future. (Faculty Sponsor: Dr. Wendi Johnson)

17. THE PSYCHOLOGY BEHIND OCCUPATIONAL THERAPY: A REVIEW INTO MOTOR SKILL DEVELOPMENT IN CHILDREN WITH AUTISM SPECTRUM DISORDER. C. Thai. Social Work, Psychology and Philosophy

Autism Spectrum Disorder (ASD) is a group of neurological developmental disorders that affect an individual's social interactions, communication skills, and behavioral expressions. However, one of the primary diagnostic criteria of ASD that is often overlooked is motor skill development and functionality. Deficits in these areas can range in severity and affect an individual's ability to live an independent lifestyle over time. Thus, this research project primarily reviews evidence surrounding motor skill development in children with ASD. Furthermore, this poster reviews how potential delays in these areas can lead to physical and psychological impairments as they mature. This research project also highlights the importance of occupational therapy in addressing these concerns and enhancing the overall wellbeing of children with ASD over time. By understanding motor skill development in children with ASD, knowledge surrounding this disorder will broaden and the importance of early interventions for children with ASD will be further addressed. (Faculty Sponsor: Dr. Wendi Johnson)

18. ACCESS AND UTILIZATION OF MENTAL HEALTH SERVICES AMONG AUTISTIC PEOPLE. A. Reed, X. Murray, W. Johnson. Social Work, Psychology and Philosophy

Autism Spectrum Disorder is often associated with co-occurring psychiatric conditions (e.g., anxiety, depression, PTSD). Consequently, many people remain undiagnosed or misdiagnosed (Au-Young et al., 2018; Baron-Cohen et al., 2009; Cassidy et al., 2018; Kim et al., 2011; Rydén et al., 2008; Takara & Kondo, 2014), increasing their risk of mental health (MH) problems (Cam-Crosby et al., 2019). The existence of two systems for disabilities and MHS often results in ping-ponging between the two (Maddox & Gaus, 2019). In addition, affordable and effective health care is often inaccessible. MH institutions often have difficulty providing support

for individuals with autism due to a lack of understanding and knowledge of Autism with co-occurring psychiatric conditions (Camm-Crosbie et al., 2019). The researchers are conducting this review to identify (1) the roadblocks faced by Autistic individuals when seeking MHS, (2) what can be done to improve MH identification and treatment in Autistic individuals, and (3) why some Autistic individuals do not seek treatment when available. (Faculty Sponsor: Dr. Wendi Johnson)

19. IMPACT OF STORAGE ON KERNEL COAT COLOR, CAROTENOIDS, POLYPHENOLS, AND PHYSICOCHEMICAL OF FIVE PECAN VARIETIES. T. Pham, Z. Yusufali, X. Wang, K. Kubenka, X. Du. Nutrition & Food Sciences

Pecan quality directly determines consumer acceptability and grower and manufacture profitability. However, there are limited studies on pecan kernel quality changes during storage. This study aimed to determine the changes of pecan kernel color, carotenoids, polyphenols, and physicochemical properties of five varieties during five months of storage at 25 °C. The results showed that pecan kernel color darkened, redder, and less yellow in all varieties during storage. The dorsal side of kernel had a lighter color than ventral side. Total carotenoids decreased significantly. Total polyphenol had no significant changes, except for one variety, while the individual phenolic compounds (gallic acid, catechin, and ellagic acid) increased during storage. Additionally, the moisture significantly decreased, although total lipid content had no significant changes. Texture parameters (hardness, toughness, slope, fracturability, and break) showed irregular changes. The study provides new insights into the changes in pecan kernel color, chemical compositions, and physical properties during storage. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by TWU REP.

20. UNCOVERING THE LIVED EXPERIENCE OF MARRIAGE AND FAMILY THERAPISTS WORKING WITH INCARCERATED YOUTH: A PHENOMENOLOGICAL APPROACH . J. Pryor, R. Lucero-Jones, Ph.D. Human Development, Family Studies, and Counseling

The United States incarcerates the highest proportion of adolescents in the world. Moreover, incarcerated youth with diagnosable mental illness are overrepresented compared to the general population. Youth arrest rates have declined since the turn of the 21st century, but recidivism rates have been consistent for the past 40 years. Existing literature suggests that family therapy for youth has positive impacts on recidivism rates as well as reintegration back into their communities after being released. Marriage and family therapists (MFTs) are uniquely trained to deliver therapeutic services which include entire family systems. Recognizing the perspectives and experiences of MFTs is a crucial aspect of understanding the experiences of a family who has an incarcerated member, especially a child. Therefore, the purpose of this study is to uncover the lived experience of MFTs as a means of ascertaining a clearer picture of the present state of family therapy being delivered to incarcerated youth by MFTs. The findings of this study may have implications for future research, policy, and practice. (Faculty Sponsor: Dr. Rebecca Lucero-Jones)

Supported by TWU Experiential Student Scholars Program.

21. DIFFERENTIAL RHO GTPASE GENE EXPRESSION IN B35 NEUROBLASTOMA CELLS IN RESPONSE TO MANIPULATIONS OF THE MEVALONATE PATHWAY. C. Paschal, C. Campen, A. Ahanotu, J. Rodriguez, D. Hynds. Biology

The Rho GTPases, a group of proteins that includes RhoA, Rac1, and Cdc42, help control neuronal development, survival, and degeneration. Post- translational addition of an isoprenoid moiety to the C-terminal end of the Rho GTPases enable these proteins to localize to the proper subcellular space. Because cholesterol synthesis is controlled by the same mevalonate pathway that produces prenylation precursors, statins are an important pharmacological tool for studying prenylation and its effects on cellular function. We grew B35 neuroblastoma cell cultures to confluency and treated them with one of the following: lovastatin, geranylgeraniol, lovastatin + geranylgeraniol and compared the levels of RhoA in these cells to those of untreated controls. As expected, lovastatin knocked down the level of RhoA, while geranylgeraniol increased it. A combination of both drugs resulted in RhoA levels comparable to that of controls. These results support previous research and serve as a baseline for future experiments with B35 cells. (Faculty Sponsor: Dr. DiAnna Hynds)

22. IS TRADITIONAL SPEECH THERAPY FOR ASD MORE EFFECTIVE WHEN USED IN TANDEM WITH TDCS? M. Nishida. Teacher Education

Social deficits are hallmarks of autism spectrum disorder (ASD). There is a need for new treatment options for ASD as current therapies can be extremely time- and labor-intensive. Existing evidence suggests that transcranial direct current stimulation (tDCS) could be helpful for treating some dimensions of ASD such as repetitive behavior, sociability, and cognitive functions. Additionally, tDCS is a well-tolerated technique that may enhance treatments targeting these skills. A systematic literature review was conducted to determine if tDCS has been shown to enhance speech therapy interventions in ASD. Although tDCS has been shown to facilitate the training effects of some therapy targets when used concurrently, it has not been extensively studied in patients, particularly children, with ASD. Related studies have shown improvement in working memory, emotion recognition, and some aspects of language. Evidence shows promising results for reduction in aberrant behaviors, although evidence is limited and necessitates further trials, particularly in the areas of initiation, cognitive flexibility, verbal fluency, and emotion recognition. (Faculty Sponsor: Dr. Randa Keeley)

23. QUANTIFICATION OF SUGARS AND ORGANIC ACIDS IN 210 CUCUMBER (CUCURBIS SATIVUS) VARIETIES FOR GENOME-WIDE ASSOCIATION STUDIES (GWAS). S. Harris , X. Du, Y. Weng. Nutrition & Food Sciences

The sweet and sour taste of cucumbers is determined by the sugars and acids within the fruit. However, no study has focused on sugars and acids in cucumber Genome-Wide Association Study (GWAS). This study aimed to measure total soluble solid content (ºBrix), pH, titratable acidity (TA), three main sugars, and three main organic acids in 210 varieties of GWAS cucumbers. The °Brix ranged from 1% - 4.6%. The pH ranged from 5.01 - 6.57. The TA ranged between 1.10 - 5.74 g/L. Fumaric acid ranged from 0.01 - 0.33 mg/mL, malic acid ranged from 0.05 - 1.95 mg/mL, citric acid ranged from 0.02 – 0.48 mg/mL. Glucose ranged from 2.66 – 82.66 mg/mL, fructose results ranged from 3.54 – 66.54 mg/mL, sucrose ranged from 0.03 – 7.03 mg/mL. The results from this study could be used for cucumber breeding program to breed consumer preferred cucumber fruits. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by USDA-NIFA.

24. ELECTROMAGNETISM. L. Gross. Chemistry and Biochemistry

For this poster presentation, I will detail the subject of Electromagnetism to provide a clear understanding that individuals with little to no knowledge of the topic can comprehend. Hands-on activities will also be presented to allow a visual grasp of what the poster covers. The information and activities of the poster will also be presented in Spanish. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

25. VAPING: IT'S MORE THAN JUST SMOKE. W. Ekhator, K. Fowler, M. Pinon Galvan, J. Moreno Ortega. Chemistry and Biochemistry

Vaping products, a subcategory of e-cigarettes, are devices used to inhale aerosols like CBD and nicotine. They have been marketed to adolescents and young adults as a healthier alternative to traditional cigarettes. However, there are health concerns due to the chemical exposure users experience from the ingredients and byproducts during the heating and vaporization process. In recent years, research on the chemistry and toxicology of vapes/e-cigarettes has shown that the chemicals identified in the vape/e-cigarette liquids and aerosols include; nicotine, solvent carriers (PG and glycerol), tobacco-specific nitrosamines (TSNAs), aldehydes, toxic metals, volatile organic compounds (VOCs; benzene), known carcinogenic chemicals, diacetyl, phenolic compounds, polycyclic aromatic hydrocarbons (PAHs), and tobacco alkaloids. Though vaping is advertised as "safe" these less-than-ideal ingredients listed should not be introduced into the body, as there may be risks of neurological symptoms, cardiovascular and respiratory diseases, and addiction. Project for CHEM 1101: Horizons of Chemistry & Biochemistry. (Faculty Sponsor: Dr. Mary Anderson)

Tuesday, April 18, 6:00 p.m. - 7:20 p.m.
Student Union 2300 (Southwest Ballroom)

1. XEROSTOMIA TREATMENT OUTCOMES FOR HEAD AND NECK RADIATION PATIENTS. E. Cabaniss, E. Okonkwo, K. Calderon, A. Orozco, N. Zahraei. Communication Sciences and Oral Health

Xerostomia is a common oral implication after radiation therapy for patients with head, neck, and oral cancer. While there is no cure for xerostomia, certain prescription drugs have been found to help with the increase in salivary flow. Finding an effective treatment option is important to prevent caries, opportunistic infections, demineralization, tooth sensitivity, and an altered quality of life in patients suffering from xerostomia. (Faculty Sponsor: Dr. Samiel Wells)

2. ANALYZING A VIRAL REGULATION PATHWAY THAT COUNTERACT A NEW POTENTIAL CELL DEFENSE MECHANISM. C. Crandell, H. Sclafani, M. Bergel, . Hanson. Biology

Cells have a variety of defenses against pathogens, triggered through signals from innate immune receptors detecting microbe-associated molecular patterns (MAMPs) or damaged- associated molecular patterns (DAMPs). Recently our lab found that cells compact their chromatin when introduced to some DAMPs. This may be a defense against viral infection, as DNA viruses get chromatinized by the host cell upon nuclear entry. Significant cellular chromatin compaction was detectable by forty minutes after treatment, with DAMPs from heat-stressed or starved cells, and lasted through at least two hours. Binding of the herpesvirus, cytomegalovirus, can at least partially inhibit or counteract the chromatin compaction. We are investigating how quickly chromatin de- compacts when DAMPs are no longer present and how viral entry alters this response. We are investigating if there are additional cell defenses in the cytoplasm or nucleus, which help maintain or enhance chromatin compaction, or if the virus will counteract compaction. (Faculty Sponsor: Dr. Laura Hanson)

3. CRITICALLY CONSCIOUS LEADERSHIP, WEB OF INCLUSION AND ETHIC OF CARE: AN APPROACH TO EQUITY IN HIGHER EDUCATION. L. Grosso Richins. Human Development, Family Studies, and Counseling

Latinx enrollment in higher education has more than doubled in the last 20 years, now representing 20% of the total student population (Krogstad et al., 2022). However, this growth has not translated into student success due to barriers that exist prior to entering college, but also barriers upon matriculation such as marginalization and lack of institutional support. Addressing the needs of Latinx and other minoritized students is complex and requires race/equity conscious measures. However, even the evaluation of noble initiatives like California's Student Equity Policy and plans for community colleges demonstrate a dilution of the equity and transfer factors in the plans and their implementation. I propose a trenza (braid) approach to research of equity in higher education, visualized as a three-strand braid weaving together critically conscious leadership (who leads equity), web of inclusion (how equity is implemented), and ethics of care (the why of equity). (Faculty Sponsor: Dr. Azucena Verdin)

4. EXAMINING THE RELATIONSHIP BETWEEN COPING STRATEGIES AND POSITIVE BODY IMAGE AMONG OLDER WOMEN. S. Karpiel. Health Promotion and Kinesiology

Studies show that body dissatisfaction is prevalent among Western females of all ages, and sociocultural pressure toward the thin ideal contributes to body dissatisfaction. A strategy for reducing body dissatisfaction among older women is to promote positive body image and identify coping strategies that lower body image distress and promote health and well-being. Studies examining the relationship between coping and body image are limited; therefore, there is a need to identify coping strategies that older women use to protect against body image threats. This presentation will provide an overview of the literature and research methods for an upcoming study with U.S. women aged 50 and over. The study purpose is: (1) to examine the relationship between coping strategies and positive body image among older women, and (2) to examine how perceived sociocultural pressure to adhere to the thin ideal moderates the relationship between coping strategies and positive body image among older women. (Faculty Sponsor: Dr. Marilyn Massey-Stokes)

5. EXAMINING THE ROLE OF PROTEIN FRAGMENTS IN NEURODEGENERATION. W. Lokuso, J. Manzano, E. Na, C. Brower. Biology

Neurodegenerative diseases (NDs), like Alzheimer's and Parkinson's, rank among the top ten causes of death in the U.S. NDs occur when nerve cells of the brain or spinal cord lose their function over time. Although therapies exist for alleviating such ailments, there is no known cure. Improving our understanding of causes will enable the development of effective strategies for prevention and treatment. The aggregation of specific protein fragments within neurons characterizes most NDs. Our work focuses on human TAR DNA-binding protein 43 (TDP43). During stress, TDP43 is cleaved into a variety of nearly identical fragments with distinct N-termini.

Despite a strong association with NDs, it is unclear if toxicity results from the loss of normal TDP43 function, or the acquisition of a toxic function. To ascertain if TDP43 fragments contribute to ND, we expressed TDP43 fragments in cultured primary neurons and certain brain areas in mice that contain functional TDP43. (Faculty Sponsor: Dr. Christopher Brower)

Supported by National Institute of Neurological Disorders and Stroke and TWU Experiential Student Scholars Program.

6. EFFECTS OF TIBIALIS ANTERIOR FATIGUE ON PERFORMANCE. J. Mallillin, H. Musgrove, N. Tuttle, M. Avalos. Health Promotion and Kinesiology

The tibialis anterior (TA) is a muscle in the anterior shank. Its primary function is to dorsiflex at the ankle, which is involved in walking and running. This study seeks to describe the effects of TA muscular fatigue on dorsiflexion (DF) and locomotor movements performance, quantifying the difference in force output, active range of motion (ROM), and proprioception, pre-fatigue and post-fatigue (PRF and POF, respectively). Seven participants performed a fatigue protocol, ROM measurements, three proprioceptive tests, and maximal isokinetic DF tests on a Biodex dynamometer, PRF and POF. Decreases were observed in the POF peak torque, work, and power values (3.43Nm, 8.14J, and 4.43W, respectively). Decreases were also seen in DF ROM (6.29°) and mean proprioception error (1.11°). There were slight increases in plantarflexion ROM (.71°) and proprioception error consistency (.18°). This preliminary data support the hypothesis that TA fatigue has a detrimental effect on ankle performance. (Faculty Sponsor: Dr. Young-Hoo Kwon)

7. THE NEUROLOGICAL DIFFERENCES IN DEVELOPMENT BETWEEN PRETERM AND TERM BABIES. J. Meisenbacher. Biology

Preterm birth, defined as birth before the thirty-seventh week of gestation, can place extensive stress on parents and caregivers. Outside the concern of the health of the child and mother, concerns over the developmental delays of the preterm baby can arise. This research is a review of the current literature on the neurological differences in development between preterm and term birth, as well as potential interventions to reduce the significance of developmental delays. The importance of early intervention to prevent neurological developmental delays has been well documented. It is critical that parents be informed of potential delays and intervention techniques to aid in the development of the child. Therefore this research is intended to educate on the neurological differences in development shown in preterm infants and provide information on the interventions to aid in the prevention of developmental delays. (Faculty Sponsor: Dr. DiAnna Hynds)

8. THE WAR WITHIN. L. Nguyen, R. Su, S. Tacata, H. Shove. Communication Sciences and Oral Health

Combat-induced post-traumatic stress disorder (PTSD) is a mental disorder in veterans that arises from life-threatening situations and combat- related accidents during active duty. Signs and symptoms associated with combat-induced PTSD can include but are not limited to flashbacks, nightmares, and sleep deprivation. PTSD is typically associated with anxiety, major depression, insomnia, obsessive compulsive disorder, bipolar disorder, and panic disorder. Oral implications such as TMJ disorder, severe periodontal disease, and dental caries have been shown to be associated with the effects of PTSD. When treating this population, it's critical to be informed of each individual patient's triggers, how to prevent them, and be able to identify cues of patient relapse. In order for the dental team to be capable of implementing proper treatment, the patient must undergo a mental health screening to gain a better understanding of their condition. (Faculty Sponsor: Professor Amy Teague)

9. REHEARSAL VISUALIZATION THERAPY FOR CHILDREN WITH LANGUAGE DISORDERS AND LEARNING DISABILITIES . M. Pierce, J. Shidler. Communication Sciences and Oral Health

Children with language and learning disorders often have difficulties remembering and following verbal directions due to the syntactic complexity of the directions and working memory limitations. The study examined the effects of "rehearsal-visualization intervention" on children from 5.0-10.5 years of age. This intervention requires the child to repeat or rephrase the instruction and to imagine the instruction as it was completed. Participants, previously diagnosed with language disorders or learning disabilities, completed the intervention under the direction of speech-language pathology (SLP) graduate students. Data collected was analyzed for changes in direction-following ability as measured by the Test of Following Oral Directions, an assessment to determine the difficulty of directions based on linguistic complexity. Data collected indicated that 86.67% of the children demonstrated improvement in the difficulty of directions they were able to follow, suggesting rehearsal-visualization therapy may offer an effective way to teach elementary-aged children to process and carry out instructions. (Faculty Sponsor: Dr. Cynthia Gill)

10. SOUND MOUTH AND MIND FOR ADOLESCENTS. K. Regan, C. Cross, J. Molina, T. Thurman, A. Romines. Communication Sciences and Oral Health

Progress in the field of healthcare has revealed relationships between different aspects of health, including the association between mental health and oral health. As evident as this association may be, based on multiple studies, it receives limited acknowledgement in the healthcare field, which has perpetuated related issues, particularly in adolescents. Research emphasizes the link between mental and oral health, as various studies highlight the challenges faced by this population and potentially life-long consequences when interventions are not implemented at this vital point in life. The data also reflects the need for additional future research to improve understanding of these determinants of health- related quality of life (HRQOL). The selected articles included research about relationships between various adolescent determinants of health such as behaviors, lifestyle, social interactions, beliefs, and environment, as well as some current and future treatment modalities for this vulnerable population. (Faculty Sponsor: Professor Deborah Testerman)

11. BROADEN THE AWARENESS OF ACCESSIBILITY IN MOBILE APPS. J. Rogers. Computer Sciences

Each year, more and more people are becoming aware of the necessity and impact of accessible mobile applications, and as disability awareness improves in kind, so too does the awareness that accessibility is lacking in a lot of areas. Accessibility applies to more than just those with disabilities, contrary to popular belief, and many features can improve app usage for everyone, every day. I will investigate the current state of accessibility in many common mobile apps by both large and small developers that millions of people worldwide use every day, and show how those apps provide

accessibility features now, what they could do better, as well as to show what kinds of accessibility exists in general for all mobile apps and how they could be better implemented or universalized, especially by less experienced developers from small companies. (Faculty Sponsor: Dr. Jian Zhang)

12. LIFE STORY DEVELOPMENT: TWO CASE STUDIES WITH PARKINSON'S DISEASE . C. Smith, B. Murray. Communication Sciences and Oral Health

Parkinson's disease (PD) is the second most common neurodegenerative disorder that often affects individuals later in life. Our current study on PD assesses language production during memory recall of two participants with PD. This study is carried out through four one-on-one interview sessions with the researcher and participant. During these interview sessions, life story information was gathered on the events the participants could recall over different stages of their lives. The goal of this study was to investigate the quantitative and qualitative elements of language produced through memory recall from past life events. Quantitatively, the study examined word and syllable counts of the produced life story in each stage. Qualitative analyses included the number of pauses, restating, and confabulations. The poster presentation will introduce the method used to elicit a life story and provide insight into the memory recall and language use of individuals with PD. (Faculty Sponsor: Dr. June Levitt)

13. THE MEANINGFUL EDUCATIONAL EXPERIENCES GAINED BY NURSING STUDENTS WHILE PARTICIPATING IN OBSTETRICAL CLINICAL ROTATIONS. N. Torres Gonzalez, G. Night, L. Espinoza. Nursing – Dallas

The purpose of this research was to identify and analyze the most meaningful learning experiences that undergraduate nursing students had while completing an obstetrics clinical rotation. Currently, there is limited research on the feelings and experiences of nursing students completing an obstetrics clinical. Each day's clinical journals were reviewed and analyzed qualitatively with NVivo 12 following deidentification. The results showed that the students had a strong sense of professional belonging because of their positive experiences, the presence of positive nursing role models who helped them learn, and their integration into the healthcare team. Nurse educators must be aware of and improve the ways that obstetrics clinical experiences create a safe and secure learning environment for students. (Faculty Sponsor: Professor Gayle Night)

14. THE PITCHER-GROUND INTERACTION AND FASTBALL PITCHING. N. Tuttle, M. Avalos, H. Musgrove. Health Promotion and Kinesiology

The number of pitchers per baseball team is increasing, with pitchers contributing to a large portion of injury reserve designations; therefore, a closer look into pitching mechanics is necessary. The purpose of this study is to describe how the pitcher-ground interaction affects pitching mechanics. This preliminary data collected 10 fastball pitches from an experienced pitcher using a 3D motion capture system and an instrumented pitching mound. Peak ground reaction forces (GRF) and maximum segmental angular velocities (AV) were calculated. The peak stride foot GRF occurred at 91% of the pitch time, with the following AV sequence: Pelvis (86%), Upper Arm (87%), Thorax (88%), Hand (91%), Forearm (92%). This shows that this pitcher did not follow a proximal-to-distal movement pattern, with several maximum angular velocities occurring before peak GRF for the stride foot. Therefore, this pitcher may benefit from improvements to the pitcher-ground interaction to improve pitching efficiency and velocity. (Faculty Sponsor: Dr. Young-Hoo Kwon)

Supported by TWU Center for Student Research.

15. USING A HERPESVIRUS INFECTION TO TRY TO IDENTIFY EARLY CHANGES ALZHEIMER'S DISEASE MARKERS. E. Tindall, L. Hanson, D. Hynds. Biology

Alzhemier's disease (AD) is a neurodegenerative disease that primarily affects the elderly population, and women and people of color are among the most affected. There are no known cures, and treatment trials have been largely unsuccessful. Several herpesviruses have been shown to correlate with AD. Two key proteins involved in AD include the amyloid and tau proteins. The herpesvirus, cytomegalovirus, causes AD-like changes to tau protein. We are interested in studying how this happens, for possible development of early diagnostics or therapies. We are using a plasmid, that is supposed to express tau fused with green fluorescent protein (GFP), to transfect B35 cells (rat neuroblastomas- a model for neurons) in order to study the effect of CMV on tau in greater detail. The transfections are followed with observations under a fluorescent light microscope and western blots to more specifically examine the changes to tau following viral infection. (Faculty Sponsor: Dr. Laura Hanson)

16. INTRODUCTION TO BAYESIAN STATISTICS. G. Smith, J. Garcia. Mathematics

The goal of this presentation is to provide an introduction to Bayesian Statistics. We will introduce Bayes' Theorem and demonstrate Bayesian Probability using geometry and the area of rectangles. We will then introduce the example of Bayesian Billiards and connect to the uniform and binomial distribution. Using the uniform distribution and binomial distribution to build a prior and likelihood respectively. We will continue the example and then introduce the posterior. Once the posterior is complete, we will show different possible distributions based on different values of theta and then introduce the relationship between the uniform distribution and the beta distribution and demonstrate continuous parameter estimation. We will then complete a Bayesian hypothesis test. (Faculty Sponsor: Dr. Brandi Falley)

17. ARE HAIR PRODUCTS SAFE? M. Rodriguez, Z. Hussain, J. Leija, D. Taylor, S. Burrows. Chemistry and Biochemistry

Are Hair Products Safe? Destiny C. Taylor, Melanie D. Rodriguez, Sydney N. Burrows, Janella C. Leija, Zoha A. Hussain CHEM 1011 Horizons in Chemistry and Biochemistry Haircare products are heavily marketed to the public, especially to women. The main techniques used to change the appearance of hair are dyes, perms, relaxers, and shine treatments. However, many of these hair products are poorly regulated and overhyped, resulting in undesirable short and long-term effects. For example, keratin treatments and Brazilian blowouts contain formaldehyde, a harsh chemical that not only has been linked to the development of cancer but is also known to cause rapid hair loss. Additionally, chemicals such as butyl parabens, methyl parabens, isobutyl parabens, ethyl parabens, toluene, ammonia, and lead acetate all have been linked to endometriosis, fertility issues, and cancers. It is imperative to educate the public about the components that make up these easily accessible products and their side effects. (Faculty Sponsor: Dr. Mary Anderson)

18. FEMALE EXONERATIONS INVOLVING FAMILY VIOLENCE: A SYSTEMATIC REVIEW OF THE LITERATURE. M. Ray. Social Sciences and Historical Studies

This project will entail a detailed analysis of case studies and existing literature in which women have been incarcerated and later exonerated in cases involving family violence. The scope of this research includes cases such as child abuse hysteria, the validity of shaken baby syndrome, and intimate partner violence. This research will analyze contributing factors toward individuals' wrongful convictions and incarcerations. The purpose of this project is to explore the intersections between forensic investigative processes and institutional systems of inequality. The female population for this project will include both national and international exonerees. My rationale for including this population is that incarcerated women are historically underrepresented in research. Additionally, this project could potentially expand the understanding of exonerated female populations. (Faculty Sponsor: Ms. Lisa Nichols)

19. PERCEIVED LEVEL OF SUPPORT IN PEDIATRIC MUSIC THERAPY: A DESCRIPTIVE STUDY. C. Nowlin. Arts and Design - Music

Music therapists working in pediatric hospitals navigate multiple interdisciplinary relationships. Although research exists regarding perceptions of music therapy among other hospital disciplines, a gap exists regarding the perceived level of interdisciplinary support among pediatric music therapists. Thus, this study investigated the extent to which pediatric music therapists feel supported by coworkers and other staff members. The researcher gathered data using an online survey containing demographic, ranking, and Likert-scale questions. These questions target relationships with speech, occupational, and physical therapists, nurses, hospitalists, immediate supervisors, and hospital administrators. Twenty six board-certified music therapists (MT-BC) solicited via social media groups and convenience sampling participated in the study. Results indicated that pediatric MT-BC's feel well- supported by other allied health professions but experience a need for increased support from hospital administration. While the subject size is small, the study serves as a pilot to stimulate the conversation about perceived support in pediatric music therapy. (Faculty Sponsor: Dr. Della Molloy-Daugherty)

20. CULTURAL COMPETENCIES BEST PRACTICES WHEN WORKING WITH FAMILIES . I. Neal. Human Development, Family Studies, and Counseling

As the United States population continues to become more culturally diverse, professionals need to understand the diversity of families and their communities, their needs, and ways to develop evidence-based family services in order to meet this growing population. Professionals serving diverse families often encounter barriers; therefore, cultural awareness is essential in providing quality responsive services to communities. The overall premise of this project is to explore effective strategies and best practices professionals could use in working with diverse families and communities. (Faculty Sponsor: Dr. Joyce Armstrong)

21. BARRIERS TO EXPANDING THE SCOPE OF PRACTICE FOR TEXAS DENTAL HYGIENISTS. M. Martinez, T. McAlister, T. Vo, K. Washburn. Communication Sciences and Oral Health

The personal values, responsibilities, and lack of professional involvement seen commonly in women may be affecting the rate at which the dental hygiene profession progresses in the state of Texas. Research does reveal a correlation between women's work-life values and their level of career advancement. Professions that are largely female dominated face barriers such as implicit gender bias and lack of mentor support which can affect professional development. These factors may contribute to the lack of expansion within the practice of dental hygiene. (Faculty Sponsor: Professor Lizabeth Spoonts)

22. CRP FRAMEWORK RESEARCH PROJECT - ANALYZING TEACHER PRACTICES IN K-12 SETTING. S. Mahata, K. Long, A. Myers. Teacher Education

The purpose of this study is to explore ways in which educators understand Culturally Relevant Pedagogy (CRP). Additionally, we hope to gather data on how they actualize CRP in the classroom. Participants for the study are K-12 teachers currently in the classroom. The research questions that guide this study are: 1. Which of the five CRP principles is the most important in the 21st century classroom?2. Which is the most challenging CRP principle to implement?3. What are some effective culturally responsive strategies to address ALL the students in the 21st century classroom? Data will be gathered through both quantitative and qualitative methods. First quantitative data is gathered through the use of Likert scale questions on a survey. Second, qualitative data is gathered by interviews conducted with practicing teachers who completed the survey. Once data collection is complete, data will be summarized, analyzed, and implications for professional practice will be offered. Key Content area: CRP framework, culturally responsive teaching, teacher practices (Faculty Sponsor: Dr. Aimee Myers)

23. THE USE OF TECHNOLOGY PANDEMIC; HOW ARE CHILDREN AFFECTED? S. Lang, R. Sport, G. Comer, A. Gigi Scaria , D. Sanchez . Chemistry and Biochemistry

The Use of Technology Pandemic; How Are Children Affected? Children in grades K-12 use portable technology (laptops, tablets, phones) at an extensive amount. In schools, they are used in lessons for English, science, and mathematical education. This allows rapid learning, typing skills and exposure to educated information online. Studies have demonstrated overuse causes children's attention span and cognitive control skills to decrease. At home, parents use unrestricted tablets, Tv's, and phones as a babysitter for their children. That allows kids to spend time on inappropriate games, social media, and adult shows. The effect of children being unsupervised on devices, causes emotional difficulties in society, body dysmorphia in adolescent girls, mental issues (loneliness) in development years. The means to advocate for the effects on overuse of technology begins with educating parents about the harm; then creating a hybrid learning environment in the classrooms. Horizons of Chem & Biochem IICHEM 1101.01 (Faculty Sponsor: Dr. Mary Anderson)

24. SNORING IS MORE THAN JUST ANNOYING. E. Johnson, B. Kirk, T. Molina, C. ZamoraRojas. Communication Sciences and Oral Health

Obstructive sleep apnea (OSA) is a prevalent life-threatening disease that can be identified by dental hygienists who have been made aware of the signs and symptoms and can propose myofunctional therapy as a treatment option. A review of the literature analyzes why dental hygienists should be knowledgeable about the risk, screening process, and treatment for OSA in order

to give patients the highest quality care. The research defines OSA, discusses which screening methods can be performed on patients to identify their risk, and determines how myofunctional therapy can treat OSA. Research findings indicate that dental hygienists expand their knowledge about screening methods and that dental hygiene students be exposed to a curriculum that emphasizes OSA and its risks. (Faculty Sponsor: Professor Nel Grassi)

25. SUPPORTING COLLEAGUES OF COLOR THROUGH MULTICULTURAL COMPETENCE. E. Eppinger. Teacher Education

Increasing racial and ethnic diversity is a common goal of hiring managers, yet supporting and retaining professionals of color needs just as much attention. Recruitment methods, onboarding, professional development opportunities, internal and external factors, campus and department culture, and equity and inclusion for each employee all factor into a successful and inclusive business. Supporting colleagues of color matters, but how to assist without insulting is a barrier. The pitfalls of colorblindness and having a melting pot washes away important individuality. If we are able to increase our multicultural competence to support our colleagues, we will do a better job of supporting our students. Our students need to feel welcome in their new home environment just as our colleagues do. Success is defined by the retention of diverse employees and students. (Faculty Sponsor: Dr. Jerry Ausburn)

26. SELF-MONEY ANALYSIS. P. Coleman, J. Armijo, D. Hall, S. Jeffrey, D. Jones, T. LaFrance, I. Muolete. Human Development, Family Studies, and Counseling

The purpose of this project is to examine financial spending through a self-money analysis. Seven graduate students will keep a record of their spending over a month and each student will analyze their spending behavior for patterns of essential and non-essential spending. Students will then compare and contrast their findings with each other. Students will use their self-developed class mission statement, "As a class, we value family, engagement, accountability, effective communication and prioritize self-care within the classroom. We seek to make financial wellness and education more accessible and equitable for us. We believe that it is important to empower families to establish vibrant communities through our own learning, reflection, independent research, and guidance and support from our instructor and each other," as a framework for analyzing their overall findings. (Faculty Sponsor: Dr. Joyce Armstrong)

Wednesday, April 19, 9:00 a.m. – 10:20 a.m. Student Union 2300 (Southwest Ballroom)

1. NUTRITIONAL MODIFICATION FOR INDIVIDUALS WITH CELIAC DISEASE. T. Adebayo, P. Gutjahr. Nutrition & Food Sciences

Celiac Disease is an autoimmune disease triggered by the ingestion of gluten and is estimated to affect 1 in 100 people worldwide. Over time, the immune reaction to gluten damages the small intestine and prevents it from absorbing some nutrients. The only treatment is to adhere to a gluten-free diet. Gluten-free diets lack important nutrients and are high in calories, fat, sugar, and sodium. Educating individuals on a gluten- free diet is vital to help them understand how to follow a balanced diet. It is also important to educate nutrition and culinary professionals so they can tailor to the dietary needs of this population. The objectives of this project are to 1) Identify a population that requires dietary modifications, 2) Modify recipes to provide nutritious meals that tailor to the population's dietary requirements, 3) Compare the nutritional profiles of the old and new recipes and gluten-free products on the market. (Faculty Sponsor: Dr. Cynthia Warren)

2. MOLECULAR MODELING OF POLY(BISPHENOL A CARBONATE) FOR DETERMINING INTERACTION ENERGY IN CHEMICAL RECYCLING USING DENSITY FUNCTIONAL THEORY. R. Gallenstein, L. Shiru, G. Salazar. Chemistry and Biochemistry

Poly (bisphenol A carbonate) (PC), a plastic, has grown in use and in turn waste over the past couple years. PC does not degrade easily and often forms microplastics, and when it does degrade releases the toxic compound bisphenol A into the environment. Consequently, we need a method to recycle this material and form a circular economy. One promising method is alcoholysis, which has been used to recycle PC into its monomers, dimethyl carbonate, and bisphenol A. To make this reaction more feasible, green catalysts need to be explored in combination with the proper alcohols. To determine the best pair, we combine experimental depolymerization reactions with computer modeling of the reaction using Density Function Theory to determine the interaction energies and reaction energy barriers. With this information we can test various alcohols and catalysts to determine the best candidates for recycling PC into its monomers. (Faculty Sponsor: Dr. Gustavo Salazar)

Supported by Robert A. Welch Foundation.

3. ANTI-CANCER PROPERTIES OF A NOVEL BISAMIDOXIME, JJMB9, TESTED ON 4T1 TRIPLE NEGATIVE BREAST CANCER IN VIVO. C. Golly, T. Ladell, E. Shin, S. Ruiz, N. Franco Arjona, E. Garcia, S. Pathak, S. Tabassam, D. Jimenez, R. Petros, M. Bergel. Biology

In the United States, approximately 13% of women develop invasive breast cancer in their life time. Triple negative breast cancer (TNBC) lacks HER2, and the estrogen and progesterone receptors. TNBC grows quickly with a high rate of recurrence, and it is more difficult to treat since a large variety of anti-cancer drugs target these receptors. JJMB9, a novel bisamidoxime, inhibits p300 histone acetyltransferase, and was found to be effective against the TNBC 4T1 cell line and several human cancer cell lines in vitro. In this study, the anti-cancer activity of JJMB9 was explored in vivo. Mouse mammary carcinoma, 4T1 cells were injected into the 1st mammary fat pad of Balb/c mice and then JJMB9 or vehicle was administered intraperitoneally 5 days a week for 3 weeks. We found that JJMB9 significantly reduced lung metastasis area, suggesting that JJMB9 has the potential to be a therapeutic agent against human TNBC. (Faculty Sponsor: Dr. Michael Bergel)

4. ESTROGEN INTERACTS WITH SEROTONIN TO MODULATE PROTEIN KINASE PHOSPHORYLATION AND PROINFLAMMATORY MEDIATOR RELEASE VIA ERB AND GPER IN MURINE MACROPHAGES. T. Hickman, S. Kaur, E. Simmons, L. Hanson, D. Averitt. Biology

Sex differences in sensory neurons and immune system interactions may contribute to higher pain prevalence in women. Macrophages are sensitive to serotonin (5HT) and can release 5HT in the periphery to initiate and/or sensitize pain signaling. We hypothesized that 17β-estradiol (E2) acts on macrophages to trigger release of proinflammatory mediators. Supernatant from macrophage cultures treated with E2, ERα agonist, ERβ agonist, GPER agonist, or vehicle was used to quantify 5HT and cytokine

release. Supernatant from cultures treated with E2, 5HT, 5HT+E2, or vehicle was collected to quantify cytokine release. Cell lysates were collected following capsaicin, 5HT+capsaicin, E2+capsaicin, or 5HT+E2+capsaicin treatments and analyzed for kinase phosphorylation. We report that targeting GPER increased 5HT release from macrophages. 5HT and E2 synergistically increased release of proinflammatory mediators via ERβ and GPER and altered phosphorylation of kinases involved in inflammation. These data suggest a pronociceptive effect of E2 and 5HT on macrophages, implicating a sexually dimorphic neuroimmune interaction between macrophages and sensory neurons. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NIH NICDR DE025970, TWU REP, and TWU Center for Student Research.

5. ANTI-CANCER EFFICACY OF A NOVEL BISAMIDOXIME, JJMB9, ALONE AND IN COMBINATION WITH CISPLATIN AGAINST HUMAN BREAST CANCER IN NUDE MICE. C. Golly, S. Pathak, E. Garcia, E. Shin, S. Ruiz, N. Franco Arjona, S. Tabassam, E. Olumodeji, A. Arriaga, A. Noor Jakaria, D. Jimenez, R. Petros, J. Spencer, M. Bergel. Biology

Breast cancer accounts for 30% of all cancer cases in women in the United States, with a 5-year survival of only 28% for metastatic breast cancer patients. The bisamidoxime JJMB9 is a novel p300 inhibitor that was shown by us to be effective against several cancer cell lines in vitro. In this study, we examined the anti-cancer efficacy of JJMB9 alone and in combination with cisplatin, a platinum-based chemotherapy drug, against MCF-7 human breast adenocarcinoma cells. MCF-7 cells were injected into 4th mammary fat pads of immunocompromised mice, which were pre-implanted with an estradiol pellet. JJMB9, cisplatin, or a combination of both drugs were administered intraperitoneally for 3 weeks and 11 days, respectively. We found that JJMB9 alone and in combination with cisplatin significantly reduced tumor volume, and JJMB9 improved the survival of cisplatin recipients. Thus, the combination of JJMB9 and cisplatin may be a potent treatment for breast cancer. (Faculty Sponsor: Dr. Michael Bergel)

Supported by Jane Nelson Institute for Women's Leadership (JNIWL).

6. KNOCKDOWN OF SIRPG POTENTIATES NAÏVE T CELL DIFFERENTIATION AND ACTIVATION IN HUMAN T CELLS. A. Kenning, M. Morse, S. Sinha. Biology

Signal Regulatory Proteins (SIRPs) are a newly emerging class of regulatory proteins on T cells, where the third discovered member, SIRPγ, is expressed uniquely on human T cells. The function of SIRPγ is unknown, but the protein's dysregulation has been associated with autoimmune disorders relapsing remitting multiple sclerosis (RRMS), type- 1 diabetes (T1D), and systemic lupus erythematosus. Interestingly, most humans with RRMS and T1D have higher percentages of SIRPγlow T cells, compared to human healthy donors (HDs). Recently, we discovered that some HDs exhibit larger percentages of quiescent naïve T cells with low SIRPγ expression. These individuals' raised an important question of whether SIRPγlow naïve T cells will harbor a more potent and inflammatory life within the host. Recently, analysis of siRNA-mediated knockdown (KD) of SIRPγ on naïve T cells has suggested acquisition of memory marker CD45RO, and RNA-sequencing results revealed possible pathways in which SIRPγ KD increases T cell cytotoxicity. (Faculty Sponsor: Dr. Sushmita Sinha)

Supported by TWU REP, TWU Chancellor's Research Fellowship Program, and the National Institutes of Health.

7. EFFECTS OF EXPERIENTIAL LEARNING ON THE CLINICAL REASONING SKILLS OF ALLIED HEALTH STUDENTS IMPLEMENTING PEDIATRIC CONSTRAINT INDUCED MOVEMENT THERAPY. B. Merillat, H. Roberts , A. Shierk. Occupational Therapy - Denton

Efficient training techniques within occupational therapy are important to the continued education and spread of knowledge in the field. The objective of this study was to assess the impact of experiential learning on the knowledge gained and confidence utilizing pediatric constraint induced movement therapy (p-CIMT) among students. This mixed methods design consisted of pre and post surveys that collected quantitative and qualitative data regarding p-CIMT knowledge, comfort level, and opinions. 44 allied health students participated in the experience. Survey results showed a significant increase in p-CIMT knowledge and confidence of students ($p<0.05$). Qualitative data collected showed an increase in positive sentiments regarding p-CIMT. The experiential learning experience was successful in equipping the students with the necessary skills, knowledge, and confidence to perform and/or initiate a p-CIMT program. With this knowledge, future learning programs can be developed to best equip participants on new occupational therapy related techniques. (Faculty Sponsor: Dr. Heather Roberts)

8. CAN THE IMPLEMENTATION OF AN INTERACTIVE ESCAPE ROOM IMPROVE CONFIDENCE OF CLINICAL REASONING SKILLS IN A GRADUATE NURSE RESIDENCY PROGRAM? K. Rocha. Nursing – Dallas

The purpose of this study was to evaluate if an interactive escape room can improve the confidence of clinical reasoning skills in a graduate nurse residency program. An 8 station escape room was created with approximately 4-5 clues at each station. Participants had to use clinical reasoning skills to complete the puzzles within 8 minutes. A total of 23 nurse residents participated. A pretest and posttest measuring confidence was given using a 5-point Likert score and a numerical value was given to responses, with 1 being “not confident at all” to 5 being completely confident. The average self-reported confidence level by the nurse residents prior to beginning the activity was 2.61. After the intervention the average was 3.23, with the difference between the two averages being $t= 0.013$, indicating a statistical significance ($p < 0.05$). Common themes of lessons gained during the escape room was the importance of teamwork, communication, and effective time management. The use of an interactive escape room can help improve nurse residency confidence in managing changing patient status, which can potentially result in decreased nurse anxiety and mistakes surrounding these events. (Faculty Sponsor: Dr. Linda Merritt)

9. CIRCULAR DICHROISM SPECTRAL CHARACTERIZATION OF DEOXYGUANINE DINUCLEOTIDES WITH ANTICANCER PLATINUM-BASED ANALOGS. L. Ruemmele, M. Dang, S. Lang, M. Rodriguez, R. Sheardy, N. Mirsaleh-Kohan. Chemistry and Biochemistry

DNA structure is essential to understanding biological systems; its structure encodes the blueprint for life. Because of the importance of DNA, scientists study how the structure of DNA is modified in response to environmental conditions. In this study, we employ Circular Dichroism (CD) spectroscopy to obtain spectral features of short-stranded DNA segments and further monitor changes in

optical activity and absorption. DNA dimers are utilized as an elementary system compared to larger DNA complexes. Cisplatin is a prominent anticancer treatment used to treat many types of cancer. It is proposed that cisplatin preferentially forms an intramolecular covalent bond at guanine-guanine sites in DNA. We introduced cisplatin and its platinum-based analogs (carboplatin, heptaplatin, and nedaplatin) to deoxyguanine dinucleotides then performed CD to understand the immediacy of the reaction. By building a spectroscopic model of how cisplatin modifies DNA structure, we will begin to uncover chemical properties of cisplatin and its derivatives. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by NSF HSI-STEM Award #1953448 and Robert A. Welch Foundation.

10. THE IMPROVEMENT OF ACRYLAMIDE BAND RESOLUTION USING WELL SOLUTION. R. Sport, K. Wafer, E. Gaytan. Biology

This study evaluates the clarity of the polyacrylamide gel banding for protein electrophoresis after adding well solution to the sample wells. Polyacrylamide gels, with some difficulty, are used on a regular basis by scientists and students alike. The wells which are thin holes made using a comb with teeth that create sample reservoirs at the top of the gel are designed to hold the given samples. Normally, protein bands have some distortion. The well solution is designed to improve the bands' sharpness and reduce smearing. To test the well solution, several trials of protein samples are loaded on polyacrylamide gels using protein standards and a separate set of wells on the same gel are loaded initially without well solution. This design is testing the validity of the well solutions to improve band focus and resolution. (Faculty Sponsor: Dr. Nathaniel Mills)

11. THE IMPORTANCE OF SUSTAINABLE URBAN GARDENS IN THE CONSERVATION EFFORTS FOR NATIVE POLLINATORS. M. Torres, M. Rumpa, C. Maier. Biology

Native plants make up 97% of the TWU Bettye Myers Butterfly Gardens. Compared to the grass lawn, they provide excellent resources for native pollinators whose populations are in decline. In trying to grow and preserve these plants, we must understand the environmental conditions and interactions with pollinators that allow them to thrive. The objectives of this research project are to 1) monitor abiotic environmental factors, such as soil temperature, moisture, pH levels, atmospheric temperature, light intensity, and their impact on phenology and 2) observe the plant-pollinator interactions to determine the health of their populations. More than 50 species of pollinators were observed in the gardens. A network of plant-pollinator interactions has been built and will serve as reference for community partners who want to restore their lawn to pollinator gardens. The Bettye Myers Butterfly Gardens are models of conservation efforts for pollinators in urban areas. (Faculty Sponsor: Dr. Camelia Maier)

12. STUDENTS WHO ARE DEAF/HH: MISMATCH OF SERVICE NEEDS AND GRADUATE TRAINING PROGRAMS. R. Woodruff, S. Wainscott. Communication Sciences and Oral Health

This poster compares training needs and SLP programs with specialization in Deaf/HH. Service needs for diverse students who are deaf/hh are intense. A review of ASHA-certified SLP training programs showed that a small number specialize in this unique population, primarily targeting listening and spoken language. Given the unique needs of students who are Deaf/HH in school programs, including the many that use sign language as a primary or secondary mode of communication, there is a need for more professional training programs to address these needs. The proposed poster provides a summary of service needs, a summary of training program availability with related specialization, and recommendations for training to equip school-based speech-language pathologists to serve in school programs for children who are Deaf/HH. (Faculty Sponsor: Dr. Sarah Wainscott)

13. USE OF Y-BALANCE TEST PERFORMANCE TO PREDICT MUSCULOSKELETAL COMPLAINTS IN ADOLESCENT DANCERS . C. Stoddard, S. Wang-Price. Physical Therapy – Dallas

Introduction: Literature suggests that decreased balance and postural control can lead to increased injuries in dancers, however, limited research is available for injury risk or prediction on young adolescent dancers. The primary purpose of this study was to determine whether Y- Balance Test (YBT) performance could predict lower extremity musculoskeletal complaints among adolescent dancers over a single dance season (approximately 3 months). Methods: Forty-nine participants (13.0 ± 1.6 years) completed the YBT at baseline and completed the Oslo Sports Trauma Research Center Overuse injury questionnaire, version 2 (OSTRC-O2) every 2 weeks for the dance season. Data Analysis: Bivariate regression analysis was used to determine if mean YBT score was predictive of moderate-to-severe musculoskeletal complaints (OSTRC-O2 >/= 39). Results: No significance (p = 0.236) was found with OR = 0.949 (90% confidence interval = 0.869, 1.035). Conclusion: YBT performance was not predictive of moderate-to-severe musculoskeletal complaints in adolescent dancers. (Faculty Sponsor: Dr. Sharon Wang-Price)

Supported by Texas Women's University Graduate Research Grant, Texas Physical Therapy Foundation Research Grant.

14. EVALUATION OF ANTIMICROBIAL ACTIVITY OF SOME TRADITIONALLY USED PLANTS INCLUDING SOME FACTORS THAT MAY INFLUENCE OUTCOMES . R. Samara, L. Hanson . Biology

The purpose of this research is to investigate the antimicrobial properties of Morus alba, Conyza, and Warbugia, plants used in traditional medicine. Previous studies in the literature have varied in their results. We hypothesized this depends on factors such as exact species, preparation of extracts, and gender or age of plants. Aqueous extracts of the plants were prepared (4:1 water to dried weight), and are being tested for antibacterial activity using growth inhibition in a microplate assay. For antiviral activity, after assessing cell viability, reduction in virus infection is being evaluated in cell culture. Warbugia extracts exhibited enhancement rather than inhibition of bacterial growth. Conyza and Morus had antibacterial activity. However, Conzya was only effective against Gram positive Bacillus while Morus also inhibited Gram negative E. coli. Our results confirm that gender of the plants and season of harvest may be factors in reported discrepancies. Antiviral research is ongoing. (Faculty Sponsor: Dr. Laura Hanson)

15. THE PREVALENCE OF POSTTRAUMATIC STRESS DISORDER (PTSD) IN NICU FATHERS: A SCOPING REVIEW. L. Romo. Nursing – Dallas

Aim: To identify the gaps in the literature regarding the psychological impact on fathers of infants who had been in the NICU, specifically focusing on PTSD. Background: Admission to the NICU is a traumatic event for both parents, but most of the research

on parents' mental health focuses on the mother. Hence, there is a gap in the literature on father's mental health. Untreated depression can lead to PTSD. Method: Review was conducted using Arksey and O'Malley guidelines. Articles were uploaded into Rayyan software, and then reviewed based on inclusion/ exclusion criteria: published between 1990-present, written in English, and reported statistics on PTSD. Results: Fourteen potential reviews were identified. The prevalence of PTSD ranged from 1.4%-68.5%. Conclusion: NICU care should include regular assessments of fathers' mental health. The identification and testing of interventions for NICU fathers' mental health needs is essential. (Faculty Sponsor: Dr. Linda Merritt)

16. A PERCEPTUAL STUDY: THE EFFECT OF "INTENT" AND "LOUD" INSTRUCTIONS ON INDVIDUALS WITH PARKINSON'S DISEASE. M. Pearce, J. Levitt. Communication Sciences and Oral Health

The goal of this study was to examine how people perceive speech produced by people with Parkinson's disease (PD) under different conditions. Hypokinetic dysarthria is prevalent in individuals diagnosed with PD. It can affect pitch, loudness, the precision of consonants, tone, and breath control. These factors contribute to how a person's voice is perceived. This perceptual study examined the acoustic quality of speech that affects (1) intelligibility, (2) loudness, (3) pitch, and (4) similarity to normal speech. Within these samples are samples of their natural voice, their voice when instructed to speak loudly, and their voice when instructed to speak with intent. We utilized five male voices of different ages and the listeners rated their speech based on the four qualities listed above. These voices were used as stimuli to allow the listener to rate them on a graded scale. Twenty young college students served as listeners for this study. (Faculty Sponsor: Dr. June Levitt)

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

17. SENSORY NEURONS AND GLIAL CELLS OF THE TRIGEMINAL GANGLIA ARE COMPARABLE BETWEEN MALE AND FEMALE RATS DURING STRESS-EXACERBATED OROFACIAL PAIN. D. Leyva Zaldivar, D. Cantu, S. Adhikari, D. Averitt. Biology

Stress triggers and exacerbates orofacial pain to a greater degree in women, which is supported by our preclinical studies in a rat model of orofacial inflammation. We are examining the trigeminal ganglia for potential neuroanatomical mechanisms contributing to sex differences in the effects of stress on orofacial pain. In the present study, we performed tract-tracing and immunohistochemistry techniques on the trigeminal ganglia extracted from male and female rats exposed to a stressor and orofacial inflammation to visualize sensory neurons innervating the inflamed orofacial region, glial cells, and phosphorylated extracellular regulated kinase (pERK). Here we report no changes in glia cells or pERK immunoreactivity were observed in the trigeminal ganglia in males or females following stress compared to controls. We postulate that sex differences in the effects of stress on orofacial pain do not occur within the trigeminal ganglia, but rather at the central terminals of the trigeminal nucleus caudalis. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NSF PRIME, NIH NIDCR F31 DE031959, NIH NICDR R15 DE025970, NIH Diversity Supplement, TWU Center for Student Research, TWU Experiential Student Scholars Program, TWU Alumni Association, and the NSF.

18. HOW A HERPESVIRUS COULD BE A PLAYER IN ALZHEIMER'S PATHOLOGY. C. Horn, L. Hanson. Biology

Alzheimer's Disease (AD) is neurodegeneration associated with neurofibrillary tangles of hyperphosphorylated tau protein and amyloid plaques. AD affects aging people worldwide and has no cure. Discovering early signs of and contributors to the disease may help necessary efforts of prevention. Herpes simplex virus-1 (HSV-1) has been previously implicated in contributing to the tau pathology seen in AD. We have shown that another herpes virus, cytomegalovirus (CMV), similarly alters tau in neurons. Tau pathologies can also spread between cells. We hypothesize that infected immune cells may be a source. Mouse macrophages were infected with murine CMV (MCMV) and tested for AD-like tau modifications. Preliminary data confirms our hypothesis of higher molecular weight tau increasing through MCMV infection in mouse macrophages. Further studies will determine if it is secreted and can cause changes in neuronal-type cells. (Faculty Sponsor: Dr. Laura Hanson)

19. INVESTIGATING GREENER SUSTAINABLE SOLVENTLESS REACTION BY MECHANICAL GRINDING VS SOLVENT-MEDIATED SCHLENK LINE SYNTHESIS OF NEW COPPER(I) HALIDES COMPLEXES WITH DIAMINE LIGANDS. B. Hitt, M. Rawashdeh-Omary . Chemistry and Biochemistry

Copper (I)Halides complexes with various diamine ligands have recently generated a lot of focus due to their unique photophysical properties and ability to arrange in diverse structures. Multiple copper (I) Iodide - phenanthroline complexes have been synthesized by a solvent-mediated reaction and a solventless reaction via mechanical grinding. The reaction of the same starting materials resulted in multiple products with different interesting photophysical properties upon varying: a)the synthetic method of the reaction, solvents, or a greener solvent-less route b) molar ratios of the starting material. The novel products have been characterized using different methods and instrumentation such as: Fourier-transform infrared (FTIR), Thermogravimetric Analysis (TGA), Ultraviolet–visible spectroscopy (UV-Vis), Nuclear Magnetic Resonance (NMR), luminescence spectroscopy (steady-state and lifetimes), Elemental Analysis, along with crystallization and X-ray diffraction. Potential applications consist of solar energy materials, energy-efficient light- emitting diodes (LED), smart phones, organic LED (OLED) TVs, medical drugs, and diagnostic tools for cancer and other diseases. (Faculty Sponsor: Dr. Manal Rawashdeh-Omary)

Supported by NSF HSI-STEM Award #1953448.

20. TESTING EFFICACY OF ANTIMICROBIAL ACTIVITY IN TRADITION MEDICINAL PLANTS. E. Holcomb, L. Hanson. Biology

The aim of this study is to find antimicrobial treatments from traditional medicinal plants that would help combat the growing number of antimicrobial resistant microorganisms, with special interest in STI's. We also plan to test for lack of spermicidal activity, as many women cannot use protections that interfere with fertility. Air dried samples were rehydrated in cold water (4:1 volume to grams), twice, and filter sterilized. The samples were used with representative Gram – and + bacteria to measure growth inhibition in a microplate inhibition assay. We found for both bacterial species tested complete growth inhibition by Euphorbia serpens (creeping spurge) extracts and partial inhibition by Maclura pomifera (osage orange) and Callicarpa americana (beauty berry). Further study into mammalian cell toxicity and viral growth inhibition is ongoing. Humans have used plants to treat illness for hundreds of years, but

scientific research could help standardize treatments that are accessible and easily produced. (Faculty Sponsor: Dr. Laura Hanson)

21. TISSUES PRESERVED IN AMMONIUM SULFATE MAINTAINS RNA INTEGRITY . E. Gaytan, K. Wafer, R. Sport, N. Mills . Biology

We have evaluated solutions to preserve ribonucleic acid (RNA) during long-term tissue storage. Tissues were kept in solutions for extended periods of time and RNA was isolated to measure RNA integrity with time of storage. Ultimately, ammonium sulfate ($AmSO_4$) was the most effective solution in preserving RNA for 187 days. Further, this solution preserved RNA with little more degradation after 565 days. The purity of the RNA was measured using a UV spectrophotometer while the integrity was measured using various gel electrophoresis procedures. Currently, more solutions are being tested for their ability to preserve tissue and isolate RNA and into the near future. These preservation solutions allow for more flexible tissue usage by scientists and physicians. The preserved RNA are usable for PCR and sequencing expressed genes. (Faculty Sponsor: Dr. Nathaniel Mills)

Supported by NSF and TWU Honors Program.

22. KITCHEN GARDEN COOKING SCHOOL FOR FAMILIES: DEVELOPMENT OF SOCIAL COGNITIVE THEORY-BASED VIRTUAL COURSE TO IMPROVE FOOD LITERACY IN PARENTS OF YOUNG CHILDREN. B. Coffie, K. Davis, L. Canul. Nutrition & Food Sciences

KITCHEN GARDEN COOKING SCHOOL FOR FAMILIES: DEVELOPMENT OF SOCIAL COGNITIVE THEORY-BASED VIRTUAL COURSE TO IMPROVE FOOD LITERACY IN PARENTS OF YOUNG CHILDRENHelping children develop cooking skills is associated with positive dietary and health outcomes in adulthood. The purpose of this project is to encourage parents and their young children to build skill and confidence cooking healthy meals with inexpensive but quality ingredients to increase their fruit and vegetable intake. An existing, in-person course developed by Tarrant Area Food Bank was used as a basis to develop an on-line course based on social cognitive theory (SCT) to teach cooking and food selection skills to influence positive dietary behavior change. The course is delivered via Google Sites and can be done at the family's own pace or with synchronous weekly sessions. Both videos and handouts are available. Every week features a specific fruit or vegetable with three different recipes, nutritional benefits of the chosen fruit or vegetable, how to grow this fruit or vegetable, and a specific topic on spending money wisely. (Faculty Sponsor: Dr. Kathleen Davis)

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

23. FACTORS THAT BENEFIT BILINGUAL CHILDREN'S LANGUAGE ABILITIES. C Zenteno. Communication Sciences and Oral Health

The skills that bilingual children carry in their first language (L1), like vocabulary size, grammatical skills, and phonological awareness highly correlate with the learning of their second language (L2, typically English in the U.S.). Stronger L1 skills can support the growth of the L2, which correlates with larger vocabularies, better comprehension, stronger processing skills, and most importantly their better overall academic success. Three of the factors that can influence children's language include caregiver involvement, socioeconomic status (SES), and pre-school education. This poster aims to discuss how these factors are related to language and literacy skills and how caregivers can support their children's language development, specifically in a way that empowers the caregiver and strengthens the child's L1 language skills. (Faculty Sponsor: Dr. Bita Payesteh)

Wednesday, April 19, 2:40 p.m. - 4:00 p.m.
Student Union 2300 (Southwest Ballroom)

1. BLACK MATERNAL HEALTH MATTERS. F. Aleman. Human Development, Family Studies, and Counseling

This advocacy project aims to spread awareness about postpartum depression in Black women by sharing the stories, or oral histories, of Black women through social media content. Social media is a very popular broadcasting tool today and is easily shared and often viewed by thousands of people, if not millions. Platforms such as Tiktok Instagram, Spotify and YouTube provide spaces for scholarship to be shared widely. While not a traditional peer-reviewed outlet, it has the potential to be seen and shared with many more people than a traditional scholarly project. This poster shares the scope of the overall project, reach of each social media outlet, and a brief overview of the oral histories shared. (Faculty Sponsor: Dr. Catherine Dutton)

2. COMPARISON OF HEAT SHOCK PROTEIN EXPRESSION BETWEEN ONE SESSION OF WHOLE BODY PASSIVE HEATING AND ONE BOUT OF AEROBIC EXERCISE IN OLDER ADULTS. C. Clark, N. Varone, A. Flores, J. Mallillin, C. Morse, B. Rigby. Health Promotion and Kinesiology

The proposed study will provide innovative knowledge into the expression of heat shock proteins (HSP). HSP are major components of the cellular chaperone network that may have a neuroprotective effect against certain diseases. HSP expression increases during stress such as exercise or increased body temperature. A between-subjects, repeated-measures design will be used to determine if differences exist with regards to HSP expression levels following a period of stress in older adults (60+ years). There will be three randomly assigned conditions: 1-hour of rested whole-body passive heating, 1-hour of exercise in the form of moderate intensity walking on a treadmill, or 1-hour control. Participants will be asked to complete 3 visits in total. Variables measured in the study include HSP expression, cognitive performance, pain scale questionnaire, heart rate, and blood pressure. HSP content, cognitive performance, and pain data will be taken at baseline and immediately and 24-hours post the interventions. (Faculty Sponsor: Dr. Rhett Rigby)

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

3. ANALYZING SPECIFIC HEAT CAPACITIES OF HUMAN SERUM ALBUMIN AND A DNA HAIRPIN, USING DIFFERENTIAL SCANNING CALORIMETRY. D. Aguilar, R. Gallenstein, D. Woodring, R. Sheardy. Chemistry and Biochemistry

In this study, we have attempted to replicate a set of experiments from a recent study by Dr. Albert Benight and Dr. Matthew Eskew from Portland State University, where Human Serum Albumin (HSA) and a DNA hairpin (HP1) samples were prepared in varying concentrations and underwent Differential Scanning Calorimetry (DSC) melts. They reported that proteins and DNA have identical intrinsic heat capacities. After plotting and analyzing the thermograms and determining key factors such as the max peak height (Tm), the maximum calorimetric peak height (C_p^{max}), the enthalpy (ΔH), entropy (ΔS), and Gibb's free energy (ΔG), we

compared certain values with each other to determine if the relationship observed by Benight and Eskew was also observed in our studies. The results of these comparisons will be reported. (Faculty Sponsor: Dr. Richard Sheardy)

4. CAVEOLIN 1-ACTIVATED CDC42 MEDIATES G1P3-INDUCED BREAST CANCER CELL MIGRATION . A. Davenport, M. Morris, N. Chowdhury, D. Hynds, V. Cheriyath. Biology

G1P3/ISG6-16 promotes breast cancer cell migration and invasion and is associated with reduced metastasis free survival. Elevated mtROS in G1P3- expressing cells is suggested to promote filopodia formation. However, the mechanisms remain unclear. Caveolin 1, a gene upregulated by ~4-fold ($p \leq 0.05$) in MCF-7G1P3 cells was identified to be under the control of mtROS. Knockdown of Cav1significantly reduced the number of filopodia in MCF-7G1P3 cells and abrogated G1P3-induced cell migration ($p \leq 0.05$). Since CDC42 is a key regulator of filopodia formation, its role in mediating Cav1 mediated migration of MCF-7G1P3 cells was assessed. Relative to controls, knockdown of Cav1 as well as the scavenging of mtROS significantly reduced the CDC42 activity in in MCF-7G1P3 cells ($p \leq 0.05$). Taken together, our results demonstrate a role for G1P3-induced mtROS in augmenting Cav1 expression to promote breast cancer cell migration through CDC42-GTPase activity. (Faculty Sponsor: Dr. DiAnna Hynds)

Supported by Texas A & M University-Commerce, Department of Biolological and Environmental Sciences.

5. PHYSICAL PROPERTIES OF 12-N-12 GEMINI SURFACTANTS. D. Aguilar, H. Nembaware, R. Sheardy. Chemistry and Biochemistry

Gemini surfactants have received some interest for their potential applications as anti bacterials,anti-corrosives, agents for oil spill remediation and gen delivery systems. Thus, it is important tounderstand the physical properties of these molecules. In this study we investigated a series of12-n-12 Gemini surfactants (where n = 2, 3 or 4) using isothermal titration calorimetry (ITC),conductivity, refractivity and dynamic light scattering (DLS) determinations. Thus, we have determined the enthalpy of micellization (□H mic), the critical micelle concentration (cmc), and thehydrodynamic radii of the micelles formed by these surfactants at concentrations above the cmc. In addition, we have investigated the interactions of these surfactants with simple lawn mower oil to evaluate their potential for oil spill remediation. (Faculty Sponsor: Dr. Richard Sheardy)

6. INTERPRETING THE IMPACT OF CHLORHEXIDINE ON THE ENVIRONMENT. S. Huynh, D. Brown, J. Beatty. Chemistry and Biochemistry

Potentially, Chlorhexidine has a negative impact on the environment at a large scale. Chlorhexidine is one of the most prescribed compounds and is widely used in various disinfecting products where it comes in contact with cotton fabrics. When chlorhexidine is in the presence of sodium hypochlorite, it decomposes into toxic compounds, and these compounds bind with cotton fibers. When the fabric is washed after contact with chlorhexidine, it appears soiled and degraded. This leads to rewashing or disposal of the fabric due to its appearance. Studies have tentatively identified one of the products of this reaction as para-chloroaniline, suggesting that chlorhexidine should not be used with oxidizers like bleach until further studied. Aniline-like compounds are what may be staining fibers. Understanding how chlorhexidine interacts with cotton textile fibers will save water and cotton fabric from being prematurely disposed of and negatively impacting the environment due to wasted fabric and water. (Faculty Sponsor: Dr. John Beatty)

7. CO2 / N2 NON-THERMAL ATMOSPHERIC PLASMA FOR CLEANER SYNTHESIS OF NITRIC ACID. A. McNeill, J. Beatty. Chemistry and Biochemistry

Over 60 million tons of nitric acid are produced annually, utilized in industries from agricultural to mining and laboratory use. In the commercial synthesis of nitric acid, harmful byproducts released into the atmosphere include nitric oxide (NO), nitrogen dioxide (NO2), and nitrous oxide (N2O). Commercial manufacturing of nitric acid requires ammonia as a reactant, and a catalyst such as platinum for ammonia oxidation with an aim to produce NO2. In this project, a CO2/N2 plasma processing has resulted in nitrogen dioxide (NO2), nitric oxide (NO), identified via FTIR analysis with a gas cell, without the need for ammonia as a precursor. In previous trials, with a cold trap at -80°C, NO2 and NO react and condense as N2O3. The synthesis of nitric acid utilizing the plasma exhaust in water will be attempted at varying temperatures, and gaseous products monitored via Residual Gas Analysis. (Faculty Sponsor: Dr. John Beatty)

Supported by NSF HIS-STEM Award #1953448, TWU REP, and TWU Center for Student Research.

8. THE EFFECTS OF TIBIALIS ANTERIOR FATIGUE ON BALANCE. H. Musgrove, J. Mallillin, M. Avalos, N. Tuttle. Health Promotion and Kinesiology

The tibialis anterior, located in the anterior lower leg, is responsible for dorsiflexion and assists with gait. For proper ambulation, balance must be maintained. This study aims to determine the effects of TA fatigue on balance. Seven participants completed three balance assessments pre-and post-fatigue (PRF and POF, respectively): unilateral stance (UN), step-quick-turn (SQT), and sit-to-stand (STS). POF increases were observed for sway velocity during US and STS, and for rising load in STS. Decreases were observed in rising time during STS, as well as sway velocity and turn time during SQT. Participants also shifted weight towards the dominant leg during STS. These compensatory movements indicate changes to balance POF. Additionally, four of the seven participants tripped following fatigue and all demonstrated noticeable gait changes. These findings imply that TA fatigue may evoke adaptations that hinder the ability to maintain balance during gait and other activities. (Faculty Sponsor: Dr. Young-Hoo Kwon)

9. DEVELOPMENT OF A MOUSE MODEL FOR INVESTIGATING METASTATIC BREAST CANCER INDUCED BY HCMV INFECTION. E. Olumodeji, J. Spencer, A. Arriaga, A. Jakaria, E. Garcia, C. Kelly, S. Pathak , M. Bergel. Biology

Human Cytomegalovirus (HCMV) is a herpesvirus that infects people for life. HCMV has been discovered to have an association with breast cancer, but because HCMV can only infect human cells, it has been difficult to investigate its role in tumor development in vivo. To investigate the effect of HCMV on metastatic breast cancer, we used immunocompromised mice that can tolerate implantation of human cells. MCF-7 human breast cancer cells were injected in the mammary fat pad and estradiol pellets were also implanted to enhance tumor growth. Tumor growth was monitored for four weeks and tissues were harvested. The primary tumor, liver, lungs,

and abdominal adipose tissue were collected, fixed, thinly sectioned, and stained. These specimens are currently being analyzed for evidence of metastatic spreading of the MCF-7 cells. Development of improved treatment strategies for breast cancer patients that include antiviral therapies may be possible if HCMV causes increased metastatic spread. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by Jane Nelson Institute for Woman's Leadership and NSF Prime.

10. NEURAL CORRELATES FOR BALANCE PERFORMANCE IN CHRONIC STROKE: A REPETETIVE TRANSCRANIAL MAGNETIC STIMULATION STUDY. V. Parikh, A. Medley, J. Thomas, H. Goh. Physical Therapy – Dallas

Primary motor cortex (M1) and cerebellum contribute significantly to balance control. Repetitive transcranial magnetic stimulation (rTMS) to M1 and cerebellum improved different aspects of balance in young healthy adults in my pilot study. The purpose of this study was to determine the role of M1 and the cerebellum in modulating balance performance in individuals with chronic stroke using rTMS. 16 participants with chronic stroke received M1 and cerebellar rTMS. M1 rTMS improved anticipatory postural control assessed by Limits of stability (LOS) test as compared to cerebellar rTMS. On the modified Clinical Test of Sensory Interaction in Balance (mCTSIB) test, M1 rTMS improved reactive balance when proprioceptive and vestibular input was available, whereas cerebellar rTMS improved balance when only vestibular input was available. Thus, M1 and cerebellum have unique roles in mediating balance after stroke and can help with developing a targeted non-invasive brain stimulation to enhance balance recovery after stroke. (Faculty Sponsor: Dr. Hui-Ting Goh)

Supported by TWU Center for Student Research; Woodcock Institute Research Grant.

11. ADDRESSING FOOD NEOPHOBIA IN BILINGUAL HEAD START CLASSROOMS. R. Rincones, C. Warren. Nutrition & Food Sciences

Food preferences are established early in life and may play a role in the development of obesity and chronic disease. The choices young children make in regards to food is influenced by a multitude of factors including, but not limited to, taste development, food preference, parental influence and social environment. Visually exposing children to new foods through the use of books and taste testing provides teachers with an inexpensive method of increasing familiarity and consumption of nutritious foods in their schools. Five books developed at TWU depicting the characteristics, origin and function of USDA's MyPlate food groups were read to bilingual Head Start children in North Texas. Taste testing of fruits and vegetables accompanied these books. The focus of this poster is to share my experience as a bilingual nutrition student reading MyPlate books to bilingual Head Start children, while promoting the taste and sensory attributes of nutritious foods. (Faculty Sponsor: Dr. Cynthia Warren)

Supported by Texas Health and Human Services.

12. ANALYSIS OF GLOBAL CHROMATIN ALTERATIONS DURING EARLY STEPS OF CYTOMEGALOVIRUS INFECTION. H. Sclafani, C. Crandell, M. Bergel, L. Hanson. Biology

Cells can respond to certain stresses, such as UV, by compacting their chromatin. Whether other stresses, like viral binding or entry, can lead to similar compaction has not been reported. We hypothesized that cells would compact chromatin in response to viral binding and or entry. Several viruses will bind to receptors at 4oC, but not enter, allowing separation of responses to binding versus entry. We found that some cells exhibited decompaction of chromatin at 4oC, which complicates analysis in those cell types. In initial studies of virus binding, significant DNA compaction was found. However, controls using comparable preparations from stressed cells resulted in greater chromatin compaction, indicating this might be a response to material from damaged cells rather than virus binding. Results using mixtures of the preparation from stressed cells and virus supported that virus binding may inhibit or limit the chromatin compaction. Further studies are needed on viral entry. (Faculty Sponsor: Dr. Laura Hanson)

Supported by TWU Center for Student Research.

13. QUANTITY OF AGAROSE BAND RESOLUTION IMPROVEMENT WITH WELL SOLUTION. K. Wafer, E. Gaytan, R. Sport, . Mills. Biology

Agarose gel electrophoresis is the method of isolating mixtures of DNA, RNA, or proteins according to molecular size and charge. Although this is an excellent method there are some issues that can emerge. One is Smeared bands within the agarose gel caused by loading too much solution and the other is low resolution. A well solution has been formulated to assist with such issues as smeared bands and low resolutions. The objective of our experiment is to assess and demonstrate the proficiency of the well solution by running four wells on agarose gels with well solution and four channels with samples with running buffer. By the end of this experiment, we'll be able to show the effectiveness of the well solution and what this technique can do to improve RNA banding in our research. (Faculty Sponsor: Dr. Nathaniel Mills)

Supported by NSF.

14. CHARACTERIZATION OF CARBON NANOTUBES AND THEIR EXPOSURE TO CARBON DIOXIDE AND SOLVENTS. D. Woodring, J. Paniagua, S. Rubinstein, 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. Although CNTs exhibit an affinity for carbon dioxide (CO_2), little is known about their molecular interactions. Additionally, the applications for CNTs can be broadened by their dissolution in solvents. In this work, we employ two powerful spectroscopy techniques, Raman and Fourier Transform Infrared, to examine spectral features of various CNTs and how these spectra change with exposure to carbon dioxide or solvents including dichloromethane, dimethylformamide, and methyl-2-pyrrolidone. The spectra of the CNTs before and after exposure to carbon dioxide or solvents are then compared to investigate structural changes and optimal adsorption and dispersion conditions. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by Robert Welch Foundation and NSF HIS-STEM grant 1953448.

15. BIOCHEMISTRY AND HEALTH BENEFITS OF THE ZANTHOXYLUM GENUS (RUTACEAE). I. Ware, C. Maier. Biology

Zanthoxylum genus has more than 250 species worlwide. Texas Prickly Ash, native to Texas, is located in The Bettye Myers Butterfly Garden and has not been studied before. Zanthoxylum genus has been reported to be a reservoir of phytochemicals, secondary metabolites, with health- benefiting properties that can be exploited for developing new drugs with increased efficacy. Secondary metabolites, which are specific to plants, are produced in certain cells/tissues and are significant to the plant's survival since plants are immobile. Over 500 phytochemicals have been identified in Zanthoxylum, belonging to four main chemical classes, alkaloids, terpenes, flavonoids, lignans, with various biological activities. This review provides details of the traditional uses, phytochemical constituents, and health benefits of Zanthoxylum species, such as anti-pain, anti-proliferative, antimicrobial, and antimalarial activities as reported in peer-reviewed articles published in 2000-2022. (Faculty Sponsor: Dr. Camelia Maier)

16. HUMAN CYTOMEGALOVIRUS (HCMV) AMPLIFIES SIGNALING OF HOST CHEMOKINE RECEPTOR CXCR4. K. Tajuddin, J. Spencer. Biology

HCMV is a beta-Herpesvirus that establishes life-long infection in the host. HCMV manipulates host immune responses, especially cytokine and chemokine signaling networks. HCMV encodes one viral cytokine, cmvIL-10, that binds the cellular IL-10 receptor and activates transcription factor Stat3. CmvIL-10/Stat3 signaling enhances signaling outcomes for CXCR4, a chemokine receptor that plays critical roles in immune responses, development and homeostasis. When CXCR4 binds its ligand CXCL12 in the presence of cmvIL-10, calcium mobilization and cell proliferation are increased. CXCR4 has two other ligands: macrophage migration inhibitory factor (MIF) and secreted trefoil factor family 2 (TFF2). To learn whether cmvIL-10 can amplify MIF and TFF2-induced CXCR4 signaling, we evaluated cell proliferation rates. Cells exposed to MIF or TFF2 in the presence of cmvIL-10 had significantly higher proliferation rates than control cells. The results indicate that cmvIL-10 broadly amplifies CXCR4 signaling, which may contribute to impaired virus clearance and maintenance of life-long infection. (Faculty Sponsor: Dr. Juliet Spencer)

17. IDENTIFICATION OF A NEW SYMBIOTIC NITROGEN FIXATION (SNF) GENE IN *MEDICAGO TRUNCATULA* (BARREL MEDIC). A. Sabir, C. Pislariu. Biology

To identify a new SNF gene in the model legume *Medicago truncatula*, 18 Tobacco retro transposon (*Tnt1*) insertion mutant lines were screened for impaired N fixation and abnormal root nodules. From over 1,000 *Tnt1*-disrupted genes, 21 were nodule-specific, with possible roles in N fixation. One of these is the *Nodule Cysteine Rich peptide NCR113*. Segregation analysis showed that there is a correlation between this gene disruption and the observed symbiotic phenotype. Time-course phenotyping shows that the visible nodule defect starts at 10 days post inoculation with *Sinorhizobium meliloti* and becomes stronger at later time points. Significant differences were found in fresh shoot weight, dry shoot weight, shoot length, nodule number, and nodule length between wild type and mutant plants in SNF condition, or low nitrogen condition. Genetic complementation showed that introducing the wild-type version of *NCR113* into the mutant rescued the wild type phenotype. (Faculty Sponsor: Dr. Catalina Pislariu)

Supported by NSF Awards #1733470 and #2139351.

18. A NOURISHING SPACE: FACILITATING EXPERIENTIAL LEARNING IN NUTRITION AND WELLBEING COACHING . M. Prajapati, J. Cobos, C. Hong, C. Gilbert, K. Rose, D. Chavez, K. Davis, M. Massey-Stokes, F. Brito Silva, M. Kelly. Nutrition and Food Sciences – Houston

In fall 2021, TWU began A Nourishing Space (ANS), an experiential learning program for Nutrition and Health Studies students to develop nutrition and health coaching skills. The 2022-2023 cohort consists of one health studies and four nutrition student coaches who were trained in Motivational Interviewing, goal setting, and dietary assessment using a theory-based coaching curriculum. The training involved a series of presentations and client-provider role play, followed by shadowing, and peer-to-peer learning. Student coaches also learned to use social media to market their services. Marketing via the Health and Wellbeing Initiative's social media and promotional events generated over eighty requests for consultations across 3 campuses. More than 25 clients have benefited from coaching sessions, and other ANS services have been promoted to over 5,300 TWU community members. ANS students acquire critical coaching, marketing, and leadership skills that will help them successfully navigate future careers in the Wellness industry. (Faculty Sponsor: Dr. Michelle Kelly)

19. HOW ILLEGAL SUBSTANCES IN SPORTS PROVIDE PHYSIOLOGICAL AND PSYCHOLOGICAL ADVANTAGES WHILE RISKING THE HEALTH OF CONSUMERS. L. Orozco, P. Babu, A. Muller, G. Short, J. Ocon, L. Matney. Chemistry and Biochemistry

For CHEM 1101 Horizons: Chemistry and Biochemistry: Drug testing is a modern process in collegiate and professional sports, in which athletes are tested for substances that have been marked illegal by the organization. The National Collegiate Athletic Association (NCAA) is very strict with their regulations on substances used in collegiate sports, creating a list of banned substances that includes stimulants, cannabinoids, hormones, and stimulants. Selective Androgen Receptor Modulators (SARMs), Testosterone, Amphetamines, and Tetrahydrocannabinol (THC) Delta 8 all show to have a significant effect on athletic performance, and with increases of strength, speed and overall mentality, these drugs provide an advantage whilst creating long term physical, internal and psychological effects. The unnatural athletic advantage, dangers of overuse and improper consumption along with the possibility for health concerns can determine whether the risk of taking these substances is worth the athletic achievements that can come as a result. (Faculty Sponsor: Dr. Mary Anderson)

20. THE INTERACTION OF A GEMINI SURFACTANT WITH A DNA QUADRUPLEX. H. Nembaware, R. Sheardy, A. Ginegaw, K. Cummings, A. Jordan, P. Justice, S. Lang, N. Caracena, R. Dominguez. Chemistry and Biochemistry

DNA secondary structures are stabilized by mono and divalent cations. To examine the stability of the DNA quadruplex formed from (TTAGGG)4, its interaction with a dicationic Gemini surfactant in standard phosphate buffer was investigated. The Gemini surfactant begins to form micelles in buffer at a cmc (critical micelle concentration) of 1.5 mM. In this study, solutions of DNA, ranging from 1.4 to 11 µM, were prepared in buffer with surfactant concentrations ranging from 0.0 to 3.0 mM - i.e., above and below the cmc of the surfactant. In all samples of DNA and surfactant, a precipitate formed. After centrifugation of these samples, the supernatant was probed for DNA by spectroscopic techniques (UV/Vis and CD). In some samples, all of the DNA had precipitated; in some samples, only a fraction of DNA had precipitated. The

formation of the precipitate is a function of [DNA]/[surfactant]. (Faculty Sponsor: Dr. Richard Sheardy)

Supported by Robert A. Welch Foundation.

21. SINGLE CELL TRANSCRIPTOMICS OF ACTIVATED HUMAN T CELLS. M. Morse, A. Kenning, S. Sinha. Biology

T cells play a critical role in adaptive immunity. Human T cells uniquely express Signal Regulatory Protein Gamma (SIRPγ), an immunomodulatory protein. The function of SIRPγ still remains unclear but is associated with autoimmune diseases including Type 1 diabetes, relapsing-remitting multiple sclerosis, and systemic lupus erythematosus. We have previously shown that low expression of SIRPγ is associated with heightened effector response on CD8 human T cells. It is unknown how mediated SIRPγ regulates effector response in human T cells. Single cell transcriptomes was performed to investigate genes upregulated and downregulated in activated CD8 T cells that are SIRPG positive and negative. (Faculty Sponsor: Dr. Sushmita Sinha)

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

22. COMPUTATIONAL CHEMISTRY ON INVESTIGATING COPPER, NITROGEN-DOPED GRAPHENE CATALYST FOR CO2 REDUCTION REACTIONS. Y. Kim, S. Lin. Chemistry and Biochemistry

A CO2 reduction reaction is a series of chemical reactions that converts CO2 into potential products and applications. The products of CO2RR include C1 products, such as CO, HCOOH, and CH4, and C2+ products, including C2H4, ethanol, and so on. For example, a C1 product, such as CH4, or methane, is mainly used in natural gas and metal smelting. On the other hand, a different C1 product, CO, carbon monoxide, is used directly as fuel. Therefore, the selectivity of catalysts toward CO2RR is crucial. In our project, we use Cu@4N graphene material for CO2RR by density functional theory (DFT) computations. In our research, we investigate different reaction pathways and products to see their reaction energies and find whether Cu@4N graphene is an ideal catalyst for CO2RR. If Cu@4N graphene is a suitable catalyst, we can also see which C1 product is the most favorable on Cu@4N. (Faculty Sponsor: Dr. Shiru Lin)

23. HUMAN CYTOMEGALOVIRUS (HCMV) REDUCES ESTROGEN RECEPTOR-A (ERA) AND PROGESTERONE RECEPTOR (PR) LEVELS IN BREAST CANCER CELLS. E. Garcia, J. Spencer. Biology

Breast cancer is the most commonly diagnosed cancer in American women, and the majority of these tumors are positive for hormone receptors ERα, PR, or both. These proteins promote cell proliferation, making them major treatment targets for current standards of care. While many factors affect tumor progression, the impact of HCMV, a widespread virus that lays dormant in the majority of the population, remains unclear. One study reported that breast tumor tissue with high levels of HCMV proteins had reduced levels of ERα and PR. To investigate whether HCMV causes this downregulation, we infected breast cancer cell lines and observed a dramatic reduction of ERα and PR protein levels. We also found reduced expression of the genes encoding ERα and PR in HCMV-infected cells, suggesting that virus infection suppresses transcription of these hormone receptors. Our results suggest that anti-viral therapies may improve treatment outcomes for breast cancer patients with HCMV. (Faculty Sponsor: Dr. Juliet Spencer)

Supported by TWU Center for Student Research and TWU REP.

24. THE IMPORTANCE OF EARLY FINANCIAL LITERACY WITH PARENTS AND SCHOOLS. J. Commodore. Human Development, Family Studies, and Counseling

The Importance of Early Financial Literacy with Parents and Schools
The importance of early financial literacy begins at the primary educational level. Children first learn from their parents. Parent(s) who support their child(ren) early afford their child(ren) an advantage ahead of others, specifically in financial literacy. Social class and race may dictate the reason that parents and educators have not participated in educating young children in regard to handling money. Research has shown that millennials, regardless of social class and race, have regrets about not learning the importance of money and how to handle finances from their parents. Some researchers theorize that race and social class are connected in various ways, one being minority families' poverty level that lasts for generations. However, in poor White families, poverty may only be one degree of separation away from financial stability. It is imperative that children become financially literate to obliterate poverty. (Faculty Sponsor: Dr. Joyce Armstrong)

25. MICROBIOME MUNCHIES: THE GUT MICROBIOME'S EFFECT ON FOOD CRAVINGS. B. Charanza. Nutrition & Food Sciences

Interest in the gut microbiome has steadily increased in the last 5 years. The gut microbiome is a collection of over 1,000 different species of bacteria that reside in the human intestinal tract. The gut microbiome has been shown to have an undeniable effect on the brain. The enteric nervous system, deemed as the body's "second brain", communicates with the CNS via neurons and neurotransmitters that impact stress, mood, and memory This gut-brain connection could contribute to food cravings. Depending on the concentrations of neurotransmitters and hormones being communicated, intestinal bacteria could subsequently encourage the host to gravitate towards certain foods that the bacteria favor. The purpose of this poster is to provide connections between the gut microbiome's condition* and its effect on the host's eating behaviors. The gut microbiome will be explored as a potential cause of the host's dysregulated food cravings for highly processed, non-nutrient dense food. (Faculty Sponsor: Dr. Cynthia Warren)

Wednesday, April 19, 6:00 p.m. - 7:20 p.m.
Student Union 2300 (Southwest Ballroom)

1. NEUROPLASTICITY IN THE RAT TRIGEMINAL NUCLEUS CAUDALIS FOLLOWING OROFACIAL INFLAMMATION. S. Adhikari, K. Podges, D. Cantu, D. Averitt. Biology

Orofacial pain affects ~20% of the worldwide population, but it is unclear why some patients transition from acute to chronic pain. Orofacial pain is relayed by the trigeminal sensory system, involving activation of nociceptors to send pain signals via Aδ and C fibers to the brainstem trigeminal nucleus caudalis (TNC). We investigated whether orofacial inflammation evokes changes in microglia or sensory neuron innervation of the TNC. Rat vibrissal pads were injected with Complete Freund's adjuvant (or saline as a negative control) to induce inflammation. TNC were collected 2 weeks later and processed by immunohistochemistry to visualize Iba1 (microglia), peripherin (C fibers), and NF200 (Aδ fibers). We observed a significant increase in peripherin and NF200 immunoreactive fibers in the TNC of inflamed vs non- inflamed rats, while microglia immunoreactivity was comparable. We propose that orofacial inflammation increases sensory neuron innervation

of the TNC, which may contribute to the chronification of orofacial pain. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NSF TWU-PRIME, TWU Center for Student Research, NIH NIDCR F31 DE031959, NIH NICDR R15 DE025970, and an NIH Diversity Supplement.

2. QUANTIFICATION OF TOTAL POLYPHENOLS IN 410 CUCUMBERS (CUCURBIS SATIVUS) FOR GENOME-WIDE ASSOCIATION STUDIES (GWAS) UNDER GREENHOUSE AND OPEN FIELD GROWN CONDITIONS. T. Edwards, X. Du, Y. Weng. Nutrition & Food Sciences

This study aimed to investigate the impact of field conditions and variety on the total polyphenolic content (TPC) in 410 GWAS cucumbers grown under greenhouse (GH) and open field (OF). To analyze the TPC, the cucumber samples were spectrophotometrically analyzed at 750 nm through the Folin-Ciocalteu method using a gallic acid calibration curve; results were expressed as gallic acid equivalent (mg GAE/100 g). The greenhouse cucumbers resulted in an average of 12.13 mg GAE/100 g ranging 8.03-17.12 mg GAE/100 g, and open field averaged 12.86 mg GAE/100 g ranging 5.30- 25.30 mg GAE/100 g. The average GAE contents for both conditions were comparable, however the open field cucumbers had more variability. The results indicated that the total polyphenolic content is variety and environmental condition dependent. (Faculty Sponsor: Dr. Xiaofen Du)

Supported by USDA-NIFA.

3. MODIFICATIONS TO DNA IN THE PRESENCE OF THE ANTINEOPLASTIC AGENTS, CARBOPLATIN AND HEPTAPLATIN. L. French, S. Wappes, N. Mirsaleh-Kohan. Chemistry and Biochemistry

Currently, platinum-based anticancer drugs are the mainstay of the chemotherapy regimens designed to cure most cancers. Like all the platinum-based antineoplastic complexes currently in use, two such drug complexes, Carboplatin and Heptaplatin, have shown significant antitumor activity but also cause 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. In order 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 each of the platinum-based antineoplastics, Carboplatin and Heptaplatin, will be examined under various experimental conditions, including varying concentrations and incubation periods. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by The Robert A. Welch Foundation and TWU Center for Student Research.

4. SYNTHESIS OF NOVEL BISAMIDOXIME COMPOUNDS FOR USE AS POTENTIAL ANTI-CANCER AGENTS. A. Gonzalez, R. Petros. Chemistry and Biochemistry

Novel bisamidoximes have been found to be effective against cancer cells by inhibiting histone modifiers, such as HDAC and HAT enzymes. This inhibitor targets the zinc ion in the histone enzymes' active site. In this study, we describe the synthesis of bisamidoximes using a three-step reaction scheme that can be used to prepare the target compounds in multigram yields. The first reaction converts commercially available aldehydes into oximes. The resulting oximes were then converted to hydroximoyl chlorides, which were highly reactive toward acyl- substitution reactions. Finally, hydroximoyl chlorides were reacted with diamines to form bisamidoximes. Synthetic details and characterization via NMR spectroscopy will be discussed. (Faculty Sponsor: Dr. Rob Petros)

Supported by NSF HSI-STEM Award #1953448, the Welch Foundation Departmental Award M-0200.

5. ASSESSING EFFICACY OF CISPLATIN AND NEDAPLATIN CANCER DRUGS. J. Hernandez, S. Wappes, N. Mirsaleh-Kohan. Chemistry and Biochemistry

Discovery of new anticancer drugs depends on understanding the specific interactions governing the behavior of current platinum drugs with cellular targets and identifying the ligands interacting with the DNA. Platinum drugs have been deemed effective and efficient for treating various cancers. However, the toxic side effects and increased resistance to cisplatin warrant improvements in current platinum-based anticancer drugs. Here we discuss the results of a dinucleotide treated with cisplatin and nedaplatin to understand the influence of the experimental conditions on the interactions of the platinated DNA by analyzing the effects of the concentration ratios, pH, and incubation periods. The results will have implications on the optimal conditions necessary for improvements to the current platinum anticancer drugs used and, eventually, in designing new metal-based anticancer complexes. This work can further lead to valuable insights into long-standing problems of platinum drug limitations and can benefit cancer research and therapies. (Faculty Sponsor: Dr. Nasrin Mirsaleh-Kohan)

Supported by Robert A. Welch Foundation and TWU Center for Student Research.

6. THE EFFECTIVENESS OF CREATIVE ARTS THERAPY ON PEDIATRIC CLIENTS IN CRISIS: A META-ANALYSIS . S. Keck. Human Development, Family Studies, and Counseling

The aim of this project is to showcase the ways in which creative arts therapy can aid in the healing of children and adolescents Receiving medical intervention for traumatic experiences. The limitless ability to express one's emotions, fears, and innermost thoughts through art and play can be crucial in recovering from events that result in Pediatric Medical Traumatic Stress (PMTS), Post Traumatic Stress Disorder (PTSD) or other psychological conditions. Creative arts therapy, in all its forms, can serve both children and adolescents suffering from any of these disorders. The awareness and availability of creative arts therapy for these populations allows for further recovery, expression, and healing from mental and emotional trauma. This meta-analysis will examine the effectiveness of creative arts therapy of clients who are traumatized. (Faculty Sponsor: Dr. Renee Herrin)

7. EXPLORING MORAL DISTRESS IN BACCALAUREATE NURSING STUDENTS. I. Kenneke, J. Spadachene. Nursing – Dallas

Nurses' careers are being negatively impacted by burnout, anxiety, and depression as a result of moral distress, affecting their ability to thrive in their careers. Moral distress is the experience of having painful and conflicting feelings over knowing the morally correct action to take but being unable to do so due to outside constraints. Nursing students attending hospital clinicals are frequently exposed to high workloads, poor patient outcomes and patient death experiences, placing students at risk for moral distress. Nursing

students' sense of moral distress is known to be associated with a sense of powerlessness, decisions in ethical behaviors, and hospital constraints. Students' experiences of moral distress during their clinical rotations has been minimally explored in the extant literature. This study utilizes semi- structured interviews with focus groups of three to five baccalaureate nursing students to explore pre-licensure nursing students' perceptions of moral distress during their clinical rotations. (Faculty Sponsor: Professor Joy Spadachene)

8. THE ROLE OF HSF1 INHIBITOR, HSP70, ON THE SYNTHESIS OF RRNA BY POL II IN SACCHAROMYCES CEREVISIAE . G. Marquez, H. Conrad-Webb. Biology

The expensive and essential step in ribosome production is the synthesis of rRNA by RNApolymerase I (pol I). During chronic stress, cells use pol II over pol I to synthesize rRNA. Heat Shock Factor 1 (Hsf1) binds to the pol II rDNA promoter suggesting a role in pol II rRNA synthesis. During stress, Hsf1 is activated by phosphorylation and the release of an inhibitor, Hsp70. As expected, the phosphomemic allele of Hsf1 activates pol II rRNA synthesis in both stress and non-stress conditions. We hypothesize that Hsp70 is contributing to the regulation of this phenomenon by inhibiting Hsf1 during normal conditions. Thus, a strain without Hsp70 will show increased transcription of rRNA by pol II in all conditions. We will use modified qPCR to test this hypothesis by determining the ratio of pol II rRNA transcription to total rRNA transcription. These studies will aid our understanding of rRNA synthesis. (Faculty Sponsor: Dr. Heather Conrad-Webb)

Supported by NSF PRIME, HIS-STEM Award #1953448.

9. AWARENESS OF IMPLICIT BIAS AND THE INCLINATION TO CHANGE BEHAVIOR. K. Miller, D. Vasquez, E. Parr, P. Lacrosse, I. Smith. Social Work, Psychology and Philosophy

This study examined awareness of bias as a catalyst to behavioral change among individuals. Previous research regarding weight bias and stigma have concluded that they have substantial negative psychological and physiological effects, and can lead to damaging coping behaviors. IAT's (Implicit Association Tests) have been used in scientific studies to measure bias towards weight and have been key in many studies who have looked to mitigate weight stigma at a large scale. Our study used a sample of 30 individuals who completed two rounds of the Harvard ('Fat - Thin' IAT). Two groups of participants were separated, with the experimental group receiving their first test's results before taking the test again. The findings of this study back up past research that has looked at the effects of the awareness of bias and mitigating actions and feelings of bias. No statistically significant results were found between the control and experimental groups, however, there was a considerable trend in data that implies awareness of bias mitigates bias. (Faculty Sponsor: Dr. Alannah Rivers)

10. "ALL PARTS OF ME HAVE BEEN CHANGED:" UNDERSTANDING THE PROCESS TO THE EXPERTISE WITH CAREGIVERS OF HOSPITALIZED INFANTS WITH CRITICAL CONGENITAL HEART DISEASE. S. Rogers. Occupational Therapy - Denton

The purpose of this constructivist grounded theory study was to construct an explanatory theory to uncover the process that caregivers of hospitalized infants with critical congenital heart disease (CCHD) go through to become experts of their infant's care in the critical care setting. Fifteen mothers and one father participated in intensive, semi- structured interviews. Data collection, data analysis, and theory formation transpired through an iterative process of constant comparison within and amongst data cases, theoretical sampling, memos, and participant feedback. The Process Model to Caregiver Expertise was co- constructed with caregivers and demonstrates that caregiver confidence develops over time, in phases, and through active participation in caregiving tasks. Further, caregivers need prompt peer and mentorship connections and early active participation in caregiving tasks to hasten their transformation into independent, expert caregivers. Knowing this process may empower caregivers to understand their journey and guide education, support, and tool development for healthcare providers. (Faculty Sponsor: Dr. Noralyn Pickens)

Supported by TWU Center for Student Research.

11. TRPV1-DEPENDENT ANTIPROLIFERATIVE ACTIVITIES OF DIOECIOUS MACLURA POMIFERA EXTRACTS IN ER-POSITIVE BREAST CANCER CELL LINES . M. Rumpa, C. Maier. Biology

Our previous research revealed the antiproliferative activities of dioecious Maclura pomifera. The goal of this research is to determine the mechanism (s) of actions of M. pomifera extracts in the breast cancer cell lines. We hypothesized that M. pomifera phytochemicals trigger apoptosis through the mitochondrial apoptotic pathway due to intracellular calcium overload via TRPV1. Blocking TRPV1 with capsazepine, and chelating calcium with BAPTA-AM significantly increased cell viability, meaning that M. pomifera extracts activate TRPV1, and overloading cells with calcium ions. Apoptosis was detected by TUNEL assays. Immunofluorescence staining with Mito-tracker green and Rhod2-AM showed that calcium ions are overloading mitochondria. Western-blot analysis revealed higher activation of apoptotic proteins Bax, Caspase-9, Caspase-3, Caspase-8, FADD and lower activation of anti-apoptotic Bcl-2, supporting our hypothesis that male and female M. pomifera extracts induce mitochondrial extrinsic and intrinsic apoptotic pathways via TRPV1. This findings could lead to the discovery of new cancer treatment drugs. (Faculty Sponsor: Dr. Camelia Maier)

12. ENGINEERING A LIVING BRAIN PHANTON TO STUDY THE NEUROBIOLOGY OF TBI. N. Smith, A. Baker, M. Tartis, Z. Lybrand. Biology

Brain organoids are 3D tissue cultures that mimic cortical structure and function. We have seen the mechanical properties of pressure waves to traumatic brain injury (TBI), but the tissue properties are likely different from the grey and white matter of the human cortex. The purpose of this research is to integrate organoids into a gel that replicates the mechanical properties of the brain. To do this, we have developed a method to embed organoids into polymer molds (e.g. brain phantoms) that share the same mechanical properties of grey and white matter. This protocol was developed by viability testing, identifying optimal extracellular matrix composition, and microwell geometry testing. The goal is to study the neurophysiological properties of the embedded organoid in response to TBI mechanics. Using this phantom, we will understand how neural network geometry and orientation are affected by injury and how different head traumas affect the body. (Faculty Sponsor: Dr. Zane Lybrand)

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

13. ANAEROBIC PERFORMANCE DURING OVULATION AND THE MID-LUTEAL PHASES OF THE MENSTRUAL CYCLE . N. Varone, C.

Clark, C. Morse, J. Mallillin, A. Flores, A. Kreutzer, B. Rigby, K. Biggerstaff. Health Promotion and Kinesiology

The purpose of this study is to measure upper and lower body anaerobic performance during ovulation versus the mid-luteal phase of the menstrual cycle in collegiate female wrestlers. METHODS: Six wrestlers performed both upper and lower body Wingate tests, each lasting 30 seconds, during the ovulation and the mid-luteal phases of the menstrual cycle. Menstrual cycle phases were determined by calendar tracking, reverse estimation of ovulation, and administration of a urinary luteinizing hormone test assessed daily until positive results indicated ovulation. Paired t-tests were used to analyze differences in means during the ovulation vs mid- luteal phases with a significance level of 0.05. RESULTS: There was no significance found in any measured variable. Lower body peak power (W) was 848.3 ± 126.1W vs 855.0 ± 143.9W. Lower body relative power (W/kg) was 11.8 ± 0.7W/kg vs 11.9 ± 0.8W/kg. Upper body peak power (W) was 162.1 ± 29.6 vs 160.2 ± 13.2W. Upper body relative power (W/kg) was 2.3 ± 0.4W/kg vs 2.2 ± 0.2W/kg. Conclusion: There may not be an optimal timing of significantly increased anaerobic performance in regard to menstrual phase in these wrestlers. (Faculty Sponsor: Dr. Kyle Biggerstaff)

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

14. CHARACTERIZING SINGLE CELL RNA SEQUENCING OF CEREBRAL ORGANOIDS IN A BLAST TRAUMATIC BRAIN INJURY MODEL. N. Yasin, T. Vu, A. Gomez, Z. Lybrand. Biology

Neurodegeneration is a characteristic of many incurable diseases increasing in prevalence, such as Alzheimer's and Chronic Traumatic Encephalopathy (CTE). CTE results from repetitive mild traumatic brain injury (mTBIs), commonly experienced by athletes and soldiers. Limited understanding of the mechanism due to the lack of in-vitro models of mTBIs prevents adequate diagnosis and treatment of CTE. Previously, we characterized parameters of mTBIs in vitro using human cerebral organoids. Here, we used parameters in the mTBI range to examine transcriptomic changes of separate cell populations in brain organoids to understand potential mechanisms of injury-induced neurodegeneration better. Preliminary analysis indicates pathways involved in protein degradation via ubiquitination and integral membrane proteins are disrupted in response to blast parameters. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by TWU Chancellor's Research Fellows Program, Jane Nelson Institute for Women's Leadership, and McIntire Travel Award.

15. MEMORY RECALL AND NON-SEXUAL PHYSICAL TOUCH INTERVENTION IN COUPLES WITH TRAUMA HISTORY. A. Veasey, A. Jones. Human Development, Family Studies, and Counseling

Touch has been associated with promoting feelings of trust, intimacy, and positive affect in romantic relationships. Yet trauma-related symptoms, such as restricted affect and anhedonia, may be a barrier to feelings of intimacy and connectedness in couples when one or both partners have a history of trauma (Riggs, 2014). The primary author's clinical experience as a licensed therapist inspired the current study. Based on the author's clinical work with couples, physical touch often becomes associated with avoidance of physical and emotional intimacy. This study aims to understand how non-sexual physical touch influences feelings of connectedness and intimacy among single- and dual-trauma couples. Biofeedback measures will be collected while couples will engage in a memory recall and non-sexual physical touch intervention. The data collected from the current study may provide valuable insight into the objective and subjective experiences of intimacy and connectedness in single- and dual-trauma couples. (Faculty Sponsor: Dr. Adam Jones)

Supported by TWU Experiential Student Scholar Program.

16. WHAT THE SEL? COMMON MISCONCEPTIONS OF SOCIAL-EMOTIONAL LEARNING ON SOCIAL MEDIA. F. Sprayberry, M. Chavez, C. Williams, A. Addo. Human Development, Family Studies, and Counseling

With the plenitude of online resources with information about Social Emotional Learning (SEL), there is a growth in misconceptions about it, and its definitions. These misconceptions may originate from imprecise language, lack of examples or non-examples as well as the misrepresentation of SEL in media, it is important to address its definition, importance, and positive outcomes. This qualitative study aims to understand the misconceptions about SEL. By examining public blog posts and comments, we provide in-depth knowledge about the misconstructions of SEL. Our aim is then to promote the development of strategic training and educational policies to better inform all stakeholders on the development, importance, conceptual language, and need for Social and Emotional Learning. (Faculty Sponsor: Dr. Catherine Dutton)

17. HEALTH AND WELLBEING 2021 SURVEY. P. Silva, F. Brito Silva, M. Kelly. Student Life

The purpose of the Health and Wellbeing survey was to better understand students' views and behaviors related to all five theme areas (Build Well, Eat Well, Mind Well, Move Well, and Spend Well) across TWU campuses. The results showed common themes among student populations (N = 1,397) including a strong belief that practicing self-care makes them more effective students. However, most students also reported rarely engaging in activities that improve their wellbeing and graduate students showed a lower sense of belonging. Additionally, graduate students scored higher for food security, financial literacy, and wellbeing while undergraduate students rated higher for depression and anxiety. Finally, Asian and White students have higher food security status than Black and Latinx students while White students have higher financial literacy than Black and Latinx students. Detailed results and future directions to improve the overall wellbeing of the TWU's students will be further discussed in the presentation. (Faculty Sponsor: Dr. Michelle Kelly)

18. DIFFERENTIAL EFFECTS OF DRY NEEDLING ON PAIN SENSITIVITY IN ADULTS WITH HIGH AND LOW CENTRAL SENSITIZATION - A PRELIMINARY REPORT. M. Rood, B. Whitmore, S. Wang-Price, J. Zafereo. Physical Therapy – Dallas

The purpose of this study was to examine the immediate effects of a single session of DN on pain sensitivity in chronic low back pain (CLBP) patients with high central sensitization (CS) (n=12) and those with low CS (n=12). Each participant underwent 3 quantitative sensory tests (QSTs): pressure pain threshold (PPT), temporal summation (TS) and conditioned pain modulation (CPM) at LB and tibias anterior (TA) before and after a single session of DN. The results showed no significant difference in PPTs between groups for

both the LB (p = 0.019) and TA (p = 0.033). However, only the low CS group had statistically significant improvements in the PPT of the TA (p = 0.022), the TS of the LB (p = 0.008) and the TS of the TA (p = 0.001). The preliminary analysis suggest that a single session of DN only altered pain sensitivity in the low CS group. (Faculty Sponsor: Dr. Sharon Wang-Price)

19. EARLY INDICATORS OF SEXUAL & GENDER IDENTITY: A SECONDARY ANALYSIS OF REDDIT DISCUSSIONS. F. Rhodes-Bonnot, I. Johnson. Human Development, Family Studies, and Counseling

Early Indicators of Sexual & Gender Identity: A Secondary Analysis of Reddit DiscussionsThis project explores early self-reported indicators of sexual and gender orientation for kink identified people in the community. We investigate the interactions, life events, or representations in media or pop culture that are perceived by the respondents to be catalyzing components that drove exploration of gender and sexual identity. Using a critical and interpretive perspective throughout our research we aim to expose perpetual stereotypes surrounding sexual and gender minorities in order to increase the understanding of developmental trajectory of sexual and gender identity in our target group. (Faculty Sponsor: Dr. Catherine Dutton)

20. THE HISTORY AND DEVELOPMENT OF WOMEN AS MINORITIES IN STEM . C. Martinez, A. Martin, I. Ojinnaka. Mathematics

This paper intends to enlighten society about how women are minorities in STEM (Science, Technology, Engineering, and Mathematics) and how they still fight to be relevant in the career paths today. The paper accentuates the history and advancement of women in STEM fields and the challenges pioneer women faced when joining male-dominated fields. Statistics and graphs that compare men and women in STEM fields will be used in this paper to elucidate the progress women have made throughout history and in modern society today. The goal of this paper is to raise awareness about the battles women have fought to enter STEM fields and the gender inequality they experience, so the injustice women face to this day can be minimized for future generations. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

21. DESIGN AND SYNTHESIS OF ENVIRONMENTALLY FRIENDLY NEW COPPER- CAFFEINE BASED COMPLEXES VIA GREENER SYNTHETIC METHODS PART OF INTEGRATING RESEARCH INTO INORGANIC CHEMISTRY UNDERGRADUATE LABS . H. Kouadio, M. Rawashdeh-Omary, B. Hitt, V. Nesterov, S. Adhikari, P. Rijal. Chemistry and Biochemistry

This project was part of the senior inorganic chemistry laboratory course, Chem 4511, led under Professor Dr. Manal Rawashdeh-Omary. The Fall-2022 discovery project focused on environmentally-friendly synthetic alternatives compared to traditional solvent-based reactions that use hazardous organic solvents. Other benefits of this lab style is that students have the ability to learn two different synthetic techniques: a solvent-mediated synthesis in an air-free Schlenk line technique where they synthesized copper acetonitrile from the literature and used the copper acetonitrile to further synthesize other products. The second synthesis was a greener solventless synthesis by mechanical grinding, sublimation, or microwave of the copper halide group with caffeine using different ratios. Lastly, students are introduced to multi-faceted instrumentation techniques en route to characterizing the synthesized compounds to ascertain their purity/unambiguous characterization as well as screening their most significant properties toward a potential application (e.g., FT-IR, NMR, X-ray structure, luminescence, UV-Vis, TGA, BET surface area, etc.). (Faculty Sponsor: Dr. Manal Rawashdeh-Omary)

22. ASSESSING PAIN BEHAVIORS IN A RAT UNILATERAL ANTERIOR CROSSBITE MODEL. E. Keene, T. Hickman, D. Averitt. Biology

The objective for this investigation was to develop and characterize a clinically-relevant rat model of temporomandibular joint disorder (TMD) pain using the unilateral anterior crossbite (UAC) method. We employed a battery of pain behavior assays in adult female rats to detect mechanical allodynia (response to a non-noxious stimulus) and hyperalgesia (enhanced response to a noxious stimulus) at the temporomandibular joint (TMJ), periorbital region, and the hindpaw. Following baseline behavior testing, we attached the UAC or sham dental prosthesis to the front teeth using dental cement to induce a crossbite. Behavior testing resumed the following week and was conducted over two days every week for one month. Our results indicate the onset of TMD pain behaviors at the TMJ at two weeks following prosthesis attachment. Pain behaviors were not observed in the rat hindpaw or the periorbital region. Our findings provide a novel and clinically relevant rat model of TMJD pain. (Faculty Sponsor: Dr. Dayna Averitt)

Supported by NSF HIS-STEM Award #1953448, NIH NIDCR R15 DE025970, TWU REP, and TWU Center For Student Research.

23. UNDERSTANDING ADULTS' PERCEPTIONS AND DESCRIPTIONS OF NARCISSISTIC PARENTING: AN ANALYSIS OF REDDIT DISCUSSIONS. D. Jones, K. Njoku-Ibe, J. Wiley, F. Burleson. Human Development, Family Studies, and Counseling

This study examines how adults in online subreddit communities describe behaviors associated with a narcissistic parent. By providing personal accounts of individuals who have grown up with a narcissistic parent, we hope to contribute to the ongoing conversation by gaining a deeper understanding of these unique encounters. Additionally, this research increases understanding of the complex nature of narcissistic abuse and may inform interventions and support services for this population. (Faculty Sponsor: Dr. Catherine Dutton)

24. THE LOGNORMAL DISTRIBUTION: ONE METHOD OF WORKING WITH SKEWED DATA DISTRIBUTIONS. N. Gutzler, M. Moore. Mathematics

Often, we come across a distribution that is highly skewed. As a result, we can't use the many tools at our disposal that we have when working with symmetric or Normal distributions. There are a variety of methods to deal with skewed data, one of the most common is called the LogNormal distribution. Using this method, we can use logarithms to 'normalize' the data and then use the statistical methods that we are familiar with for normal distributions. Once we have our results, we can then transform these values back to their corresponding original values. Lognormal distributions are commonly used in finance, engineering, biology, and medicine. (Faculty Sponsor: Dr. Brandi Falley)

25. 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, and deficits in cognitive, motor, and emotional abilities. This

study aims to develop in vitro cortical grafts capable of integrating into host brain tissue 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 + graft, TBI + no graft, 'sham' + graft, 'sham'+ no graft, or sham. Following surgical procedures, mice were monitored daily using a modified neurological severity score. Additional motor-specific tests were performed to evaluate left vs right forelimb impairment. By 4 weeks following injury, mice that received TBI + graft showed improvements in motor function of the contralateral arm from the injury site compared to mice that received 'sham' or sham procedures. (Faculty Sponsor: Dr. Zane Lybrand)

Supported by TWU Center for Student Research.

26. FOODBORNE PATHOGENS AND THEIR IMPACT ON THE FOOD SERVICE INDUSTRY. C. Edwards. Nutrition & Food Sciences

Bacteria can be found everywhere. It is on our hands, the surfaces we touch every day, and even in the food that we eat. It is usually harmless and can even be beneficial, however not all bacteria are good, some can make us very sick. The types of bacteria that result in illness are called pathogens. When these pathogens are foodborne they can have a substantial impact on the food service industry and can lead to events such as recalls. However, there are measures that can be taken to avoid these pathogens within the industry. This project focuses on those pathogens, the impact they have on the food service industry, and the measures that can be taken to avoid them. (Faculty Sponsor: Dr. Danhui Wang)

27. EFFECTS OF SOCIOECONOMIC FACTORS ON STEM HIGHER EDUCATION. S. Chhuon, T. Kirvin, J. Vàzquez, A. Rodriguez. Mathematics

This paper aims to bring awareness to low socioeconomic statuses, how individuals in the affected statuses are treated, and to show what that impact might look like. We will look at how parents' status affects their children up for future success. We will look at the barriers that students must overcome in STEM when they are susceptible to a lower socioeconomic status. One important question: How are students with lower statuses treated differently from others? We also would like to keep in mind that those who are treated differently because of their socioeconomic status can also be affected mentally, especially while pursuing STEM education. After researching, we want to look for some good resources that can help with these issues. As Pioneers, we want to present a range of solutions that have been implemented in higher education here in the US. (Faculty Sponsor: Dr. Junalyn Navarra- Madsen)

ABSTRACTS FOR VIRTUAL PRESENTATIONS

Abstracts are listed in the department of the faculty sponsor.

Tuesday, April 18, 9:00 a.m. - 10:20 a.m.
Virtual Session (Minerva Track)

1. THE PAY GAP FOR WOMEN IN STEM FIELDS . J. Gutierrez, R. Rosas, M. Akrivouli, G. Rivera. Mathematics

This paper aims to raise awareness about women in the STEM field and the disparities in the pay gap between men and women in the U.S. Emphasis will be placed on the aspects of the wage gap in STEM fields such as engineering, computer science, architecture, and education. Using recent sources encompassing workforce-based statistical data to define the wage gap. Sources include research from current times, such as the COVID-19 pandemic lockdown; to better give the perspective of the ongoing issue. We will delve into policies that have been put in place to help protect women against gender wage gaps. Looking further into the subject matter, we will showcase the importance of women practicing in these fields and why this is a critical issue to showcase. Overall, one will better understand how and why the wage gaps affect women in the various STEM fields. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

2. WOMEN AND CHILDREN: THE DOUBLE DIVIDEND OF GENDER EQUALITY. S. Wright, B. Stafford, F. Abdilahi. Mathematics

In this paper we hope to define the double dividend of gender equality and briefly review the history of gender discrimination and inequality, as well as explain the ways in which power in the home, workplace, and political spheres affect the confidence and productivity of children. This will be done by discussing the changes in gender equality from the early 2000s to present day as well as reviewing statistics of women in the household, political sphere and workplace and its influence on our youth. In doing so, we hope to demonstrate the current issues women are facing, and how change in any of these realms influences the confidence and equality of the next generation. In writing this paper we hope to present an objective and factual analysis of the benefits of gender equality, and how it produces a double dividend that benefits women while leaving a profound impact on children. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

3. CONCURRENT VALIDITY OF THE SINGLE ASSESSMENT NUMERICAL EVALUATION IN PATIENTS WITH HIP RELATED PAIN. E. Bergman, J. Wells, R. Patel, M. French. Physical Therapy – Houston

Patient reported functional outcome measures (PROMs) are a standard way of measuring outcomes of care in orthopedic practice. Numerous condition specific PROMs have been validated for people with hip pain. Practitioner selection of the appropriate PROM and the time it takes to administer them can be barriers to precisely measuring functional outcomes. Clinically, a single assessment numerical evaluation (SANE) is used as an alternative to PROMs because of its brevity. This SANE has concurrent validity with several PROMs in musculoskeletal conditions including hip-specific PROMs. This retrospective study will utilize an existing database to validate previous findings that found acceptable concurrent validity between the SANE and hip specific PROMs. We will also examine the strength of the correlation between each PROM and the patient's diagnosis. We hypothesize that the PROM which is validated for the hip diagnostic condition indicated in the medical record will correlate most closely with the SANE score. (Faculty Sponsor: Dr. Rupal Patel)

Supported by TWU Experiential Scholars Program and NCMRR-R25 ReproRehab Fellowship Program.

4. DISGUST, DEITIES, AND DATING: THE RELATIONSHIP BETWEEN PERSONALITY, RELIGIOUS AFFILIATION, AND ATTRACTION. E. Brown, J. Terrizzi Jr. Social Work, Psychology and Philosophy

The varying degrees of religiosity and sensitivity to disgust in each individual can impact personal attraction to others. The creation of biases affect perceptions of others and willingness to develop personal relationships. Those with higher levels of religiosity are typically lower in openness, and higher in sensitivity to disgust, which raises skepticism towards others, specifically those who are not similar to oneself. This study was designed to examine these relationships between religiosity, disgust, and interpersonal attraction. Texas Woman's University students were asked a series of questions regarding their own religious affiliations, reactions to potentially "disgusting" scenarios, and perceptions of various profiles of individuals who had either light or dark skin tones and either were or were not religious. The sample of 255 students provided statistically significant results that support the idea that optimistic attitudes toward those who are similar to the individual, and negative attitudes toward those who are not. (Faculty Sponsor: Dr. John Terrizzi Jr.)

Supported by TWU Experiential Student Scholar Program.

5. EXAMINING BURNOUT AMONGST HEALTHCARE LEADERS: A SYSTEMATIC REVIEW. G. Lawhorn, J. Kopchak, S. Tyson. Business

Burnout within the healthcare sector is not limited to clinical staff. It is also prevalent among non-clinical healthcare leaders, especially those at the C-suite level. These executives experience burnout in the workplace from an ever demanding and changing healthcare landscape. A systematic review is being conducted to summarize the current research on burnout in the healthcare leadership space and examine the efficacy of potential solutions to this problem. Our preliminary findings suggest that this is a growing problem with no easy solution and that more research is needed on the topic. (Faculty Sponsor: Dr. Sandra Tyson)

6. INVESTIGATING REAL WORLD SCENARIOS TO ENGAGE STUDENTS IN STEM- BASED LESSONS. L. Pruitt, A. Koperski. Mathematics

During this presentation, the concepts of how to engage elementary and middle school students with three real world STEM-based topics will be explored. Sample student work, lesson modifications, and implications for future teaching will also be discussed. (Faculty Sponsor: Dr. Ann Wheeler)

7. DOES RAINFALL AFFECT TIMBER PRODUCTION, IMPORTS, AND EXPORTS? S. Oberascher. Computer Sciences

30% of the world's surface is covered in forests and timber. This timber is used to make products that are imported and exported throughout the world. Even though they are throughout the world, most people don't realize how often they encounter timber products and what could affect its supply. Rainfall is one of variables

that could affect timber product supply. As most people know, forests are known for being wet and humid places, but what part does rainfall play in the timber industry throughout the world? With answers to this question, the timber industry could make data driven decisions to increase/decrease imports, exports, production based on the yearly rainfall. Rainfall data and timber imports, exports, and production data will be analyzed, using pre-processing, computer aided modeling, and visualization techniques, to look for correlations amongst rainfall and the timber industry which include, cost, type of product produced, and predictability of production. (Faculty Sponsor: Dr. Jian Zhang)

Tuesday, April 18, 9:00 a.m. - 10:20 a.m.
Virtual Session (Oakley Track)

1. SUPPORTING PARENTING STUDENTS ON UNIVERSITY CAMPUSES: SUPPORTS AND POLICIES OF UNIVERSITIES WITH HDFS PROGRAMS. F. Burleson, S. Osieko, C. Dutton. Human Development, Family Studies, and Counseling

Researchers conducted a qualitative content analysis of university websites is being conducted to determine the policies and resources specific to parenting students at universities with HDFS programs. Universities were selected randomly from two lists of schools (one of NCFR's CFLE programs and a list of HDFS doctoral programs). The recent supreme court decision overturning Roe v. Wade brings to the forefront the increased need for parental support, considering the number of states restricting access to parenting choices intensified our push for more parenting-friendly policies and support in higher education. (Faculty Sponsor: Dr. Catherine Dutton)

Supported by TWU Center for Student Research.

2. EARLY CHILDHOOD EDUCATORS' PERCEPTIONS OF THE SOCIAL-EMOTIONAL DEVELOPMENT OF PRESCHOOL-AGED CHILDREN FROM THE COVID-19 COHORT. J. Stockemer, C. Dutton. Human Development, Family Studies, and Counseling

Developmental experiences of children born during the height of the COVID-19 pandemic safety protocols differ from typical developmental experiences. These differences may have influenced the social-emotional development of this cohort. This study examines early childhood educators' perceptions of the COVID-19 preschool cohort's current state of social-emotional development using an interpretive phenomenological qualitative approach. Preliminary data analysis suggests that educators perceive that this cohort varies from the widely held expectations of typical social-emotional development. Data collection is ongoing, but we will present the current status of this project and the preliminary findings. These findings may help educators and policymakers understand and anticipate the resources needed to support this unique cohort of children. (Faculty Sponsor: Dr. Catherine Dutton)

Supported by TWU Center for Student Research.

3. FACULTY PERSPECTIVES AND EXPERIENCES IN SUPERVISING DOCTORAL STUDENTS. J. Stockemer, J. Armijo, C. Dutton, C. Johnson-Jones. Human Development, Family Studies, and Counseling

Faculty advisor support is essential to the success of doctoral students. However, the experiences of faculty advising doctoral students remain unexplored, limiting the scholarly perspective on how doctoral students may access the faculty support they need for program completion. Using an interpretive phenomenological approach for this exploratory study, we completed online semi-structured interviews with six faculty members to examine the experiences of HDFS faculty members as they supervise students through their doctoral studies. Using a two-cycle data analysis coding process, we constructed three main themes: 1) Faculty advisors' career stages inform advising processes, 2) Faculty advisors individualize the doctoral student socialization process, and 3) There is a continuum of association between faculty advisors and doctoral students. Findings indicated that doctoral students may benefit from working with a faculty advisor with similar research interests, communication styles, and interpersonal relationship expectations. (Faculty Sponsor: Dr. Catherine Dutton)

Supported by TWU Center for Student Research.

4. JACOBIAN TRANSFORMATION. B. Njoroge. Mathematics

Back in earlier Calculus classes as we were learning about Integration, one of the methods discussed was the substitution method which helps to simplify the integral and solve it efficiently. Now in continuing with substitution when dealing with multiple integrals we perform a transformation where a change of variables occurs, one of the reasons of doing this is as earlier said is to convert the given region into a 'nicer' region to work with, this eliminates any errors and saves on time as the steps are now smaller. For a double integral in order to perform a change of variable we will employ the Jacobian of transformation. The Jacobian of a double integral is (or scale factor) calculated as a determinant of a 2x2 matrix, for triple integral, the Jacobian of transformation becomes the determinant of a 3x3 matrix. Below the paper will be concentrated in double integrals, where we will briefly look at the definitions, general formulas, examples and implementation of the Jacobian in the change of variables method. (Faculty Sponsor: Dr. Brandi Falley)

5. SEXUAL HEALTH EDUCATION AT THE MIDDLE SCHOOL LEVEL. L. Cummings, N. Gillum. Human Development, Family Studies, and Counseling

This presentation will focus on a review of the literature of sexual health education at the middle school level. Topics, benefits, and challenges will be discussed. Implications for children, parents, teachers, and schools along with recommendations for practice will be explored. (Faculty Sponsor: Dr. Nerissa Gillum)

6. DILTHEY, NIGHTINGALE, AND NURSING SCIENCE DURING COVID-19. P. Casia. Nursing – Denton

Introduction: The philosophical and theoretical foundations of Nursing as science and art is further enhanced by comparing Dilthey's Hermeneutics and Nightingale's Environmental Theory and philosophy, enriching the practice, education, and research in nursing profession during COVID-19. Objectives: To compare Dilthey's with Nightingale's theory and philosophy in exploring their congruent implications in nursing practice, education, and research during the nurses' battle against COVID-19. Method Comparative Analysis. Results: Dilthey's Hermeneutics can help understand human experience by interpreting actions and experiences. Nightingale's Environmental Theory emphasizes healthy surroundings in rendering nursing care, restoring and maintaining health, including providing holistic patient-centered care. Conclusion: The comparative analysis of Dilthey's Hermeneutics

and Nightingale's theory of the environment cultivated a deeper foundation of the nursing profession in the areas of practice, education, and research in promoting health of the nursing workforce and patients in fighting COVID-19. (Faculty Sponsor: Dr. Fuqin Liu)

7. RAISING TRANSPLANT AWARENESS AMONG STUDENT NURSES. R. Beck, K. Morris. Nursing – Dallas

Out of a desire to not disrupt the grief of family members, healthcare providers often fail to contact local Organ Procurement Organizations (OPOs) to initiate transplant proceedings, leading to missed transplant opportunities. To raise transplant awareness among student nurses for contacting OPOs, an educational table will be set up in the TWU Dallas cafeteria on March 20, 2023. In partnership with the Southwest Transplant Alliance, educational materials on the process of contacting your local Organ Procurement Organization (OPO) upon death or imminent death will be available. A jeopardy style game will be created to engage students. Project funds will be used to purchase prizes to reward students for their participation in the educational table or jeopardy game along with materials to set up the table. (Faculty Sponsor: Dr. Kristine Morris)

Supported by TWU Experiential Student Scholar Program.

Tuesday, April 18, 2:40 p.m. - 4:00 p.m.
Virtual Session (Minerva Track)

1. MINORITIES IN STEM FIELDS & INCREASING DIVERSITY. N. Bielmas, E. Arellano, J. Hunter, C. Summons. Mathematics

The goal of this research is to educate the reader about the steps that need to betaken in order to increase the number of minorities in the STEM fields; which willinevitably lead to more diversity in the STEM fields. This will be done by usingreliable resources with important statistics and information. We specifically arelooking at factors that lead to minorities and first generation women degrees inSTEM and how the diversification of STEM yields from minority studentsdeciding to major in STEM related fields. At the end of this paper, we hope toconvince the reader that from lack of representation and limited mentorship opportunities from other minorities, students from poor circumstances find a newidentification by breaking into the fields of STEM. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

2. RECOGNIZING MATERNAL DISCRIMINATION IN THE WORKPLACE. A. Gaye, K. Dauper, M. Vaughan. Mathematics

The idea of this paper is to highlight the flaws of maternity leave and how pregnant women are discriminated against in the workplace in the United States (U.S.). We will explore these themes by looking into: why maternity leave may be denied or looked down upon by citizens and government alike causing slow progression in policies, finding an understanding of what a proper maternity leave looks like and consists of for the average family unit, and how the U.S. ranks in how “progressive” their maternity leave is and what it consists of. Shedding light on how maternal discrimination, as well as the lack of compelling maternity leave policies is rampant throughout our country, will help young women in their family decision-making. We will use credible sources and studies to convey our points through quotation, citations, and internet sources. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

3. GENDER INEQUALITY IN STEM FIELDS. C. Quintero, N. Cavazos, J. Kurei, L. Umubyeyi. Mathematics

This research paper will discuss various ways gender inequality leads to different outcomes between men and women. We'll discuss myriad issues regarding gender inequality in different STEM fields including pay, employment distribution numbers, and workplace environment issues. We believe that women tend to be paid less, employed less, and treated worse than men in the stem fields. We plan to compile a set of data points to prove this. We'll pull from credited sources, like Pew Research; examine and dissect them to make diagnostic conjectures about the current state of the STEM fields. Currently, we plan for Janet to introduce the topic, Liliane to discrimination and workplace harassment, Nicholas to speak on employment numbers and trends, and Cynthia to speak on social constructions that lead to the present problems. Our goal is to provide an accurate, data-driven analysis of STEM and promote helpful change going forward in the future. (Faculty Sponsor: Dr. Junalyn Navarra- Madsen)

4. WOMEN AND CHILDREN: THE DOUBLE DIVIDEND OF GENDER EQUALITY. J. Sampayo, P. Khanal, P. Lamsal, E. Sawadogo. Mathematics

The goal of this paper is to show the audience the double dividend of gender equality that is shared with children and women and how it impacts them. Irrespective of the advancement in current years based on equality issues, many women and girls still encounter prejudice, poverty. Gender equality among women also translates to better healthcare that benefits their children. Thus, gender equality leads to double dividends since empowering women leads to improved nutrition for children, augmented education, and better health. The rise of female entrepreneurs has shown that women in business match the success of their male counterparts. The research topic also demonstrates that women's empowerment is a vital part of promoting gender equality, with a focus on identifying and addressing power imbalances. Our goal is to share the results with the audience in order to raise awareness and help improve gender bias. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

5. WOMEN IN STEM. T. Young, A. Palacios, S. Jackson. Mathematics

Women and Minorities in STEM Members: Danica Alcaraz, Savannah Jackson, Amy Palacios, Taylor Young Faculty Advisor: Dr. Junalyn Navarra- Madsen. Our goal for this project is to bring attention to the realities of the experiences that minorities face every day in the fields of STEM (Science, Technology, Engineering, and Math). We will be focusing on the experiences of young women to adulthood that has led them to choose STEM as a career path. Have women been supported from childhood to adulthood by their families and community? We will be analyzing the curriculum of primary throughout high school and how it is improving the exposure to STEM engagement. Our research will be based on statistics from four major universities across the country that have highly ranked STEM programs. We will be exploring the dropout rates of female students and who were hired or offered grants after graduation. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

6. USING LITERATURE IN STEM PROJECTS TO ENHANCE MATHEMATICS INSTRUCTION . A. Cervantes, J. Cajar , J. Trujillo . Mathematics

During this talk, the presenters will discuss how certain STEM-based articles can help elementary and middle school teachers enhance

their instruction of mathematics topics to include not only STEM topics but literature connections. Implications for our future teaching, as well as detailed summaries of the lessons, will be provided. (Faculty Sponsor: Dr. Ann Wheeler)

7. WAYS TO ENGAGE STUDENTS IN STEM TASKS IN A MATHEMATICS CLASSROOM. E. Hart, D. Johnson, S. Wright. Mathematics

For this talk, we will discuss ways in which elementary and middle school teachers could enliven their classrooms with STEM-based activities. Our discussion will focus on myths associated with STEM lessons, popular STEM books to use in the classroom, and innovative teaching strategies to engage students in STEM-based projects. Sample student work and lessons modifications will also be included. (Faculty Sponsor: Dr. Ann Wheeler)

Tuesday, April 18, 2:40 p.m. - 4:00 p.m. Virtual Session (Oakley Track)

1. PERCEPTIONS OF STIGMA: EXPERIENCES OF AAPI NURSES DURING THE COVID-19 PANDEMIC. J. Cho, J. Wilson. Nursing – Dallas

Background: Asian American and Pacific Islander (AAPI) nurses experienced increased stigma due to the COVID pandemic and its origin in China, causing an increase in bullying and incivility. There is a gap in the literature on strategies to address this problem. To gain insight, I am conducting a qualitative research study exploring the lived experiences of AAPI nurses during the pandemic. The findings can be utilized to increase awareness and drive positive change. However, the study encountered challenges with recruitment, especially older Asian nurses. ESSP Project/Purpose: To address this problem, I applied to the TWU Experiential Student Scholar Program (ESSP). These funds were utilized to purchase gift cards for the participants to increase study enrollment, allowing for recruitment of a larger, more diverse and representative sample. Outcomes: The study is still enrolling participants. This presentation will describe the preliminary study findings and lessons learned from the ESSP project. (Faculty Sponsor: Dr. Jennifer Wilson)

Supported by TWU Experiential Student Scholar Program.

2. EFFECT OF RETINOIC ACID ON THE EXPRESSION OF TNF-A, IL-1B, AND IL- 10 AFTER ONE-TIME EXPOSURE TO UVB. E. Akuailou, H. Everts. Nutrition & Food Sciences

Acute ultraviolet light B (UVB) causes acute inflammation, but the skin recovers spontaneously. However, chronic UVB results in chronic inflammation leading to cutaneous squamous cell carcinoma (cSCC). Retinoids, derivatives of vitamin A, reduce cSCC risk and modulate inflammation with significant side effects. Inhibiting retinoic acid (RA, active form) synthesis after acute UVB disturbed epidermal restoration. How RA is involved in epidermal repair after acute UVB is still unclear. Understanding the role of RA in epidermal recovery after acute UVB will help to suggest new strategies to prevent cSCC. Short-chain dehydrogenase/reductase family member 9 (DHRS9), an enzyme in RA synthesis, increased in SKH1 mouse dorsal skin following acute UVB. We exposed DHRS9 null mice and controls to acute UVB and collected dorsal skin 48 hours later. We performed QPCR on inflammatory markers tumor necrosis factor alpha and interleukin-1β as well as the anti-inflammatory marker interleukin-10. Statistical analysis is in progress. (Faculty Sponsor: Dr. Helen Everts)

Supported by TWU Experiential Student Scholar Program.

3. BAYES ESTIMATION . L. Vega, S. Rawashdeh. Mathematics

The question of whether the Bayesian or frequentist paradigm is superior has been a source of debate in statistics for almost a century. There are important philosophical and educational problems at stake, thus this discussion should definitely continue. However, the discussion has been much more subdued at the methodological level as it is now acknowledged that each approach has a lot to offer statistical practice and that each is truly necessary for the full development of the other approach. In this presentation, we take a somewhat eccentric trip through some of these problems and discuss real life applications (Faculty Sponsor: Dr. Brandi Falley)

4. TRANSITION OF FOREIGN EDUCATED NURSES TO US HEALTHCARE SETTING: ORIENTATION, ONBOARDING AND OTHER INFLUENTIAL FACTORS. J. Thomas, M. Lee. Nursing – Dallas

The nursing workforce shortage is an ongoing concern in the United States. Recruitment of foreign-educated nurses (FENs) can meet the increased need for nurses. However, FENs have been suffering from challenges in the transition to employment in the US. Adequate orientation and continued support are needed for the successful transition of FENs. This integrative literature review aimed to identify the impact of the orientation or onboarding programs on the transition of FENs to a US healthcare setting and other factors influential to their transition. The review revealed that the factors influencing FENs' transition included peer support, job assignment and workload, credentialing, communication and cultural adjustment, psychological factors, safety perceptions, work environment, and coping strategies. Further research is needed to explore the effectiveness of supportive programs in promoting a smooth transition of FENs to the US healthcare setting. (Faculty Sponsor: Dr. Mikyoung Lee)

5. PRE-KINDERGARTEN CLASSROOM INSTRUCTIONAL INTERACTIONS ASSOCIATED WITH PHONOLOGICAL AWARENESS AND VOCABULARY KNOWLEDGE. M. Cuervo. Literacy and Learning

The quantitative study examined 325 classroom scores of phonological awareness and vocabulary knowledge across time at the beginning (BOY), middle (MOY), and end of year (EOY) in Pre-kindergarten (Pre-K). The study also investigated the association between Pre-K classroom instructional interactions that supported phonological awareness and vocabulary knowledge. Structural equation modeling autoregressive analyses yielded that vocabulary scores at BOY, MOY, and EOY were significantly associated with the specific time points and stable across time. In addition, phonological awareness scores at BOY, MOY, and EOY were significantly associated with the specific time points but not stable across time. Cross-lag analyses revealed that phonological awareness and vocabulary were not bidirectional. Phonological awareness was associated with vocabulary across all time points, but vocabulary was not associated with phonological awareness and showed no relationship across time. Moderation analysis showed that instructional support classroom interactions did not moderate the Pre-K classroom scores of vocabulary and phonological awareness. (Faculty Sponsor: Dr. Peggy Lisenbee)

6. EXAMINING NURSES' GRIEF FOLLOWING PEDIATRIC DEATHS: THE EFFECTS OF UNADDRESSED GRIEF AND MENTAL HEALTH. E. Bishop. Nursing – Dallas

The pediatric emergency department is a fast paced, unpredictable environment. One of the most challenging things about working in

this area is when a child passes away. Failure to properly process and cope with grief can lead to chronic stress, anxiety, depression, detachment issues, and post-traumatic stress disorder. Although there are many ways to battle the long-term effects of unaddressed grief, one way is to incorporate education programs on death, dying, and bereavement into required education within the hospital. This presentation will present a problem, designed for student nurses and experienced nurses, to help them understand the effects of grief and ways to practice self-care so they can continue to feel joy and satisfaction in their jobs. (Faculty Sponsor: Dr. Linda Merritt)

7. MEDICALLY CLEARED FOR INPATIENT PSYCH: NOW WHAT? M. Hosea Mayo. Nursing – Houston

Objective: Pediatrics and adolescents are experiencing increased rates of suicide attempts (SA), anxiety, depression, self-harm (SH), and suicidal ideation (SI). Due to a lack of pediatric inpatient psychiatric beds and providers, patients are experiencing "boarding" a term used to indicate long delays before a bed is available for inpatient psychiatric treatment according to The Joint Commission (TJC). Nurses provide mental health assessments upon admission; however, pediatric nurses need more education and tools to provide ongoing mental health assessments to provide safe and quality care until discharged. Method: A simulation was written to provide nurses with the tools and knowledge to perform a mental health assessment. Results: To be determined. Conclusion: Nurses without a psychiatric background are limited in their skill set to provide mental health assessments. However, simulation is an evidence- based tool that has been proven to be effective in staff education. (Faculty Sponsor: Dr. Brenda Moore)

Tuesday, April 18, 6:00 p.m. – 7:20 p.m.
Virtual Session (Minerva Track)

1. ĐỜI CHA ĂN MẶN, ĐỜI CON KHÁT NƯỚC: PERCEPTIONS OF INTERGENERATIONAL TRAUMA AND PARENTING STYLES ON SELF-COMPASSION IN ADULT CHILDREN OF VIETNAMESE REFUGEES . V. Cao-Nguyen, D. Mollen. Social Work, Psychology and Philosophy

Intergenerational trauma originates from distressing experiences that negatively impact survivors and their descendants (O'Neill et al., 2016). In particular, research on intergenerational trauma suggests that parent-child relationships can be a path for trauma transmission in families affected by war, including Vietnamese refugee families (Nguyen, 2008). However, no studies have examined the link between both intergenerational trauma and parenting styles on self-compassion in the adult children of Vietnamese refugees. To explore this issue, the researcher recruited adult participants (n=187) in the United States with Vietnamese refugee parents. Participants completed an online questionnaire containing demographic questions, a modified Harvard Trauma Questionnaire (Han, 2005; Mollica et al., 1992), the Parental Authority Questionnaire (Buri, 1991), and the Self-Compassion Scale (Neff, 2003a). Hypotheses were tested using multiple regressions. Results, limitations, and implications will be discussed. (Faculty Sponsor: Dr. Debra Mollen)

Supported by TWU Center for Student Research.

2. THE LIFE COURSE IMPACT OF LONG-TERM CAREGIVING UPON PARENT CAREGIVERS OF ADULT OFFSPRING WITH DISABILITIES. A. Hill. Teacher Education

Due to social and health care improvements, people with disabilities are living longer lives. According to one study, there are over 14.7 million caregivers worldwide providing care for approximately 7.7 million adults with disabilities (Wolfe et al., 2016). Due to the limited availability of community care resources, long-term primary care frequently becomes the responsibility of the parents or siblings of the adult with a disability. Caregiver burden is defined as caregiver perceptions of the stressors related to the provision of long-term care. This article focuses on the impact of perceived burden of time dependence, financial obligation, developmental stressors, and emotional well-being upon the overall quality of life of the family caregivers. The research presented in this literature review suggests that prolonged caregiving negatively impacts the overall quality of life for family caregivers. When caregiver burden is decreased, family caregivers experience higher quality of life. (Faculty Sponsor: Dr. Maria Peterson-Ahmad)

3. SURVIVAL KITS FOR WOMEN LEAVING SITUATIONS OF DOMESTIC ABUSE. A. Glisson. Nursing – Dallas

Domestic abuse cases and abuse-related deaths have increased since the COVID-19 pandemic began in 2020. Survivor resource organizations suggest that pre-packed survival kits help women fleeing abusive environments facilitates their escape to safety. This social justice support project will provide 50 emergency survival kits to local women who are leaving domestically abusive relationships. A needs assessment will be performed in coordination with a local women's shelter to determine high-demand supplies. Each kit wil include a tote bag, an encouraging hand-written letter, basic personal hygiene items and toiletries, and a card with local phone numbers of anonymous local domestic abuse support hotlines and resources. Providing women in abusive situations with supplies and resources is essential to help them escape domestic violence situations. Upon completion of this project, the 50 emergency survival kits will be delivered to a local women's shelter for distribution to women fleeing situations of domestic violence. (Faculty Sponsor: Professor Joy Spadachene)

Supported by TWU Experiential Student Scholars Program.

4. EXPLORING THE USE OF CARS, PLANES, AND BOATS TO TEACH STEM TOPICS TO CHILDREN. H. Bazan, B. Seefried, K. Diaz. Mathematics

For this presentation, we will detail STEM-based articles that highlight the use of transportation, such as cars, planes, and boats, to engage students in learning certain mathematics concepts from elementary to high school. Descriptions of the problem-based tasks will be discussed with modifications that could be utilized in our future classrooms. (Faculty Sponsor: Dr. Ann Wheeler)

5. ENGINEERING ENGAGING STEM TASKS IN THE MATHEMATICS CLASSROOM. S. Clark, S. Morris, B. Porter. Mathematics

During this presentation, we will discuss journal articles pertaining to certain engineering topics like bridges, boats, and gears and how these concepts may be turned into hands-on activities for elementary and middle school students. Detailed descriptions of the STEM activities, as well as implications for future teaching of these topics, will be discussed. (Faculty Sponsor: Dr. Ann Wheeler)

6. HOW TO USE LEXICOLOGY TO INCREASE NURSING RESEARCH DISSEMINATION . K. Speir, D. Olson, S. Stutzman, J. Wilson. Nursing – Dallas

Key words have a direct impact on Altmetric scores and should be carefully considered when developing dissemination strategies. Current algorithms used by journal databases are proprietary so looking at how natural language processing is driving key word use as a replacement for MeSH terms is important. The purpose of this study was to explore the effectiveness of optimizing key words to enhance research dissemination. Nurse researchers can benefit from exploring new ways to help target audiences locate their publications. After inputting 62 peer-revied articles into two different online software's the top word frequency of the article's abstract was compared to the Altmetric score of the article. Correlation of top word frequency and Altmetric score was statistically significant ($r2= 0.0768$; $p<.05$). After removing 8 outliers (Altmetric score >40) the trend remained significant and explained ~ 40% of the variance ($r2=0.404$; $p<.05$). (Faculty Sponsor: Dr. Jennifer Wilson)

Tuesday, April 18, 6:00 p.m. – 7:20 p.m. Virtual Session (Oakley Track)

1. GLP-1 MEDICATIONS AND BMI REDUCTION . M. Saucier. Nursing – Dallas

Obesity is a global epidemic affecting more than 2 billion people worldwide. Obese and overweight people are also associated with comorbidities such as Type 2 Diabetes Mellitus, cardiovascular disease, cancers, osteoarthritis, and depression. Unfortunately, the obese population continues to increase, with few successful long-term pharmacological treatments available. The purpose of this project was to complete a literature review of randomized controlled trials for GLP-1 type medications and the effects they have on reducing BMI in obese and overweight adult patients. These studies conclude that during an average trial of 68 weeks, GLP- 1 medications contributed to more weight loss than in the placebo groups, along with positive cardiogenic effects. These positive cardiogenic effects include reduced systolic and diastolic blood pressures, lipid profiles, and HgbA1C levels. (Faculty Sponsor: Dr. Susan Chrostowski)

2. THE USE OF CARBOHYDRATE DRINK FOR ENHANCED RECOVERY. M. Roy, J. Danter. Nursing – Dallas

Postoperative return to normal health from any major surgery is a matter of worry for patients and clinicians due to the potential discomfort and complications. Most of the patients who undergo surgery report complications including nausea, vomiting, pain, and a diminished sense of feeling well during the perioperative time . The purpose of the project was to complete a literature review of randomized control trials and retrospective study on the use and effectiveness of carbohydrate drink pre-operatively to enhance recovery thus reducing nausea, vomiting and hypoglycemia and pain post-operatively. The key findings of several studies concluded that carbohydrate loading is a nonpharmacological method that can decrease nausea, vomiting, and pain in patients enduring different surgeries. This ERAS (Enhanced Recovery After Surgery) protocol can reduce hospital stays and costs. All surgeons should consider using ERAS protocol for improved clinical results at lower hospital costs. (Faculty Sponsor: Professor Joyce Danter)

3. COMMUNITY COLLEGE REFORM: STRATEGIES FOR IMPROVING FACULTY DIVERSITY TO SUPPORT MINORITY STUDENT ACHIEVEMENT. R. Ong. Teacher Education

The United States is predicted to become a minority-majority nation by 2045 making analysis and action to address demographic changes critical (Meehan et al., 2020). Data shows that U.S. colleges are becoming more diverse as access to higher education and enrollments of underrepresented minority students continue to increase (Bartlebaugh et al. 2020). This is particularly significant to community colleges. The percentage of undergraduate students that identified as non-White has increased from 30% to 45% over the last 20 years however, non-White faculty account for only slightly more than a quarter (25.8%), and even fewer non-White faculty hold full-time, full professor ranks (Espinosa et al., 2019). The research presented will detail how racial and ethnic diversity, including hiring and retaining diverse faculty, contributes to positive campus cultures where underrepresented minority students feel comfortable and positively affects educational experiences and student outcomes, achievement, and sense of belonging (Bartlebaugh et al., 2020). (Faculty Sponsor: Dr. Rebecca Fredrickson)

4. TRACKING WALKING RECOVERY IN INDIVIDUALS WITH MOTOR INCOMPLETE SPINAL CORD INJURY WITH TRANSCRANIAL MAGNETIC STIMULATION: PRELIMINARY FINDINGS. S. Sajan, H. Shih, V. Parikh, F. Meza, A. Suhalka, C. Swank, H. Goh. Physical Therapy – Dallas

Transcranial Magnet Stimulation (TMS) measures are useful for assessing motor recovery after stroke but are underutilized in spinal cord injury (SCI). Here, we report preliminary findings from an ongoing randomized controlled trial aimed to determine the effectiveness of overground robotic exoskeleton gait training on walking recovery in individuals with motor incomplete SCI. The purpose of this analysis was to examine change in TMS measures in individuals with motor incomplete SCI across the initial months post-SCI. (Faculty Sponsor: Dr. Hui-Ting Goh)

Supported by US Department of Defense, US Army Medical Research and Development Command, and TWU Center for Student Research.

5. THE EFFECTS OF A STEM PROGRAM IN A TITLE ONE SCHOOL ON STUDENT ENGAGEMENT AND CAREER INTERESTS. K. Massey. Teacher Education

STEM-focused instruction is designed to create and develop positive and lasting impressions on student lives. The intended impact of this study was to enhance students' STEM skills and increase their knowledge of real-world career connections. It is hoped this study will inform current and future educators with the knowledge needed to confidently engage students and implement STEM-focused instruction in their classrooms. (Faculty Sponsor: Dr. Amanda Hurlbut)

6. STROKE: A LACK OF EDUCATION? E. Lewandowski . Nursing – Dallas

The purpose of this project is to increase the confidence of undergraduate nurses in identifying and treating stroke. This project will provide undergraduate nurses with education on the different types of stroke, the signs and symptoms of stroke, the long-term effects of a stroke, the risk factors for stroke, the diagnosis of a stroke, and nursing interventions for stroke patients. A pre-test/post-test design will be used to measure the effectiveness of the education project at improving undergraduate nurses' confidence in identifying and treating stroke. My project

included a PowerPoint presentation and an interactive case study. My goal for the project was for those viewing/participating in the project to leave with more knowledge than they arrived. My outcomes for the project are for the amount of "correct" questions to increase from the pre-survey to the post-survey; thus proving that they obtained the information taught in the lecture. (Faculty Sponsor: Dr. Alex Klacman)

7. EXPLORING MENTORING: THE NEED FOR PEER MENTORSHIP FOR MINORITY UNDERGRADUATE NURSING STUDENTS. N. Lam, D. Magner. Nursing – Dallas

Purpose: This project discovers the need for a mentorship program surrounding minorities to combat common minority nursing students' concerns. Methods: A qualitative phenomenological approach to understand students' current need for mentorship and lived experiences related to mentorship. Focus groups were conducted on the Dallas and Houston campus with current nursing students, and an online survey on the Denton campus to gather pre-nursing students' opinions related to mentorship. Results: 86.2% of respondents identified with at least one minority category. 93.3% of all 3 campuses reported peer-to-peer mentorship was desirable. However, 70.7% of Denton and Houston students were not aware of TWU's programs. 3 themes emerged: need for resources, social support, and personal growth. Conclusions: Minority students note a need for peer-to- peer mentorship. Funds granted from the Experiential Scholar Program will promote awareness and revision of a peer mentorship program on the Houston campus. (Faculty Sponsor: Professor Dionne Magner)

Supported by TWU Experiential Student Scholar Program.

Wednesday, April 19, 9:00 a.m. - 10:20 a.m. Virtual Session (Oakley Track)

1. EFFECTS OF PHARMACOLOGICAL AND BEHAVIORAL THERAPY ON SMOKING CESSATION. P. Madduri, J. Danter. Nursing – Dallas

Despite the reductions in the prevalence in the recent years, smoking is one of the leading preventable causes of disease and early mortality worldwide. Smoking increases the risk of developing many fatal diseases. Research has shown that stopping smoking at any age is beneficial and that some health conditions or risks can be reversed, and for some, the risk is eliminated or frozen from the point of cessation. The purpose of this project was to complete literature review of randomized control trials to determine the effectiveness of both pharmacological and behavioral approaches combined to effectively achieve smoking cessation. Results of the review have shown positive results that the use of both can achieve better results with an improvement in the smoking cessation rates. (Faculty Sponsor: Dr. Susan Chrostowski)

2. LAVENDER AS A ANXIOLYTIC: AN ALTERNATIVE TREATMENT . S. Wright, J. Danter. Nursing – Dallas

Anxiety is the leading mental health condition in the world. Current pharmacological treatments have negative side effects, delayed onset, and habituation and abuse protentional. Drug-to-drug interaction is also a significant concern for clinicians treating patients with multiple comorbidities and polypharmacy. Modern researchers have been examining the medicinal use of lavender, which has been used to treat anxiety for more than 2500 years, as a natural, fast-acting, noninvasive alternative therapy with minimal side effects. The purpose of this project was to find and analyze evidence-based research that exists on the use and benefit of lavender as an anxiolytic in order to determine if lavender is an effective alternative therapy to modern pharmaceuticals. Results of the review indicate that lavender is effective in reducing the symptoms of anxiety in patients in various settings; however, more research is needed that directly compares lavender to current prescribed medications. Keywords: lavender, linalool, linalyl acetate, anxiety, alternative medicine (Faculty Sponsor: Dr. Susan Chrostowski)

3. EXPLORING THE IMPACT OF HONORS EDUCATION ON CREATIVITY IN BACCALAUREATE NURSING STUDENTS. A. Moncy. Nursing – Dallas

Registered Nurses need a combination of critical and creative thinking skills in order to execute effective problem-solving in the profession. However, creative thinking is not encouraged in traditional nursing curriculum, which focus more on critical thinking and acquisition of psychomotor skills. Honors curriculum is known to foster students' creative thinking and intellectual curiosity. This study explores the impact of a baccalaureate nursing honors curriculum on creative thinking skills in pre-licensure baccalaureate nursing students. (Faculty Sponsor: Professor Joy Spadachene)

Supported by TWU Experiential Student Scholar Program.

4. DESCRIPTIVE STUDY EXPLORING TRAUMA, DEPRESSION, STRESS, ANXIETY, GRIT, RESILIENCE AND BURNOUT IN EARLY CAREER PHYSICAL THERAPISTS LICENSED FIVE YEARS OR LESS. K. Miller, M. Thompson. Physical Therapy – Dallas

Up to 25% of physical therapist (PT) students have moderate to severe depression, anxiety, stress, or some combination and 35% have burnout. Little is known about the presence of these problems once students become licensed PTs, nor the presence of trauma, grit, or resilience that may influence chronic stress, depression, or anxiety. The purpose of this study was to describe these constructs in PTs licensed < 5 years. A nationwide cross-sectional study was conducted via email linked to an online survey including the (a) depression, anxiety, and stress scale, (b) short grit scale, (c) brief resilience scale, (d) burnout scale, and (e) demographic questions. Almost a third had moderate to severe depression, anxiety and/or stress. Overall, grit was above average, resilience was below average, the burnout rate was very high. The presence of trauma was a vulnerability factor. Further research exploring interventions to increase resilience and grit is warranted. (Faculty Sponsor: Dr. Mary Thompson)

Supported by TWU Center for Student Research.

5. FACILITATING A MENTAL PRACTICE PROTOCOL IN INPATIENT REHABILITAITON: A FEASIBILITY STUDY. T. Green. Occupational Therapy – Dallas

Mental Practice (MP) is the cognitive rehearsal of a motor task without physical movement and is considered an effective intervention that reduces upper extremity (UE) hemiparesis following a stroke. However, there is no conclusion on the feasibility of following a MP protocol for patients and occupational therapists. Are patients willing to perform MP and/or perceive MP will have a positive effect on their recovery? Do occupational therapists perceive MP as a positive intervention for recovery of the hemiparetic UE? These answers will assist with determining the feasibility of MP in rehabilitation. Therefore, the purpose of this feasibility study was to examine the feasibility of patients and

occupational therapists in following a MP protocol in the acute inpatient rehabilitation setting. The Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure were used to determine the acceptability, appropriateness, and feasibility of the intervention. (Faculty Sponsor: Dr. Asha Vas)

Supported by TWU Center for Student Research.

Wednesday, April 19, 2:40 p.m. – 4:00 p.m.
Virtual Session (Minerva Track)

1. A MAN'S WORLD WITH NO BARRIERS. N. Ramirez, E. Joseph, B. Wilhite. Mathematics

The goal of this paper is to express how gender equality is biased, aiming towards enabling economic growth and empowerment to all women. By incorporating a gender perspective into this paper, we attempt to set a new standard on how we can protect and improve the lives of women everywhere. Drawing attention to the different accommodations that they are forced to take without many options. This will be done by increasing women's legal rights keeping them safe in order for them to maintain sustainable lives. We will include recent statistics between the salaries of both men and women in the workplace and how gender bias comes into play. Throughout this paper, we hope to develop a logical perspective of equality and how it impacts women's lives on a daily basis. To provide a better understanding and viewpoint, we may use visual representations to illustrate a clear effect. (Faculty Sponsor: Dr. Junalyn Navarra- Madsen)

2. WOMEN AND CHILDREN: THE DOUBLE DIVIDEND OF GENDER EQUALITY. J. Sampayo, P. Khanal , P. Lamsal, E. Sawadogo. Mathematics

The goal of this paper is to show the audience as well as awareness of the double dividend gender equality that is shared with children and women and how it impacts them (Faculty Sponsor: Dr. Junalyn Navarra- Madsen)

3. STEM EDUCATION: PREPARING FOR JOBS OF THE FUTURE. E. Tovar-Diaz, A. Stark, A. McFadden, O. Lemus. Mathematics

The aim of this paper is to explore contemporary issues in STEM education (Science, Technology, Engineering, and Mathematics), disparities between groups, how the educational system can best serve STEM students, and the future of STEM. We will provide an overview of the STEM fields and why students should pursue careers within the fields. We will discuss the STEM field's average annual income, the size of the field, and the difficulty of obtaining a STEM job. Then, we will examine the status quo of STEM education, and provide an outline of institutional improvements to better serve the STEM community. Finally, we will look into forecasted changes to the STEM fields, increasing inclusion, and what to expect in the future of STEM. Overall, our hope is to give prospective students a glimpse of the social and economic aspects of STEM education to prepare them for their future careers. (Faculty Sponsor: Dr. Junalyn Navarra- Madsen)

4. WOMEN: THE GENDER EQUALITY AND PAY GAP IN STEM FIELDS. R. Wells, L. Putney, R. Goad. Mathematics

The purpose of this paper is to inform others of the gender inequality and pay gap that women have endured for over a century when trying to enter in any STEM field. While the fields have been male dominated for centuries, the times are changing. The paper will cover the effects of the education system and how gender biases push women away from STEM fields as well as examining ways to help improve the amount of women in STEM fields. Finally, the paper will discuss the available job opportunities and the difference in pay in the different STEM fields between men and women to help identify the difference for each gender. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

5. FOURIER TRANSFORM: CONSTRUCTING AND DECONSTRUCTING OVERTONES. L. Wiersema. Mathematics

The purpose of this thesis is to examine why different instruments sound different even when playing the same note. This is done through the use of the Fourier transform on sample recordings of different instruments. The thesis will include a primer for understanding waves and how the Fourier transform is used. Some basic music theory will be provided before examining the differences in the instrument's sounds. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

6. USING SIMULATION TO SUPPORT ASSESSMENT DISCUSSION WITH PARENTS IN AN EDUCATIONAL DIAGNOSTICIAN PREPARATION PROGRAM. M. Loveless, M. Peterson-Ahmad, J. Pettigrew. Teacher Education

The role of educational diagnostician is a multifaceted one. While diagnostician programs require a certain number of practicum hours be completed, because of the litigious nature of special education, these experiences can be limited in their scope. This study examined the effects of using Mursion, a simulated learning environment platform, across multiple sessions with six students in a university diagnostician preparation program to improve their ability to effectively communicate and collaborate with parents when sharing assessment results. Use of the simulations provided additional opportunities to practice skills while simultaneously allowing for targeted feedback which identified areas of needed growth. Students demonstrated the ability to assimilate the feedback and make corrections of their delivery in subsequent sessions. The results indicated that a simulated learning environment can be a viable supplement for educational diagnostician preparation programs wanting to ensure their students are adequately prepared for the job that awaits them. (Faculty Sponsor: Dr. Maria Peterson-Ahmad)

7. RISKS ASSOCIATED WITH POSTPARTUM DEPRESSION: A SYSTEMATIC REVIEW. J. Rijal. Nursing – Denton

Background: Postpartum depression (PPD) is a highly prevalent psychological issue of puerperium that affects the mother and child's health and can impair the child's growth and development. Aim: The systematic review aimed to analyze and synthesize the risk factors related to PPD. Method: PubMed, CINAHL, SCOPUS, Academic Search, ProQuest, Medline, and PsycINFO electronic databases were searched for peer-reviewed, full-text, English observational studies among females within six months of childbirth after 2017. The studies were appraised for quality and thematically synthesized. Findings: Fourteen studies met the eligibility criteria and were conducted in Asian, Middle-East, and European countries. Low economic status, unplanned pregnancy, antepartum depression and anxiety, and stressful life events were identified risks of PPD. Conclusion: Intervening the modifiable risks and screening for the non-modifiable risks can prevent the negative impact of PPD on the lives of the mother and infant. It is essential

to incorporate mental health into maternal health. (Faculty Sponsor: Dr. Misty Richmond)

Wednesday, April 19, 2:40 p.m. – 4:00 p.m. Virtual Session (Oakley Track)

1. QUALIFICATIONS OF SPECIALISTS IN LEAN/SIX SIGMA QUALITY IMPROVEMENT IN HEALTHCARE. E. Cavazos, R. Delgado. Business

The objective of this paper is to examine the qualifications needed of specialists in Lean/Six Sigma and quality improvement in healthcare. Job postings were collected from Indeed.com and LinkedIn.com between July to October, 2022. The sample included organizations such as hospitals, clinics, consulting, pharmaceuticals, research institutes, and health insurance companies. Inclusion criteria for the search included "healthcare administration", "lean six sigma" and "quality improvement". 529 postings were found, and 69 postings were identified. Results showed employers mostly seek applicants with a Master's in Healthcare Administration (25%) and with Lean Six Sigma Experience (28%). 54% of the sample of postings required 4-7 years of healthcare work experience. The most common soft skills required included analytical (43%), communication (38%), and interpersonal (35%). This was the first study to analyze the needed qualifications for Lean/Six Sigma specialists in the healthcare industry. (Faculty Sponsor: Dr. Rigoberto Delgado)

2. PSYCHOLOGICAL WELL-BEING AND MIRROR VIEWING IN MALE VETERANS. J. Orondo, W. Freysteinson. Nursing – Houston

Purpose: To determine the relationship of mirror viewing and psychological well-being among the United States male Veterans with body disfigurement. Also, explore their views on the mirror viewing experience and its meaning to them. Problem: Inadequacy of nursing knowledge of caring for veterans with body disfigurement. Method: A mixed method study, including in-depth semi-structured questions and the use of body image and psychological instruments. Mirror Comfort and Avoidance Scale (MICAS), Depression, Anxiety, and Stress Scale (DASS-21) questionnaire, and Psychological Well-Being (PWB-18). Implication: The study will contribute to and enrich nursing knowledge and caring practice in relation to body disfigurement using neurocognitive model of mirror viewing. (Faculty Sponsor: Dr. Wyona Freysteinson)

3. WOMEN'S MASTECTOMY WITH FLAT CLOSURE EXPERIENCES. T. Tyner, W. Freysteinson, S. Evans, J. Woo. Nursing – Houston

Women choosing flat closure, a procedure that creates a flat contoured chest wall after mastectomy, have reported clinician resistance to their surgical decision. This hermeneutic phenomenological study aimed to explore the pre and post-mastectomy experiences of women choosing flat closure after a breast cancer diagnosis. The decision-making, mirror- viewing, and flat closure experiences of 19 women were examined. Women choosing flat closure experienced pressure to undergo reconstructive options. Mirror-viewing experiences of women receiving suboptimal flat closure outcomes led to shattered expectations, mirror avoidance, psychological distress, and body image disturbances. Regardless of surgical outcome, decision satisfaction was high. Body image improved with time and flat closure revision surgery. The findings illustrate the importance of bodily autonomy and supportive healthcare environments for women making flat closure decisions. Providing flat closure education and addressing post-operative expectations can improve women's decision- making and mirror-viewing experiences and assist women as they adapt to their new flat bodies. (Faculty Sponsor: Dr. Wyona Freysteinson)

Supported by Sigma Theta Tau International Beta Beta Houston Chapter: Lucile Petry Leone Research Grant.

4. THE IMPACT OF FLOATING ON NICU NURSE BURNOUT SINCE THE COVID-19 PANDEMIC. K. Claytor, L. Merritt. Nursing – Dallas

The COVID-19 pandemic has caused an overall increase in burnout, which is associated with several negative effects, including increased turnover rates, nursing errors, and decreased quality of life in nurses. A particular stressor that has been brought to light has been floating, or when a nurse transfers from their usual unit to a different one, typically due to staffing shortages or high patient load. The purpose of this study was to investigate the relationship between neonatal intensive care unit (NICU) nurses' floating since the COVID-19 pandemic and their burnout levels. One hundred and twenty-eight NICU nurses were given the Maslach Burnout Inventory (purchased by Experiential Student Scholarship Program funds) to measure their burnout levels with a question added asking if they floated to COVID-19 units. Preliminary results will be reported. (Faculty Sponsor: Dr. Linda Merritt)

Supported by TWU Experiential Student Scholars Program.

5. ADDRESSING INCREASED WORKPLACE VIOLENCE. J. Gallardo. Nursing – Dallas

The recent COVID-19 outbreak exacerbated already-existing problems with inadequate safety measures for healthcare workers by increasing workplace violence. Through the use of simulations, this study aimed to fill the knowledge gap in workplace violence management and provide education on how to prevent and reduce workplace violence. A survey will be performed to determine how effective this simulation was on prevention and de- escalation techniques. The results will be presented in this presentation, along with any additional education that could be required to reduce workplace violence. (Faculty Sponsor: Dr. Linda Merritt)

6. A PHENOMENOLOGICAL EXPLORATION OF THE LIVED EXPERIENCE OF CONCURRENT ADN-BSN PROGRAM GRADUATES IN THE SOUTHWESTERN U.S. J. Nelson. Nursing – Houston

Introduction: In 2010, the Institute of Medicine released a brief advocating for increased opportunities for nurses to obtain higher levels of education to meet increasingly complex patient care demands. The National Education Progression in Nursing Collaborative continued this effort with their 2018 goal that one million incumbent nurses and 90% of new associate degree nurses (ADN) achieve a baccalaureate degree (BSN) or higher by 2025. Nursing programs responded by increasing options for ADN graduates to obtain baccalaureate degrees, including offering concurrent (dual) enrollment ADN-BSN programs. The purpose of this study is to explore the lived experience of recent graduates of such programs to identify rewards, complexities, barriers, and challenges. Subject Population: Study participants will be graduates of concurrent enrollment ADN-BSN programs in the southwestern U.S. Research Design/Instrument: The study is a phenomenological qualitative design, using semi-structured interviews. Procedure: Zoom interviews will be completed and then transcribed for analysis. (Faculty Sponsor: Dr. Brenda Moore)

7. WOMEN'S LACK OF ACCESS TO QUALITY HEALTHCARE WHILE INCARCERATED: A LITERATURE REVIEW. C. Roth, S. Moser. Social Work, Psychology and Philosophy

As populations in jails and prisons increase around the world, it is worthwhile to assess how those prisoners are being cared for . Understanding where we are at in our current system can help us make deliberate changes that will positively impact the quality of healthcare people receive while incarcerated. This will also assist us in implementing best practices for patients with mental illness or prior health concerns. This study will be a literature review to understand the relationship between incarceration and quality healthcare. We are conducting this research as a part of my Social Research course. We will review quantitative articles that specifically address healthcare in women's jails and prisons. Results from this study will add to the knowledge about healthcare within the justice system and what can be done to improve outcomes. (Faculty Sponsor: Dr. Shamsun Nahar)

8. EXPERIENCES OF A MOTHER LIVING WITH THE PELVIC GIRDLE PAIN: A QUALITATIVE STUDY. k. Trivedi. Physical Therapy – Dallas

Pelvic girdle pain (PGP) is experienced between the posterior iliac crest and the gluteal fold, particularly around the sacroiliac joints. It is common in women during and after pregnancy, with the prevalence rate varying from 7% to 84%. A qualitative case study using a phenomenological–hermeneutical approach with triangulation of data sources, including photographs, observation, and 1 semi-structured interview to obtain in-depth knowledge of a mother's daily experiences living with postpartum PGP. The woman identified her life with PGP as painful, with limited activity participation. From the observation data, the researcher understood that she required help from her husband to complete specific tasks with frequent rest breaks to deal with her pain. The study demonstrates how postpartum PGP affects participation in activities of daily living. The pain causes activity limitations and restricts a mother from participating in her choice of activities. (Faculty Sponsor: Dr. Mary Thompson)

Supported by American Physical Therapy Association.

Wednesday, April 19, 6:00 p.m. – 7:20 p.m.
Virtual Session (Minerva Track)

1. LOWER LIMB MUSCLE ADAPTATION WITH BLOOD FLOW RESTRICTION WHILE PUSHING A SLED-C. M. Roberts, C. Padgett, N. Ravlin, M. Rosario, M. Ramos . Physical Therapy – Dallas

The BFR literature highlights numerous rehabilitation benefits such as increased hypertrophy and increased function in various young and elderly populations, but does not mention muscle activation adaptations. Purpose: To compare muscle recruitment (decay of muscle activation) during BFR to the lower limb while pushing a Sled at 2 different walking speeds. Methods: Sixty-two participants were recruited (8 males and 54 females, age of 23(23.0 +/- 2.98). Electromyography electrodes were placed on the dominant hip, thigh and leg. Two speed protocols pushing the sled were used in this research, Slow Walk (SW) at 80 bpm (3 trials) and Fast Walk (FW) at 140 bpm (3 trials) pace, pre and post blood flow restriction (total of 12 trials). Results: Outcomes revealed quicker decay of pushing muscles activation while pushing a sled while using BFR. Conclusion: Populations that present with fatigue on extensor musculature can benefit from BFR while pushing a sled at any speed. (Faculty Sponsor: Dr. Martin Rosario)

2. LOWER LIMB MUSCLE ADAPTATION WITH BLOOD FLOW RESTRICTION WHILE PUSHING A SLED-B. C. Padgett, M. Rosario, M. Ramos, M. Roberts, N. Ravlin. Physical Therapy – Dallas

BFR literature emphasizes numerous rehabilitation advantages, such as enhanced hypertrophy, and increased function in diverse young and elderly populations, but fails to mention the muscle activation adaptations. Purpose: To compare muscle recruitment (duration of muscle activation) during BFR to the lower limb while pushing a Sled at 2 different walking speeds. Methods: Sixty-two participants, were recruited (8 males and 54 females, age 23.0 +/- 2.98). Electromyography electrodes were placed on the dominant hip, thigh and leg. Two speed protocols pushing the sled were used in this research, Slow Walk (SW) at 80 bpm (3 reps) and Fast Walk (FW) at 140 bpm (3 (reps) pace, pre and post blood flow restriction (total of 12 trials). Results: Outcomes revealed prolonged duration of leg muscle activation while pushing a sled while using BFR. Conclusion: Population with leg musculature weakness can benefit from BFR while pushing a sled at any speed. (Faculty Sponsor: Dr. Martin Rosario)

3. LOWER LIMB MUSCLE ADAPTATION WITH BLOOD FLOW RESTRICTION WHILE PUSHING A SLED-A. N. Ravlin, C. Padgett, M. Roberts, M. Ramos , M. Rosario. Physical Therapy – Dallas

The BFR literature spotlights various rehabilitation benefits, such as increased hypertrophy and function in numerous young and elderly populations, but fails to mention the muscle activation adaptations. Purpose: To compare muscle recruitment (time to peak of muscle activation-(TP)) during BFR to the lower limb while pushing a Sled at 2 different walking speeds. Methods: Sixty-two participants, were recruited (8 males and 54 females, age of 23 (23.0 +/- 2.98). Electromyography electrodes were placed on the dominant hip, thigh and leg. Two speed protocols pushing the sled were used in this research, Slow Walk (SW) at 80 bpm (3 reps) and Fast Walk (FW) at 140 bpm (3 (reps) pace, pre and post blood flow restriction (total of 12 trials). Results: Outcomes revealed a TP adaptations on hamstring and gluteus medius while pushing a sled while using BFR. Conclusion: Population in need of hip or proximal thigh rehabilitation can benefit from BFR while pushing a sled at any speed. (Faculty Sponsor: Dr. Martin Rosario)

4. THE GENDER GAP IN STEM. E. Mirochna, G. Lowery, P. Berko, S. Salmeron. Mathematics

The goal of this paper is to show the obstacles and gaps in education and careers for women, who are considered minorities, in STEM (Science, Technology, Engineering, and Mathematics), and bring awareness to the problem and what should change. We will look at statistics to compare and contrast the percentages of males and females who pursue STEM degrees, followed by percentages of those who pursue careers. We will then research why there are not as many females pursuing education and careers in STEM, and what is contributing to the gender gaps. Is it because of underrepresentation, access to education, pay differential, access to jobs after obtaining a degree, or even confidence starting from a young age? Our purpose is to show why women are behind men in the STEM fields and what they are doing to change the narrative, in hopes to inspire others to support and contribute. (Faculty Sponsor: Dr. Junalyn Navarra-Madsen)

5. EXPLORING BURNOUT AMONG SOCIAL SERVICE PROVIDERS WHO WORK WITH INTIMATE PARTNER VIOLENCE: A LITERATURE REVIEW. P. Valenzuela. Social Work, Psychology and Philosophy

My study will explore causes of burnt out and compassion fatigue. This issue targets a service providers ability to think rationally, creates loss of hope, and maintains consistent exposure to high stress situations. The constant caseload exposure to traumatized clients affects service providers' job performance (Baird & Jenkins, 2003). I am conducting this review as part of the Athenian Honors Society. I will review 6 articles that focus on burnout and it's effects on social service providers and how it impacts job performance and client interaction. Results will contribute to understand necessities of different facilities for social service providers to reduce their burnout. (Faculty Sponsor: Dr. Shamsun Nahar)

6. ARE MULTIDISCIPLINARY CULTURALLY SENSITIVE COMMUNITY-BASED HEALTH FAIRS EFFECTIVE IN THE UNDERSERVED VIETNAMESE AMERICANS? A. Le, T. Ho, T. Pham. Nursing – Houston

The Vietnamese-American ethnic group has the fastest growth rates and the lowest health insurance coverage. A yearly program of multidisciplinary health fair was organized for the third largest Vietnamese communities in the United States. This comprehensive program has proven effective by identifying the needs of the underserved population and maximizing the benefits of a culturally sensitive tailored service. Volunteered healthcare providers performed preventative screenings, vaccinations, and health promotion education in multiple services. The educational program had two 50-minute sessions, including topics from chronic cardiovascular conditions to the most prevalent cancer. With a 46% return rate, a 15- item Likert-scale evaluation form reported 80% overall satisfaction with the program's effectiveness. Some participants indicated they used these health fairs as annual health checkups due to a lack of care access and language barriers. The patterns and setup of these health fairs can be generalized to other cities and countries around the globe. (Faculty Sponsor: Dr. Tuong Vi Ho)

Supported by TWU Center for Student Research.

7. TEACHING ABOUT IMPLEMENTATION OF BEHAVIOR INTERVENTION WITH FIDELITY. A. Addo, N. Gillum. Human Development, Family Studies, and Counseling

The success of function-based interventions depends not just on the quality of procedures but also on the extent to which procedures are implemented as planned. According to Mouzakitis et al. (2015) Implementation of Behavior Intervention Plans is defined as treatment integrity that is a critical aspect of data-based decision making without which it is difficult to evaluate intervention effectiveness. Pinkelman and Horner (2017) stated that ensuring high treatment fidelity is particularly important in the area of behavior support, where student problem behavior can function as a barrier to both social and academic success in school and beyond. At times, teachers are often not provided with sufficient experiences that enable them to implement behavioral interventions with high fidelity in their classrooms and follow-up support. This presentation will focus on the experience of teaching about implementation of behavior intervention with fidelity to teachers at three school levels: elementary, middle, and high school. (Faculty Sponsor: Dr. Nerissa Gillum)

Supported by TWU Experiential Student Scholars Program.

8. USING STEM-BASED TASKS TO TEACH MEASUREMENT ACTIVITIES. M. McKinley, K. Crews, S. Wong. Mathematics

For this talk, we will be presenting about hands-on measurement tasks that can help students learn about a variety of engaging STEM-based topics, such as biomimicry, cell structures, and pelican colonies. Examples of lessons and activities with sample student work will be shared. (Faculty Sponsor: Dr. Ann Wheeler)

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Arts and Design – Dance
Arts and Design – Music
Arts and Design – Visual Arts
Biology
Business
Chemistry and Biochemistry
Communication Sciences and Oral Health
Computer Sciences
Health Promotion and Kinesiology
Human Development, Family Studies, and Counseling
Language, Culture, and Gender Studies
Library and Information Sciences
Literacy and Learning
Mathematics
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

LIST OF FACULTY SPONSORS

Dr. Mary Anderson (Chemistry and Biochemistry)
Dr. Joyce Armstrong (Human Development, Family Studies, and Counseling)
Dr. Jerry Ausburn (Teacher Education)
Dr. Dayna Averitt (Biology)
Dr. John Beatty (Chemistry and Biochemistry)
Dr. Michael Bergel (Biology)
Dr. Kyle Biggerstaff (Health Promotion and Kinesiology)
Dr. Christopher Brower (Biology)
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Counseling)
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Dr. Shiru Lin (Chemistry and Biochemistry)
Dr. Peggy Lisenbee (Literacy and Learning)
Dr. Fuqin Liu (Nursing – Denton)
Dr. Rebecca Lucero-Jones (Human Development, Family Studies, and Counseling)
Dr. Zane Lybrand (Biology)
Professor Dionne Magner (Nursing – Dallas)
Dr. Camelia Maier (Biology)
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Dr. Linda Merritt (Nursing – Dallas)
Dr. Nathaniel Mills (Biology)
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Dr. Debra Mollen (Social Work, Psychology and Philosophy)
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Dr. Catalina Pislariu (Biology)
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Dr. Richard Sheardy (Chemistry and Biochemistry)
Dr. Sushmita Sinha (Biology)
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Dr. Sarah Wainscott (Communication Sciences and Oral Health)
Dr. Danhui Wang (Nutrition & Food Sciences)
Dr. Sharon Wang-Price (Physical Therapy – Dallas)
Dr. Cynthia Warren (Nutrition & Food Sciences)
Ms. Shamethia Webb (Language, Culture, and Gender Studies)
Dr. Samiel Wells (Communication Sciences and Oral Health)
Dr. Ann Wheeler (Mathematics)
Dr. James Williams (Social Sciences and Historical Studies)
Dr. Jennifer Wilson (Nursing – Dallas)
Dr. Venkata Yanambaka (Computer Sciences)
Dr. Jian Zhang (Computer Sciences)

SCHEDULE OF EVENTS

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

Tuesday, April 18, 2023

9:00 a.m. – 10:20 a.m.	Poster Presentations Platform Track A Virtual Presentations*	Student Union 2300 (Southwest Ballroom) ACT 601
10:45 a.m. – 12:00 p.m.	Celebration of Research	ACT 301
12:00 p.m. – 1:00 p.m.	Chancellor's Luncheon to Honor Student Research Scholars (invitation only)	Student Union 2220 (Southeast Ballroom)
1:00 p.m. – 2:00 p.m.	WoMENTORING	ACT 301
2:40 p.m. – 4:00 p.m.	Platform Track A Platform Track B Virtual Presentations*	ACT 601 ACT 501
4:00 p.m. – 5:00 p.m.	Experiential Student Scholars Program Celebration	Student Union 2238
6:00 p.m. – 7:20 p.m.	Poster Presentations Virtual Presentations*	Student Union 2300 (Southwest Ballroom)

Wednesday, April 19, 2023

9:00 a.m. – 10:20 a.m.	Poster Presentations Platform Track A Virtual Presentations*	Student Union 2300 (Southwest Ballroom) ACT 601
10:30 a.m. – 11:30 a.m.	Graduate School and Beyond	ACT 301
1:30 p.m. – 2:30 p.m.	Keynote Speaker: Dr. Genevieve West	ACT 301
2:40 p.m. – 4:00 p.m.	Poster Presentations Platform Track A Platform Track B Virtual Presentations*	Student Union 2300 (Southwest Ballroom) ACT 601 ACT 501
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 Platform Track A Virtual Presentations*	Student Union 2300 (Southwest Ballroom) ACT 601

* Oakley Track: https://twu-edu.zoom.us/j/83907942231?pwd=WHB2OG84M0srdjRRYVFvck1GTVpqQT09
Minerva Track: https://twu-edu.zoom.us/j/83294593024?pwd=ckhzSWM0TDBROUNQS1llMWJkSFNRUT09