

SMART

A man in a white lab coat and glasses is pouring liquid from a glass into a funnel. In the background, another man in a suit and glasses is working on a device with wires. The scene is set in a laboratory or workshop.

College of
Arts & Sciences

Winter 2023-24 Newsletter

FROM THE DEAN

Dear SMU Community,

I'm writing this having just come from giving the final for my Climate Change class. It's a subject that can cast a dark cloud on the fate of humanity, but as always, I am coming away from the class with new hope and new insights. That hope and insight reflects our students' impressions and motivations. They recognize the work ahead of them and are eager to take it on. The course is also a great reminder of the importance and significance of the liberal arts. Communicating science, understanding cultural differences, committing to civic engagement- these are just some of the critical competencies that we are teaching our students, and they are skills that will serve them beyond any job they obtain. A major component of our College's mission is to prepare our students to make a positive difference in the world. When I see all the amazing work that my faculty colleagues are doing, and the energy that generates in our students, I know that we are succeeding. And so, as the Spring semester begins, I'll be looking more and more for ways to recognize and acknowledge the accomplishments of our faculty and students. We all have so much to offer.



Sincerely,

Dean Aaron Coby, Ph.D.

A handwritten signature in black ink, appearing to read "Aaron Coby". The signature is fluid and cursive, with a long horizontal stroke at the end.





Dr. Lori Sirs, Dr. Hunhui Oh, Dr. Tanya Smith-Brice, and Social Work Students at Lambert Lodge.

SOCIAL WORK IMPACT: LAMBERT LODGE RETREAT

The BSW program attended their annual retreat at Lambert Lodge on September 8th. This day-long retreat is a time-honored tradition of the social work program and is one that students eagerly look forward to when beginning the program. The theme for this year's event was "Where Will Your Social Work Journey Take You?", highlighting the many opportunities available to graduates with a social work degree. Throughout the retreat, seniors participated in traditional team-building activities, reflection on their own journeys, and engaged in intention-setting. The sunny setting and time at the water's edge was refreshing and inspiring. At this year's retreat, we were honored to have our own Provost, Dr. Tanya Smith-Brice, join us as a guest speaker. She shared from the heart about her own career journey and the students enjoyed the opportunity to spend time in fellowship with her.

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KEEP AN EYE OUT ON THESE SENIORS - THEIR IMPACT ON OUR WORLD WILL BE SIGNIFICANT!

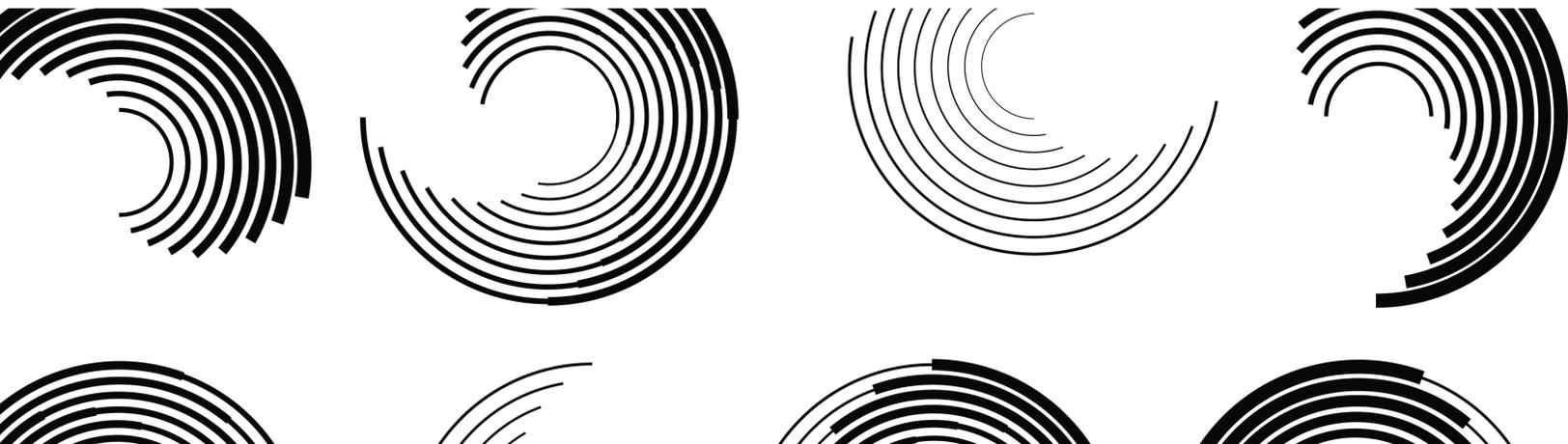
-Lori Sirs, Ph.D., Social Work Program Director

THE ART OF CONNECTION: POI SPINNING IN HARNESSING THE HEALING POWER OF COMMUNITY

This summer, Dr. Lori Sirs was able to share the flow art practice, poi spinning, with the students in her “Harnessing the Healing Power of Community” class. In this class, students learned about what it means to be in community with others, what our responsibilities are to our community, and how to be an engaged community member. In this class, we explored how we come to know what we “know”, how to engage in civil discourse, and be engaged in our community. Poi spinning allowed students to be in community with each other, learn from each other, and access embodied experiencing. They definitely had some fun along the way, while learning and connecting!



Dr. Lori Sirs, and Social Work students spinning poi.



Breaking New Ground in Astrophysics: Kunder's Lab Unveils Stripped Stars Discovery in The Astronomical Journal

Imagine delving into the depths of our Milky Way, uncovering celestial secrets that have eluded scientists for ages. Kunder's astrophysics lab has achieved just that, marking a milestone in stellar exploration with their paper accepted in *The Astronomical Journal* (impact factor 5.3). At the helm of this groundbreaking discovery is the Milky Way Best (MWBEST) survey, envisioned to unearth stripped stars originating from Milky Way Globular Clusters. A logo, designed by the creative hand of SMU undergraduate student Carlos Campos, symbolizes the ambition and innovation driving this cosmic quest. Guiding the charge was Rebekah Kuss, an undergraduate student whose dedication and vision propelled her from the lab to now pursuing a PhD at the University of Oregon. Kuss spearheaded the meticulous selection

of promising stripped star candidates, contributing significantly to the team's success. Collaborating with the Anglo-Australian Telescope in 2022, Kuss and the team collected new spectra, igniting hope for groundbreaking revelations. In this collaborative pursuit of cosmic understanding, Carlos Campos emerged as a trailblazer, devising an ingenious method to determine the iron abundance within the observed stars. Meanwhile, Mike Rivet played a pivotal role, ensuring the accuracy of velocities and iron measurements for the observed stars. What's remarkable is that these extraordinary students—Rebekah Kuss, Carlos Campos, and Mike Rivet—stand not just as contributors but as co-authors of this publication, a testament to their dedication and the inclusive spir-

it of scientific exploration. Fueling this astronomical odyssey was the generous support of the Murdock/RAISE grant, funding both the research and the publication's page charges. The paper, available for exploration here, not only signifies a breakthrough in astrophysics but also echoes the power of collaboration, dedication, and the unyielding pursuit of unlocking the mysteries of our vast universe.

Advancing Frontiers in Astrophysics: Dr. Andrea Kunder's Pioneering Research

Dr. Andrea Kunder, through a series of impactful studies and collaborations, has significantly enriched our understanding of various celestial phenomena. These notable contributions, featured in prestigious scientific journals, illuminate the depths of the cosmos, unlocking mysteries within the

Galactic bulge and beyond.

Stellar Revelations in Globular Clusters

In collaboration with distinguished colleagues, Dr. Kunder played a pivotal role in uncovering fascinating discoveries within globular clusters residing in the southern Galactic bulge.

Their groundbreaking study, published in *The Astrophysical Journal* in 2022 (940:76), revealed compelling photometric evidence indicating the presence of multiple stellar populations across 14 globular clusters. This revelation marks a significant stride in deciphering the complexities of stellar evolution

within these cosmic clusters.

Building upon this remarkable achievement, another seminal study, published in *The Astrophysical Journal* in 2023 (950:126), presented wide-field, high-resolution maps detailing the color excess in globular clusters within the Southern Galactic bulge. Dr. Kunder's contributions continue to unravel the intricate tapestry of celestial bodies within these clusters, shedding light on their distinct characteristics.

Mapping Stellar Motions Beyond the Galactic Bar/Bulge
In yet another compelling endeavor, Dr. Kunder collaborated on a study published in *MNRAS* in 2023 (590, 224). This research unveiled approximately 100,000 new

Hubble Space Telescope ACS/WFC stellar proper motions in four regions characterized by low foreground extinction, situated on the far side of the Galactic bar/bulge. This groundbreaking work expands our understanding of stellar dynamics in these remote yet significant regions, offering a unique glimpse into the stellar movements in our galaxy.

Guiding the Future of Astrophysics with NASA's Grace Space Telescope

Beyond these remarkable studies, Dr. Kunder was honored to contribute to a visionary white paper, titled "Roman Early-Definition Astrophysics Survey Opportunity: Galactic Roman Infrared Plane Survey (GRIPS)." This collaborative effort presents

insightful recommendations aimed at maximizing astrophysical outcomes through NASA's new space satellite, The Nancy Roman Grace Space Telescope. This white paper serves as a beacon, guiding future endeavors in exploring the cosmic realm.

Acknowledgments

Dr. Kunder's pioneering publications and collaborative efforts were made possible through the support of her NSF grant, enabling these groundbreaking strides in astrophysics.

This consolidated effort by Dr. Kunder exemplifies her commitment to unraveling the mysteries of the cosmos, leaving an indelible mark on the landscape of modern astrophysics.

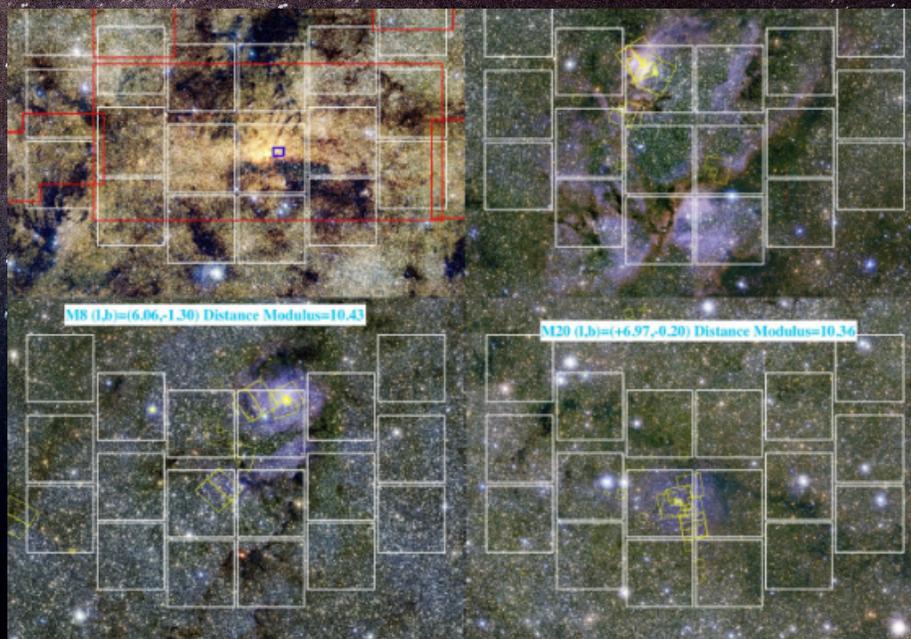
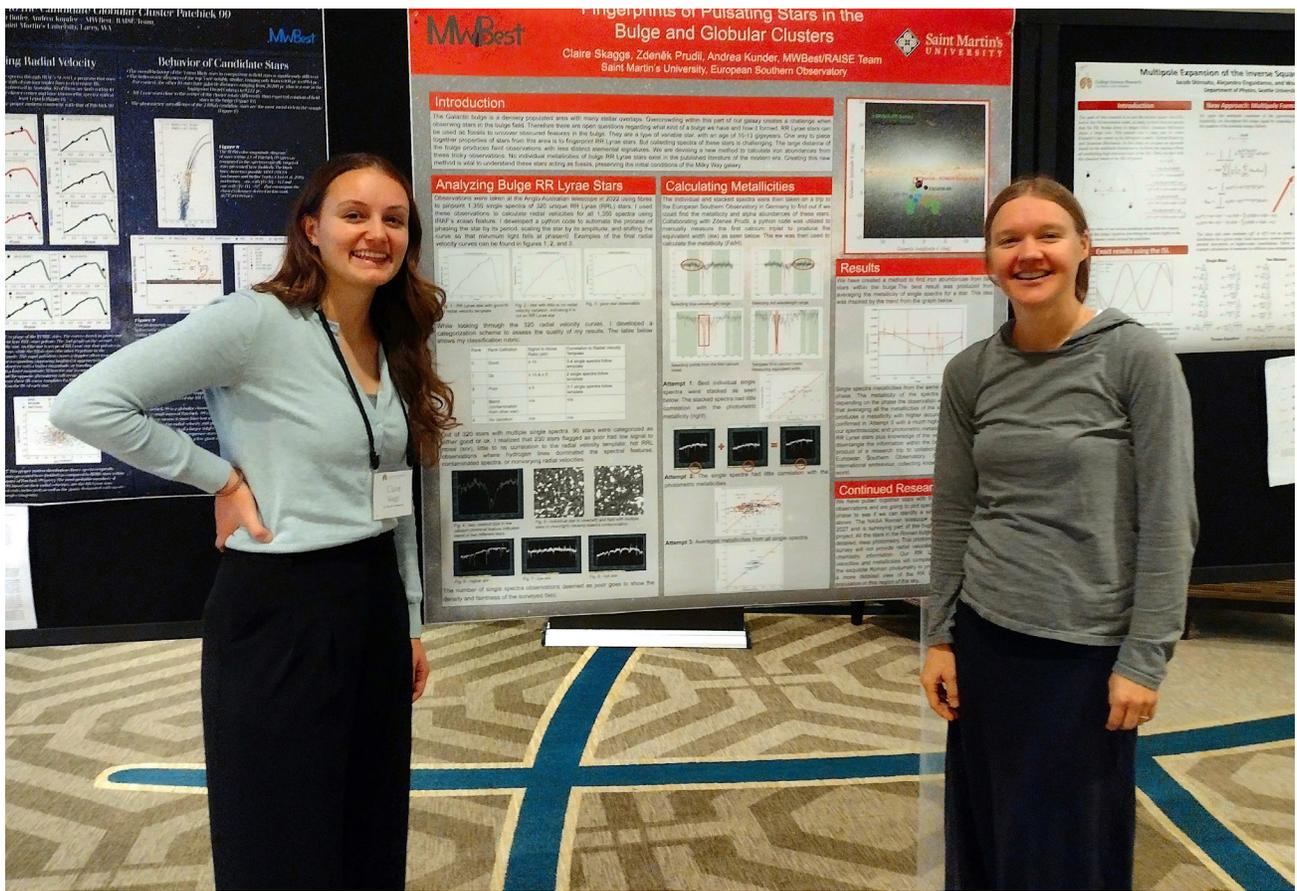


Figure 3: VVV JHKs mosaics of four (out of thousands) Galactic star-forming fields in the GRIPS survey area with the Roman footprint (white), previous HST (yellow), and ESO-VLT (red) coverage superposed. A zoom-in of the violet region in the Galactic Center panel is shown in Fig. 2. With a K-band sensitivity limit of 22.85 (Vega) mags and assuming no extinction/source confusion, Roman/GRIPS can reach MKs 8.25 (M5V) for sources at the distance of the Galactic Center and MKs = 12.5 (mid L dwarfs) for sources in M8 and M20. A solar type star could be detected on the far side of the Galactic disk, even with 2-3 magnitudes of absorption.



Unveiling New Cosmic Insights: Claire Skaggs' Triumph in Astrophysics at 2023 Murdock Conference

In a resounding victory, Claire Skaggs, a Mechanical Engineering major with a minor in Physics, claimed the prestigious first prize in the Physics and Engineering poster session during the 2023 Murdock Conference. Her groundbreaking research, conducted in Kunder's astrophysics lab over the summer, marks a significant leap forward in astrophysical measurements. Skaggs' poster outlines a pioneering method she devised

to measure iron levels using the robust Calcium Triplet lines within the spectra of aged, faint stars. This innovative approach promises revolutionary insights into the composition and evolution of these celestial bodies. Her journey to this breakthrough involved a transformative stint at the European Southern Observatory in Germany, collaborating closely with esteemed astrophysicist Dr. Zdenek Prudil. This international

experience added depth and nuance to her discoveries. Funded generously by Kunder's NSF grant and the Murdock/RAISE grant, Skaggs' research not only represents a triumph for her but also signifies a remarkable stride in the realm of astrophysical exploration. Her work exemplifies the limitless potential at the intersection of mechanical engineering, physics, and the vast mysteries of our universe.

Chilean Graduate Student Julio Olivares spends 2 months working in Saint Martin's Astrophysics Lab

From the serene streets of La Unión in southern Chile to the bustling hub of Santiago, Julio Olivares Carvajal embarked on a transformative journey. Currently pursuing a Ph.D. in Astrophysics at Pontificia Universidad Católica de Chile (PUC), Julio's passion lies in unraveling the mysteries of our celestial neighborhood—the Milky Way and its diverse populations.

Stepping beyond his familiar horizons, Julio ventured to Saint Martin's University in September 2023, collaborating with the esteemed Dr. Andrea Kunder on a segment of his Ph.D. thesis. Their partnership bore fruit as they shared their research with the wider community, igniting curiosity and scientific fervor.



The duo took their insights and discoveries on a vibrant roadshow, presenting talks at Seattle University and the University of Washington. However, the pinnacle of Julio's visit was his participation in the "Surveying the Milky Way: The Universe in Our Own Backyard" conference at the illustrious California Institute of Technology (CalTech). Here, amidst luminaries and fellow scholars, Julio showcased their groundbreaking work, leaving an indelible mark in the cosmic pursuit.

Yet, beyond the astronomical achievements, Julio's time at Saint Martin's was enriched by the warmth of camaraderie. Immersed in the American way of life, he eagerly embraced traditions, carving pumpkins alongside Kunder's undergraduate students, forging bonds beyond the realms of astrophysics.

This enriching experience, bridging cultures and minds, was made possible through the Swanson Promise Award funds generously provided by Dr. Andrea Kunder. Julio's visit not only propelled scientific endeavors but also fostered friendships and cultural exchanges that transcend borders. As Julio Olivares Carvajal returns to Santiago, his sojourn at Saint Martin's remains a testament to the unity of passion, knowledge, and the shared pursuit of cosmic exploration.

Empowering STEM Futures: Dr. Emily Coyle Unveils Insights on Inspiring Young Girls Through Play and Learning



Dr. Emily Coyle spoke in a webinar for the National Girls Collaborative Project, a non-profit dedicated to increasing girls' and women's participation in STEM. As part of Choosing Toys to Inspire Young Girls in STEM, Dr. Coyle presented on her research about how children develop capacity and interest in STEM beginning in preschool, and how to support children's learning and self-representation as people who belong in STEM. This presentation was recorded and is available on the NGCP YouTube channel: <https://www.youtube.com/watch?v=wMzsQWgxVso>

Dr. Coyle is on sabbatical this year, and is spending the time working with a team of Psychology student research interns on a couple of different projects, including one project to investigate stereotypes and attitudes towards gender diversity in children.





Christmas Under the Canopy

Christmas Under the Canopy brought the festive spirit to life with a spectacular tree lighting, live music, and enchanting choir melodies!



THE WATER ENGINE





The vibrant energy of live theater reverberated through Saint Martin's University as the captivating production of "The Water Engine" by David Mamet took center stage, enchanting audiences with its enthralling narrative and stellar performances. Under the masterful direction of Jerry Berebitsky, the Theater Department brought this compelling story to life, leaving an indelible mark on both the stage and the hearts of spectators.

A Tale of Intrigue and Innovation

“The Water Engine” by renowned playwright David Mamet is a gripping tale set in 1934 Chicago. The narrative follows Charles Lang, an unassuming inventor, who creates an extraordinary engine that runs on water. However, as Lang’s invention attracts the attention of powerful and shadowy figures, he finds himself entangled in a web of conspiracy and danger.

Captivating Performances and Artistry

Under the deft guidance of director Jerry Berebitsky, the talented cast brought depth and authenticity to their characters, immersing the audience in the tension and intrigue of Mamet’s narrative. The performers skillfully navigated the complexities of the plot, drawing viewers into the world of 1930s Chicago with their compelling portrayals.

Behind the Scenes: Director Jerry Berebitsky’s Vision

Director Jerry Berebitsky’s astute vision and creative direction breathed life into Mamet’s thought-provoking script. His dedication to storytelling and attention to detail resonated in every aspect of the production, from stage design to character development, culminating in an unforgettable theatrical experience.

A Reflection on Innovation and Society

“The Water Engine” not only entertained but also prompted contemplation on themes of innovation, power, and societal dynamics. Mamet’s poignant storytelling, combined with the actors’ powerful performances, provided audiences with a thought-provoking exploration of the human condition and the consequences of groundbreaking discoveries.



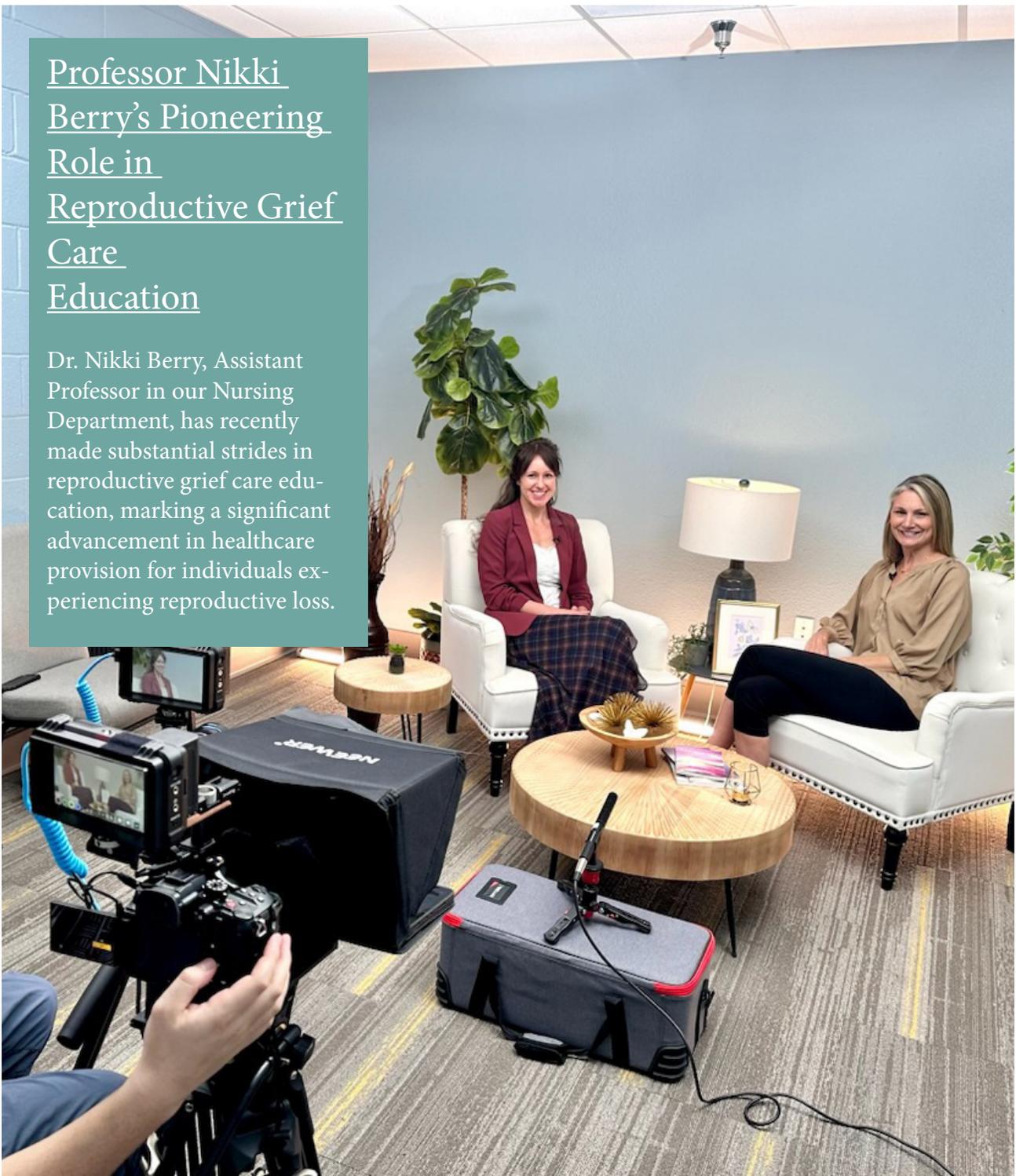


The success of "The Water Engine" stands as a testament to the dedication and talent of the Saint Martin's Theater Department, from the performers gracing the stage to the crew working tirelessly behind the scenes. The production received acclaim for its compelling storytelling and exceptional execution, leaving audiences captivated and inspired.



Professor Nikki Berry's Pioneering Role in Reproductive Grief Care Education

Dr. Nikki Berry, Assistant Professor in our Nursing Department, has recently made substantial strides in reproductive grief care education, marking a significant advancement in healthcare provision for individuals experiencing reproductive loss.



A Remarkable Endeavor

Recently, Professor Berry was invited by the Institute of Reproductive Grief Care to San Diego, where she played a pivotal role in the creation of their specialized course on Reproductive Grief Care for Healthcare Providers.

This distinguished invitation, extended by an institute dedicated to addressing the sensitive nuances of reproductive loss, underscores Professor Berry's expertise and influence in this critical area of healthcare.

Filming the Course

Professor Berry's expertise and insights were instrumental as she collaborated in the filming of the comprehensive Reproductive Grief Care course. Her profound knowledge and experience in nursing, particularly in the domain of reproductive health, were central in shaping the course's content and instructional design.

Accreditation and CEUs

The significance of this educational endeavor lies not only in its creation but also in its accreditation through the American Nurses Credentialing Center (ANCC). This accreditation ensures that healthcare providers undertaking the course will receive Continuing Education Units (CEUs), validating the credibility and relevance of the program.

Incorporating Research Contributions

Notably, Professor Berry's valuable research findings found their place within the fabric of this special-

ized course. Her extensive research, rooted in understanding and addressing the complexities of reproductive grief, serves as a cornerstone for healthcare providers seeking to enhance their knowledge and empathy in this vital area.

Impact on Healthcare Provision

The course's availability on Healthstream, a leading platform for healthcare education, ensures its accessibility to a wide spectrum of healthcare providers, fostering a more compassionate and informed approach toward patients experiencing reproductive grief. Professor Berry's involvement ensures that healthcare providers globally can benefit from her expertise, thereby enhancing the quality of care provided to individuals navigating reproductive loss.

A Testament to Expertise and Commitment

Professor Nikki Berry's pivotal role in shaping the Reproductive Grief Care course stands as a testament to her

dedication, expertise, and unwavering commitment to advancing nursing education and compassionate patient care.



Institute of
Reproductive Grief Care

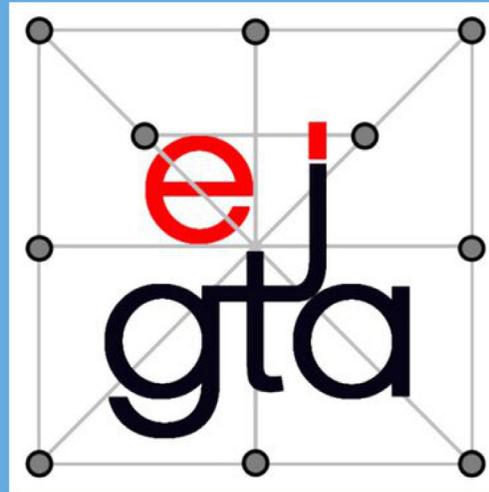
Life Perspectives®



Collaborative Triumph in Mathematics Education

Benjamin Peet is an assistant professor of in the Department of Mathematics.

Electronic Journal of Graph Theory and Applications



In a significant stride towards advancing mathematical education, Benjamin Peet, alongside former students Rebekah Kuss and Jamie Bishop, achieved a remarkable milestone with the publication of their recent article in the *European Journal of Geometry and Topology in Analysis*.

Exploring New Avenues in Mathematics

Their paper, titled “Variations on Ramsey numbers and minimum numbers of monochromatic triangles in line 2-colorings of configurations”, explores some old and new results about Ramsey numbers and minimum numbers of monochromatic

triangles in 2-colorings of complete graphs, both in the disjoint and non-disjoint cases. They then extended the theory, by defining line 2-colorings of configurations of points and lines and considering the minimum number of non-disjoint monochromatic triangles. They computed specific examples for notable symmetric v_3 configurations before considering a general result regarding the addition or connected sum of configurations through incidence switches. The paper finishes by considering the maximal number of mutually intersecting lines and how this relates to the minimum number of triangles given a line 2-coloring of a symmetric v_3 configuration.

The culmination of their collective expertise and dedication to mathematical exploration, this publication marks a distinctive contribution to the realm of geometry and topology.

Distinguished Achievements in Religious Studies



Dr. Ramon Luzarraga continues to make profound contributions to the discourse on theology and religious studies, showcasing a breadth of expertise and engagement that resonates both nationally and internationally. In a recent interview with the National Catholic Reporter, Dr. Luzarraga and colleagues shared insights on the future landscape of theology in the United States.

Throughout the past calendar year, Dr. Luzarraga has presented thought-provoking papers at prominent gatherings, offering fresh perspectives and thought leadership:

At the American Catholic Historical Association annual meeting in Philadelphia, Dr. Luzarraga presented a paper titled “The 1565 Project,” highlighting historical nuances often overlooked in prevalent discourses, shedding light on the Spanish contribution to the foundation of the United States.

At the annual meeting of The Society of Christian Ethics in Chicago, Dr. Luzarraga delivered a compelling presentation titled “When U.S. Catholics Dream of Dictatorship,” examining instances of U.S. Catholic support for undemocratic regimes

and exploring the underlying motivations.

A significant contribution was made at the “Pope Francis and the Future of the Church” conference at Saint Mark’s College, University of British Columbia, where Dr. Luzarraga elucidated Pope Francis’s abolition of the death penalty in Catholic moral theology as an authentic doctrinal evolution.

Presenting at the Catholic Theological Society of America’s annual meeting, Dr. Luzarraga delved into the prophetic insights of John Courtney Murray, drawing parallels between his 1960 perspectives and present-day political conflicts in the United States.

Assuming the presidency of the Academy of Catholic Hispanic Theologians of the United States (ACHTUS), Dr. Luzarraga organized the 2023 ACHTUS Colloquium in New Orleans, addressing the theme “Hegemon: the Formal and Informal Legacies of Empire in Hispanic and Latin American Theology” in their presidential address.

Further, Dr. Luzarraga showcased Catholic perspectives on Caribbean constitutional reform at the biennial meeting of Caribbean Theology Today, held on Grenada.

Dr. Luzarraga is set to present a paper at the Annual Meeting of the American Academy of Religion titled “The Secularization of Roman Catholic Higher Education and their Sponsoring Religious Congregations: One Root in the Development of White-Collar Migrant Culture,” emphasizing the intersection of religious education and cultural development.

In addition to Dr. Luzarraga’s accomplishments, Dr. Ramon Luzarraga has recently contributed to the academic landscape by publishing the article “The Charism of Companionship: John Henry Newman’s Adventure in Religious Life” in the esteemed *Newman Studies Journal*.

