



STEPHEN F. AUSTIN
STATE UNIVERSITY
NACOGDOCHES, TEXAS

SFA Undergraduate Research Conference

2022



4 TO 7 P.M. | APRIL 12

**BAKER PATTILLO STUDENT CENTER,
TWILIGHT BALLROOM**



Schedule of Events

Baker Pattillo Student Center Movie Theater

- 4 p.m.** Opening announcements: Eric Jones
- 4:10 p.m.** Presentation of awards to Faculty Mentor and Top Scholars: Lorenzo Smith, provost, executive vice president for academic affairs

Top Scholar Presentations

- 4:30 p.m.** **Kyla S. Gray**
Geologic and Geomorphological Interpretation of the Mare Orientale Impact Basin Region of Earth's Moon
Faculty Sponsor: Melinda Shaw Faulkner (Geology)
- 4:42 p.m.** **Garrett Parker Jones**
A Comparison of Running Economy Across Seven Carbon-Plated Racing Shoes
Faculty Sponsor: Dustin Joubert (Kinesiology and Health Science)
- 4:54 p.m.** **Haley Farmer**
Contributing Factors to Self-Perception Issues in Technically Trained Dancers
Faculty Sponsor: Andrea R. Hathcote (Tyler Junior College)
- 5:06 p.m.** **Andrea Musick, Cecilia Garner, Micaela Ramoz, Dusti Johnson and Samantha Brownell**
East Texas Coalition For Change
Faculty Sponsor: Kristin Bailey-Wallace (School of Social Work)
- 5:18 p.m.** **Linh Le**
Factors That Impact the Net Expense Ratio of ETFs
Faculty Sponsor: Emiliano Giudici (Economics and Finance)
- 5:30 p.m.** **Samantha Altamirano**
A Reimagining of The Seven Sins
Faculty Sponsor: Eden Collins (School of Art)
- 5:42 p.m.** **Siena Stassi**
Microplastic in Surface and Sediments of Rural-Urban Streams in East Texas: Distribution, Abundance, and Diversity
Faculty Sponsors: Carmen Montana-Schalk (Biology) and Sheryll Jerez (Environmental Science)
- 5:55 p.m.** **Poster Presentations of Finalists**
Twilight Ballroom, refreshments served

Faculty Mentor of the Year



Emiliano Giudici

*Professor, Department
of Economics and Finance*

Many undergraduates perceive research as something that's overwhelming and beyond their reach. As a mentor, my primary goal is to help them discover if research is something they could enjoy by helping them see past those perceived barriers. My secondary

goal is to use the research project as a tool to help them develop confidence in their independent learning skills. The third objective is to help them produce research of publishable quality. In this process, the role of a mentor can be impactful, particularly for first-time researchers.

Most of the pivotal moments in my life were influenced by my mentors. As a teenager, a family friend and mentor, a former Italian Air Force officer, introduced me to his passion, aviation. After a short flight in an SF-260, I applied to an aviation high school and was awarded a scholarship. Along with a diploma, I earned a private pilot's license, which allowed me to join the Italian navy. I served as an officer. Later, with the help of another mentor, I was able to attend college in the United States where I earned my degrees.

It is my hope that my mentoring of undergraduates goes well beyond the writing of research papers. I want them to become aware of their abilities, further develop their self-reliance, consider new possibilities for their careers and develop a curiosity that will motivate them to continue pursuing knowledge.

College of Sciences and Mathematics Top Scholar



Kyla S. Gray

Geologic and Geomorphological Interpretation of the Mare Orientale Impact Basin Region of Earth's Moon

The Mare Orientale impact basin is located in the southern equatorial region of Earth's moon and is composed of mafic igneous rocks and

ash displaced by primary and secondary impact events. The lunar rocks of the area range in age from 4.5 to 1 Ga making the geology and geomorphology of the area broadly defined. The study area is 1.24 million square kilometers of the Eastern Mare Orientale impact basin.

In order to interpret the geology of the area, various lithologic, topographic and chronologic datasets were compiled in ArcMap. The topography of the region was constructed by using a high-resolution lunar digital elevation model from the NASA Goddard Space Flight Center using the Lunar Orbiter Laser Altimeter and SELENE Terrain Camera. Analyses of the Unified Geologic Map of the Moon from the USGS Astrogeology Science Center provided the data needed to determine lithology and ages of the geologic formations of the study area. From these data, a comprehensive history of the geologic and geomorphologic events was used to create a series of figures showing the stratigraphic and structural relationships of the geologic units. The incorporation of the current lunar geologic time scale enabled the construction of a generalized timeline of major events providing a more detailed geologic history of the study area.

James I. Perkins College of Education Top Scholar



Garrett Parker Jones

A Comparison of Running Economy Across Seven Carbon- Plated Racing Shoes

Competitive runners strive to be efficient to save energy and win their respective races. The volume of oxygen (VO_2) consumed or energy required to run

at a given speed is known as running economy. Having better economy is crucial for preserving energy in a race and allows athletes to run faster at the same physiological intensity. Recent technological developments in running shoes, specifically the Nike Vaporfly, have been shown to improve running economy. Other shoe brands have attempted to mimic this technology, creating a new class of running shoes with thick foam midsoles with imbedded carbon-fiber plates. However, these shoes have not yet been compared to the Vaporfly. As a result, the sport has debated with itself over whether the Nike shoes have given some runners an unfair competitive advantage relative to the other brands. This creates a concern over equity and access to be competitive in the sport. The project compared the effects of seven different carbon-plated shoes and one traditional racing shoe on running economy. After testing these shoes, while some of them have shown improved economy compared to the standard racing shoe, only the Nike Alphafly and the Asics Metaspeed Sky have matched the economy benefits of the previously established Vaporfly.

Regional Colleges Top Scholar



Haley Farmer

Contributing Factors to Self-Perception Issues in Technically Trained Dancers

It is unknown what factors influence self-perception in dancers. This study will aim to identify those factors which may lead to technically trained dancers having issues with self-perception. This

study utilizes a qualitative research design. The population for this study is dancers at least 18 years of age who have at least three years of technical dance training and have experienced self-perception issues. There will be 25 to 30 participants. Potential participants include professional and pre-professional dance company members age 18 and older, adult dance team members, adult retired dancers, or current adult dancers with technical training experience. The population will be sampled by distributing the link to the online survey through personal connections and sampling will be purposeful. The study will take place through an anonymous online survey. The survey will be available for two weeks. The survey will consist of both demographic questions and open-ended questions. The open-ended questions will ask about what coaching styles the dancers experienced, the level of competitiveness they experienced in their dance environment, and what they believe leads to developing self-perception issues. The results will be analyzed to identify common themes related to dancers' self-perception. The resulting data will be interpreted into a photo documentation consisting of eight to 10 images portraying what factors might correlate to dancers developing self-perception issues. Only the primary investigator and student investigator will have access to the survey responses.

College of Liberal and Applied Arts Top Scholars



**Andrea Musick, Cecilia Garner, Micaela Ramoz,
Dusti Johnson and Samantha Brownell**

East Texas Coalition for Change

Students from the School of Social Work have created an intervention proposal for substance use for Panola, Gregg and Harrison counties. Relying heavily on the social work values and theoretical frameworks with a focus specifically on person and environment as well as the dignity and worth of all people, they have designed and structured an organization that will not only address the substance misuse and mental health struggle in this tri-county area, but will make intentional steps to combat these issues by addressing subsequent barriers to success such as poverty, problems in living, lack of access to comprehensive healthcare and lack of access to equitable education. Including items such as ownership, technology, stewardship and a comprehensive analysis of how resources will be provided to and benefit these counties, this proposal is a positive step forward and could potentially be used as a blueprint for counties all over the state.

Nelson Rusche College of Business Top Scholar



Linh Le

Factors That Impact the Net Expense Ratio of ETFs

Investing in a mutual fund or exchange-traded fund provides ease of transaction, diversification, professional management and other benefits – but at a cost. An ETF's expense ratio expresses the amount of funds

deducted from your investment as fees. Therefore, it is essential to understand the net expense ratio, just like you expect to know the cost of any services you receive. Due to compounding, differences in the net expense ratio can cumulate to several thousands of dollars over a 30-year investment period. Several factors that explain the variability of an ETF's net expense ratio are the annual turnover ratio, the Sharpe ratio, net asset value, whether you can buy the fund online, and the Morningstar rating. The study of the net expense ratio of 347 ETFs found that it ranges between 0.03% and 1.16%. Other findings, which can help investors select investments that will maximize their returns in the long run, include:

- The larger the fund, the lower the net expense ratio.
- The higher the Morningstar rating, the lower the net expense ratio.
- The Sharpe ratio, the annual turnover ratio, and whether an ETF can be bought online don't significantly impact the net expense ratio.

College of Fine Arts

Top Scholar



**Samantha
Altamirano**

A Reimagining of The Seven Sins

This series of pieces deals with the body and how the language our body speaks is effective in showing our innate desire whether we reveal them truthfully or not. This project started back in fall 2020 as a reflection on

the self and the human experience. The completed set took a year to fully complete as each piece required a separate process of making. The project was initially inspired by an assignment in which we were asked to create a self-portrait through our own hand. What I realized was that all I could see about myself was the ugliness within. From that, I chose to take it a step further and create a body of work that showcased the grim nature of humanity. I focused on smaller sets of sculptures in order to individualize each "sin," as every piece features a different hand that represents the way in which our hands are able to express a certain emotion through gestures. With this, I also looked to highlight the imperfections of the human form and analyze the idea that we are all inherently different and yet we are innately disheveled beings.

Arthur Temple College of Forestry and Agriculture Top Scholar



Siena Stassi

Microplastic in Surface and Sediments of Rural-Urban Streams in East Texas: Distribution, Abundance, and Diversity

Microplastics in freshwater ecosystems are becoming a critical issue worldwide. While plastics accumulation

is nearly observed in most aquatic ecosystems in Texas, little is known of the occurrence, types and abundance of microplastics in Texas streams and their potential for bioaccumulation in stream food webs. The aim of this study was to examine the distribution and abundance of microplastics in vertical water columns and sediments of streams located in urban and rural watersheds in East Texas. We hypothesized that urban systems would have more prevalence of microplastics compared to rural systems because urban streams are exposed to higher disposal of plastic materials, wastewater and runoff from the cities. Water and sediment samples were collected at two urban streams within the La Nana watershed, and three streams and two lakes within a rural watershed of the Little Cypress River, both systems in East Texas. Water samples were collected in 1,000 ml glass jars while sediments were collected in 45ml polypropylene tubes. Five replicates of sediments were collected at each site. All samples were stored in ice and transported to the lab for analysis. Following filtration, samples were digested in 1N KOH for 14 days. Samples were sorted under a microscope and microplastics were visually identified by color and shapes, and quantified. Overall, urban streams contained a higher number of microplastics and diversity than rural sites.

Nelson Rusche College of Business Finalists

Carleigh Garrett

Bridges to Business Campaign Proposal

Faculty Sponsor: Marlene Kahla (Management and Marketing)

Carleigh Garrett

*Marketing of Services Team Project on Student Center
Chick-Fil-A*

Faculty Sponsor: Marlene Kahla (Management and Marketing)

Grant Lebkowsky

*An Investigation into Why Student Organization Attendance is
down at Non-Football Sporting Events at Stephen F. Austin*

Faculty Sponsor: Wenjing Li (Management and Marketing)

Larsen Lewallen, Tanner Davie, and Robert Austin Drake

Twitter Marketing Research

Faculty Sponsor: Wenjing Li (Management and Marketing)

Rick Lowry

Real Estate as an Investment

Faculty Sponsor: Carol Wright (Business Communication and
Legal Studies)

Lexi Mireles

Nike Research Project

Faculty Sponsor: Wenjing Li (Management and Marketing)

Bo Yanas, Zach Yanas, Olivia Escobedo, Deaven Ivy, and David Bennett

*Telepresence: Remote Technologies Allow You to be Here, Even
When You Are There*

Faculty Sponsor: Gina Harden (Management and Marketing)

James I. Perkins College of Education Finalists

Zarea Collins

El Salvador's Food Clock

Faculty Sponsor: Justin Pelham (School of Human Sciences)

Joy Crissmon

Tracing Roots: An Exploration of the African Diaspora through Dance

Faculty Sponsor: Heather Samuelson (Kinesiology and Health Science)

Holly Gibson

Organic Chemistry through Dance

Faculty Sponsor: Amanda Moore (Kinesiology and Health Science)

Esther Hernandez and Ava Green

Examining Student Performance Using Quantitative and Qualitative Data to Inform Instruction: A New Way to Ensure Teaching Effectiveness while Building on a Student's Cultural Capital & Funds of Knowledge

Faculty Sponsor: Marisol Diaz (Education Studies)

Ashlyn Lafleur

Native Knowledge 360° Essential Understandings Framework: Reflections Using the Five Level Evaluation Model

Faculty Sponsor: Sarah Straub (Education Studies)

Mackenzie Pendarvis and Danyelle Richardson

Returning What Was Lost: Reengaging and Reconnecting Students through Community Engagement

Faculty Sponsors: Gina Fe Causin and Donna Fickes (School of Human Sciences)

Brooke Pulliam

Organizing a Local Job Fair During the Pandemic: Challenges and Takeaways

Faculty Sponsors: Gina Fe Causin and Donna Fickes (School of Human Sciences)

College of Fine Arts Finalists

Jenna Alley

I've Lost Respect for Bertolt Brecht: A Look into the Disappearance of the Original Production of Pioneers in Ingolstadt by Marieluise Fleißer

Faculty Sponsor: Richard Jones (School of Theatre)

Megan Bynum

The Gilded Cage

Faculty Sponsor: Eden Collins (School of Art)

Lynna Levin

1860's Clothing in America

Faculty Sponsor: Angela Bacarisse (School of Theatre)

Brooke Olivarez

A Modern Take on Baroque Reed-Making

Faculty Sponsor: Jamie Weaver (School of Music)

Brendan Ryan

Connecting Old Techniques with New Ideas

Faculty Sponsor: Lauren Selden (School of Art)

Gabrielle Treviño

The Influence of Mexican Folklorico and The Costumes Thereof

Faculty Sponsor: Angela Bacarisse (School of Theatre)

Arthur Temple College of Forestry and Agriculture Finalists

Veda Allen

Comparative Calling Phenology of Anurans Across Latitudinal Gradients

Faculty Sponsor: Christopher Schalk (Forestry)

Katherine Barker, Brooke Maxfield, Sophie Scott, and Mckynna Swinson

The Impact of Vaping on Indoor Air Quality

Faculty Sponsor: Sheryll Jerez (Environmental Science)

Tristan Brownjohn

Body Condition and Relative Abundance of Four Turtle Species across a Gradient of Ecological Integrity

Faculty Sponsor: Christopher Schalk (Forestry)

Blake Carter and Abby Buckner

Latency to Initial Detection for Mammalian Species in a Mixed Hardwood-Pine Forest

Faculty Sponsors: Jessica Glasscock and Christopher Schalk (Forestry)

Rachel Cornelius

Barred Owl Occurrence Influenced by Forestry Wildlife Treatments and Stand Age of Bottomland Hardwood Forests

Faculty Sponsor: K. Rebecca Kidd (Forestry)

Stephanie Huerta, Valerie Pacheco, Lukia Kalugin, Garrison Layne, and Remigio Casanova

A Comparative Assessment Between Forests and Urban Lawns

Faculty Sponsors: Sheryll Jerez (Environmental Science) and Kenneth Farrish (Forestry)

Summer Pritchett, Luke Keene, and Brendan Holmes

Influence of Plant Growth Regulators on L.A. Hybrid Lily Growth and Development

Faculty Sponsor: Michael Maurer (Agriculture)

College of Liberal and Applied Arts Finalists

Rae Bynum

"Tuneless Song"

Faculty Sponsor: Sara Henning (English and Creative Writing)

Alasia Johnson

Social Impacts of Religion

Faculty Sponsor: James Morris (School of Social Work)

Clayton Jones

Forgotten Stories of the New London School Tragedy

Faculty Sponsor: Perky Beisel (History)

Sandra Maloy

Adaptive Coping for COVID-Related Stress

Faculty Sponsors: Sarah Savoy (Psychology), Joyce Johnston (Division of Multidisciplinary Studies), Dianne Dentice (Anthropology, Geography, and Sociology) and Sharon Rice (Kinesiology and Health Science)

Savannah Peterson

The Impact of the Women's Army Auxiliary Corps and WAAC Branch No. 1 During World War II

Faculty Sponsor: Carolyn White (History)

Caitlyn Shrewsbury

Waging Peace: Female Legislators and a State's Propensity for War

Faculty Sponsor: Charles Gregory (Government)

Ryan Wallace and Shelby Farmer

Demonstrating Statistics Principles, Honing SPSS Skills with 1.05 million New York City Arrests

Faculty Sponsor: Scott Drury (Psychology)

Raegan Hoyer (Best Freshman paper)

The Reporter Who Lost the War: An In-depth Look at Walter Cronkite's Report on the Tet Offensive and its Long-Term Effects

Faculty Sponsor: Philip Catton (History)

College of Sciences and Mathematics Finalists

Veda Allen

Acoustic Responses to Human-made Noise in Bottlenose Dolphins

Faculty Sponsor: Jason Bruck (Biology)

Zachary Hutchens

Urbanization Increases Isolation of a Threatened Fish Species in East Texas Streams: A 20-year Perspective

Faculty Sponsor: Carmen Montana-Schalk (Biology)

Courtney Plummer

Aquatic Macroinvertebrates as Sentinels of Changes in Local Stream Conditions in East Texas

Faculty Sponsor: Carmen Montana-Schalk (Biology)

Rachel Rucker

Machine Learning in Support of Student Success

Faculty Sponsor: Vinh Dang, Dipak Singh and Keith Hubbard (Mathematics and Statistics)

Laken Simington

Quantification of Kaempferol Conjugates in Watercress Juice and Methanol Extract: A Study Using HPLC and Protein Binding

Faculty Sponsor: Bidisha Sengupta (Chemistry and Biochemistry)

Madison Thornhill

Modeling, Cloning, and Expression of the J domain of C. elegans Rme-8 Protein

Faculty Sponsor: Odutayo Odunuga (Chemistry and Biochemistry)

Trace Washburn

Bomb Calorimetry: A New Method of CEC Determination

Faculty Sponsor: Alyx Frantzen (Chemistry and Biochemistry)

Regional Colleges Finalists

Christopher Conneen

Observing Trophic Interactions Between Keystone Species and Ecosystem Engineers

Faculty Sponsor: Andrea R. Hathcote (Tyler Junior College)

Micah Leary

Near Death Experiences: Life After "Death" and Credibility a Mixed Method Design

Faculty Sponsor: Andrea R. Hathcote (Tyler Junior College)

Olivia Lester

Influence of Infant Attachment on Introversion and Extroversion: A Quantitative Approach

Faculty Sponsor: Andrea R. Hathcote (Tyler Junior College)

Council on Undergraduate Research

The Council on Undergraduate Research (CUR), founded in 1978, is a national organization of individual and institutional members representing over 950 colleges and universities. The mission of CUR is to support and promote high-quality undergraduate student-faculty collaborative research and scholarship.

CUR believes that faculty members enhance their teaching and contribution to society by remaining active in research and by involving students in these activities. CUR's leadership works with agencies and foundations to enhance research opportunities for faculty and students and it:

- Supports faculty development through expert-designed institutes and offers the option of customizable campus-wide or departmental institutes.
- Publishes books and articles related to creating, managing, and evaluating undergraduate research programs, and mentoring undergraduate researchers.
- Assists administrators and faculty members in improving and assessing the research environment at their institutions.
- Hosts annual undergraduate research conferences; one of which is on Capitol Hill and another which brings together over 3,000 students from across the nation.
- Provides information on the importance of undergraduate research to state legislatures, private foundations, government agencies, and the U.S. Congress.

CUR's divisional structure includes arts and humanities, biology, chemistry, engineering, geosciences, health sciences, mathematics and computer science, physics and astronomy, psychology, social sciences, an at-large division that serves administrators and other disciplines, and a division for directors of undergraduate research programs.

Finalist Poster Competition

This is your chance to pick your favorite student poster. The winner of the Best Student Poster will be announced on mySFA and hold this title for the coming year!

How to exercise participate:

1. Go to the Twilight Ballroom and view the posters.
2. Decide which student poster you enjoy most.
3. Put the SFA logo affixed below in the envelope located next to the poster.

After the conference, the logos will be counted and the winner announced.

Thank you for your participation!

Special Thanks to:

**Lorenzo Smith, provost,
executive vice president for academic affairs**

School of Honors

Office of University Marketing Communications

**Office of the Dean of Research
and Graduate Studies**

Undergraduate Research Conference Executive Committee:

Leslie G. Cecil

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Stephen F. Austin State University
is an institutional member of the
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