

DISCOVERIES TO IMPACT





TEXAS TECH UNIVERSITY

Center *for the* Integration of
STEM Education & Research™



TEXAS TECH UNIVERSITY

Office *of the* Provost

Outreach & Engagement™

TrUE

Transformative Undergraduate Experiences

Welcome Letter

CISER's Influence

*Stay Connected
Week at a Glance*

*Engaged Scholarship
Symposium*

Our Keynote Speakers

*Innovative Research
Demo Day*

Our Sponsors

*Texas Tech Accelerator
Competition*

*Undergraduate Research
Conference*

Save the Date


WELCOME



The Discoveries to Impact Committee: Dr. Birgit Green, Ryan Bain, Taysha Williams, Kathryn Dankesreiter, Lindsay Rigney (front, left to right), Kevin Fehr, Levi Johnson, Julie Isom, and Jerylme Robins (back, left to right)

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ANNIVERSARY



Welcome to the fifth annual Discoveries to Impact Conference! It's awesome to be here doing what we do best- showcasing our students, staff, and faculty's impact on the well-being of our society and the future of humankind. Whether that impact is through community engagement, research and creative activities, or innovations and startups, the Red Raiders highlighted throughout this week are the best of the best in West Texas (and arguably the world). This year marks an incredible milestone, because 2023 is the fifth anniversary of the conference which also coincides with Texas Tech's centennial celebration.

In its 15th year, the **Undergraduate Research Conference** is one of the largest interdisciplinary undergraduate research conferences in the nation! You will have the opportunity to connect with more than 400 student presenters sharing their fantastic research and creative activities—many for the first time. Reflecting our shared commitment to building on a legacy of impact, presentations will be divided between 10 different impact areas. Thanks to the generous support from the Lubbock Economic Development Alliance, students will be competing for more than \$17,000 in outstanding presenter awards within these impact areas!

The **CISER Undergraduate Research Scholars Banquet** is in its 31st year of bringing together various members of the research community, including Texas University System leaders, faculty mentors, graduate and undergraduate students, and our community partners.

During the 5th **Annual Engaged Scholarship Symposium** on April 12th you will hear from faculty and students who are engaging with K-12 schools, nonprofit organizations, city governments, children, parents, healthcare professionals, and many other communities locally, nationally, and globally to help find sustainable solutions to issues ranging from education to physical and mental health, social justice, the environment, cultural heritage, and more.

Innovative Research Demo Day will feature research projects in medical design and entrepreneurship from students and faculty from Texas Tech Health Sciences Center, the Whitacre College of Engineering, and the Rawls College of Business. Come and browse the demos, talk with researchers, and vote on your favorite project. At our Keynote Luncheon, Ira Green, the CEO of Freedom Brands, Inc., will inspire you with her story of perseverance and resilience.

The **Texas Tech Accelerator Competition** and 2nd Social Innovation Challenge on April 14th is designed to help faculty, students, and community entrepreneurs launch startup companies. The teams accepted into the year-long program have access to the Innovation Hub's resources, \$25,000 grants, co-working space, and mentors. As a conference attendee, you will see first-hand how entrepreneurs pitch to investors. We're excited to kickoff this week celebrating the enormous impact of our Texas Tech entrepreneurs, researchers, faculty and staff, and innovators. All of this wouldn't be possible without the support of our community partners, who contribute their time and resources to benefit our community. Finally, thank you for being a part of this milestone year! We hope you enjoy the conference.



Dr. Birgit Green,
Assistant Vice Provost,
Outreach & Engagement



Julie Isom,
Associate Director for Undergraduate
Research, CISER



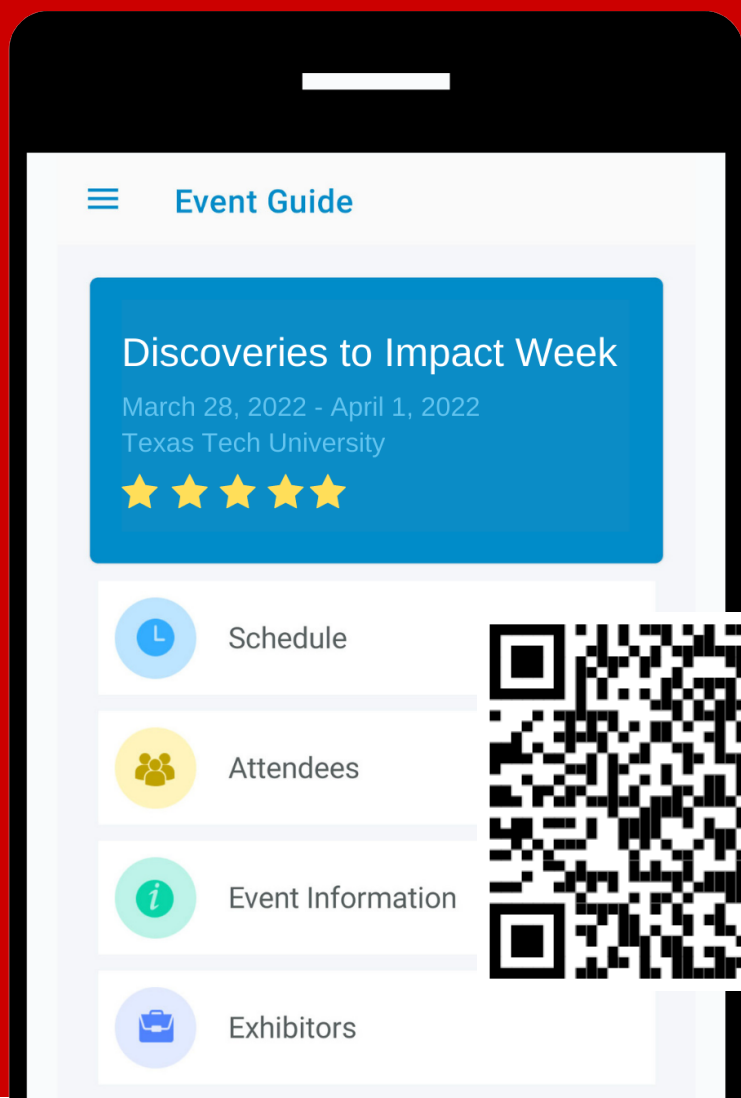
Levi Johnson,
Director, Center for Transformative
Undergraduate Experiences



Taysa Williams,
Managing Director,
Innovation Hub at Research Park

EVENT APP

DON'T MISS OUT ON ALL DISCOVERIES TO IMPACT HAS TO OFFER! DOWNLOAD THE EVENTLEAF APP.



Event Guide

Discoveries to Impact Week

March 28, 2022 - April 1, 2022

Texas Tech University



Schedule



Attendees



Event Information



Exhibitors



SCHEDULE

TUES, APRIL 11TH

Research that inspires innovation.

8:00 AM - 6:00PM

Undergraduate Research Conference

TTU Student Union
Red Raider Ballroom

11:30AM - 1:30PM

CISER Alumni Honorary Scholar Luncheon

Invite Only

6:00PM - 8:00PM

CISER Research Banquet

Invite Only

WED, APRIL 12TH

Fostering university-wide engagement through scholarship.

8:45 AM - 4:15PM

Engaged Scholarship Symposium

TTU Student Union
Check [page 21](#) for session details.

11:30AM - 1:15PM

Engaged Scholarship Awards & Keynote Luncheon

ft. [Dr. Robert Newman](#), President of the National Humanities Center
TTU Student Union
Red Raider Ballroom

THURS, APRIL 13TH

Innovation that bridges the gap between the university and industry.

8:00 AM - 1:30PM

Innovative Research Demo Day

TTU Student Union
Courtyard outside the Red Raider Ballroom.

11:30AM - 1:00PM

Keynote Luncheon

ft. [Ira Green](#), Founder & CEO of Freedom Brands
TTU Student Union
Red Raider Ballroom

6:30PM - 8:30PM

URC Banquet

ft. [Dr. Lara Johnson](#), Professor in the Departments of Pediatrics and Medical Education
Invite Only

FRI, APRIL 14TH

Launching startups to foster an innovative community.

9:00 AM - 12:15PM

Texas Tech Accelerator Competition

Texas Tech Innovation Hub
3911 4TH Street

2:00 PM - 3:00PM

Social Innovation Challenge

Texas Tech Innovation Hub
3911 4TH Street

5:30 PM - 6:30PM

DTI Closing Party & Awards Ceremony

Texas Tech Innovation Hub
3911 4TH Street

KEYNOTE

“People that are graduating from college don’t go into one pathway... and they need a broad foundation to be adaptable.”



DR. ROBERT D. NEWMAN
PRESIDENT, NATIONAL HUMANITIES CENTER

KEYNOTE & AWARDS LUNCHEON

FT. DR. ROBERT D. NEWMAN

WEDNESDAY, APRIL 12TH AT 11:30AM - 1:15PM

Robert D. Newman is the president and director of the National Humanities Center, the only independent institute for advanced study in the world dedicated exclusively to the humanities. Dr. Newman has published six books, over a hundred articles, and has given talks around the world. Since assuming leadership of the National Humanities Center in 2015, Dr. Newman has been dedicated to broadening their scholarly mission, diversity, programming and educational outreach.

SPEAKERS



“When women see other women surviving and thriving, I think it helps them.”

IRA KAGANOVSKY-GREEN
FOUNDER & CEO, FREEDOM BRANDS

KEYNOTE LUNCHEON

FT. IRA KAGANOVSKY-GREEN

THURSDAY, APRIL 13TH AT 11:30AM - 1:00PM

After three of her friends were diagnosed with breast cancer at a young age and instructed by their doctors to use natural products on their bodies, Ira Kaganovsky-Green launched Freedom, a natural aluminum-free deodorant line, in 2015. This past April, at the age of 48, Kaganovsky-Green received the same diagnosis herself, bringing the Freedom story full circle.

SPONSORS

THIS WEEK WOULDN'T HAVE BEEN POSSIBLE WITHOUT THE SUPPORT OF OUR SPONSORS. THANK YOU!



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Office of the President



TEXAS TECH UNIVERSITY
Rawls College of Business



TEXAS TECH UNIVERSITY
Office of the President



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TEXAS TECH UNIVERSITY
Honors College



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College of Human Sciences



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Edward E. Whitacre Jr.
College of Engineering



TEXAS TECH UNIVERSITY
College of Education



TEXAS TECH UNIVERSITY
College of Arts & Sciences



DAY ONE

UNDERGRADUATE RESEARCH CONFERENCE

TUES, APRIL 11TH

Research that inspires innovation.

8:00 AM - 10:00AM

Come & Go Breakfast

8:00AM - 4:00PM

Conference Check-In

8:30AM - 9:00AM

Poster Setup

9:00AM - 10:30AM

Poster Session No. 1

11:00AM - 11:30AM

Poster Setup

11:00AM - 1:30PM

Come & Go Lunch

11:30AM - 1:00PM

Toreador Poster Session No. 2

11:30AM - 1:30PM

CISER Alumni Honorary Scholar Luncheon

1:30PM - 2:00PM

Poster Setup

2:00PM - 3:30PM

Poster Session No. 3

4:00PM - 4:30PM

Poster Setup

4:30PM - 6:00PM

Poster Session No. 4

6:00PM - 8:00PM

CISER Research Banquet

POSTER

01.

POSTER SESSION NO. 1

9:00AM-10:30AM

PRESENTERS

Jennifer Agu
Jonathan Akene
Tirza Alcala
Andrea Alfaro
Melanie Arciniega
Carson Austin
Farjaad Azam
Chloe Baines
Sofia Banjara
Hannah Belinne
Isaac Bernal
Isabel Billings
Clive Binu
Shakir Booker
Annie Braack
Emilee Broussard
Georgina Brugette
Maverick Campbell
Abby Caraway
Breanna Carruth
Hogan Caver
Mauricio Cerda
Aryan Chugh
José Conde
Jakob Conrad
Shelby Courreges
Tracy Dang
Mattye Davenport
Sydney Dotson
Akra Esimisan
Ashlee Faires
Alexander Favela
Alejandra Fernandez-Reyes
Mary Elizabeth Franklin
Madeline Fricke
Kiara Garduno Perez
Ashley Gauntt
Erin Gilstrap
Marie Goulais
Brawnson Gould

Erin Green
Lauren Griffin
Stephanie Grimes
Darby Hanes
Aiden Hawkins
Malak Hegazy
Madelyn Henderson
Francine Hernandez
Kalaya Hicks
Connor Hicks
Andrea Hidalgo
Daniel Hsia
Reagan Jackson
Abigail Jordan
Savannah Kelly
Jessica Kennedy
Yasmin Khilji-Neal
Elina Khusnatdinov
Ga Yeon Kim
Gabriel Koeller
Roman Konopa
Hanuk Kwon
Graciela Lee
Ethan LeGrande
Joshua Lewis-Sandy
Krithika Maki
Linda Mann
Alexandra Marine
Kyle Markel
Asael Martinez
Aleeza Mason
DeAnja McLain
Aastha Mehta
Mila Milner
Ty Mitchell
Lauren Moran
Amarachi Ngwaba
Emily Nisbet
Collin Norvell
Imani Obasi

Madison Pakenham
Cami Parks
Gargi Pathak
Chance Pavlock
Eduardo Pena Mora
Kaitlyn Perkins
Gretchen Plocek
Jeshua Podliska
Gray Podolak
Milcah Poothakary
Gabrielle Prime
Katelyn Proctor
Deborah Rangel
Kenneth Rogers
Sarah Ronda
Nathaniel Rose
Emerald Julianna Salinas
Maya Sanchez
Rachel Self
Nathan Shapiro
Ansley Siemer
Gabriel Simiyu
Abhishek Singh
Kaine Sloan
Jasmine Smith
Christian Stephens
Ganesh Chetan Tallam
Jessica Tan
Zachary VanSaders
Jaxon White
Sarah White
Joshua Winsauer
Colton Wittwer
Eric Wouters
Kanglin Xu
Bustona Yusubakhmedova
Vincente Zavala

PRESENTERS

02.

TOREADOR POSTER SESSION NO. 2

11:30AM-1:00PM

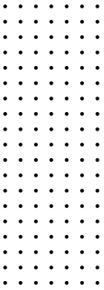
PRESENTERS

Kelsey Agu
Monica Aguilera
Derrick Andreasen
Zoe Andrews
Allison Barnett
Megan Bednarz
Jackson Bell
Meera Bhakta
Isabel Billings
Julia Bullock
Ayrthon Capili
Alexa Chavez
Vijay Chelikani
Juliette Cloutier
Téa Cornelius
Cathryn Corrales
Fatima DeAnda
Theresa Dinh
Mindy Duncan
Riley Edwards
Bryan Estrada
Andrea Estrella
Kensington Fansler
Hannah German
Alexandra Gonzalez
Stephanie Gregory
Yaizeth Gurrola-Mares
Jaden Hendrix
Linh Ho
Katherine Hopkins
Chidera Inyang
Muhammad Hassan Irshad
Junia Lee
Jonathan Locke
Karagan Lynn
Abigail Mammen
Jocelyn Medina
Rose Melendez
(Mohammed) Ghufraan Murtuza
Solai Muthuraman
Monica Nag
Shruti Nagawekar
Amarachi Ngwaba
Stella Niederauer
Leslie Omonzane
Matthew Ontiveros
Sochinenyenwa Onubogu
Lauren Parworth
Bindika Patel
Hannah Powell
Anayansi Ramirez
Mason Reyna
Sarah Ronda
Kellie Schwendiman
Paige Skeets
Christopher Stines
Emily Tucker
Redmon Warmsley
Roshini Yuvarajan

03.

POSTER SESSION NO. 3

2:00PM-3:30PM



PRESENTERS

Benjamin Agarwal
Muhammad Ali Ahsan
Chinyere Ayika
Claire Babcock
Samuel Baker
Paris Balfour
Maria Barrera-Castillo
Merrick Beard
Joshua Biells
Lexi Brown
Brighton Butler
Vijay Chelikani
Jordan Chenault
Connor Chiu
Corey Chiu
Juliette Cloutier
Allie Colan
Dana Marie Danso
Dawit Desta
Rachel DeVolder
Sarah Duffin
Kelly Elliott
RyanOneil Ellis
Andrea Estrella
Alexandra Fletcher
Madison Gales
Paula Garcia
Mikael Garner
Garrison Garza
Kiara Garza
Hannah German
Danielle Haakinson
Joel Heath Hampton
Sydney Harrison
Jersson Hernandez
Samantha Herndon
Lauren Herrera
Payton Hess
Tessa Hoang
Trier Hodge

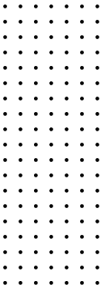
Audra Hoefelemeyer
Alexandra Holderman
Mara Hosaka
Maxwell Houseal
Savannah Hunnicutt
Justin Hutcheson
Sonia Ihezie
Olivia Iskander
Riley Jakino
Julia John
Evan Johnson
Madisen Johnson
Jessie Judd
Taehoon Kang
Rhea Karkera
Rilee Keane
Abby Kirkpatrick
Sreevalli Kolli
Jeremy Lawrence
Madeline Leeah
Carson Lewis
Shelby Lively
Camila Llerena
Savannah Longoria
Michael Loomer
DeSireé Lopez
Anij Mackey
Suzanne Makerecha
Darren Marrs
Julianna McDonald
Sydney Mendoza
Cameron Merryman
Courtney Miller
Mackensie Morgan
Margaret (Addie) Munn
Kaytlynn Nairn
Alexis Nava
Daniah Nesar
Kelvin Obazughanmwem
Ava Oliver

Laura Ownby
Joseph Pantoya
Samuel Patton
Anya Pazhoor
Ashlinn Peters
Sara Phyl
Madison Pomroy
Abigail Pyne
Sarah Qureshi
Anayansi Ramirez
Debra Reiger
Sofi Reyes
Jacob Richardson
Dakota Robison
Maris Rodriguez
Sofia Rodriguez
Ana Rohde
Jazlyn Salazar-Lucero
Anna Sanchez
Camille Schewpe
Maegan Scott
Heather Scott
Daniel Solorzano
Stephanie Spear
Thomas Springer
Elijah Stahr
Zaria Sumling
Farees Syed
Miranda Tello
Abigail Torres
Zachry Valentine
Emma Vasquez
Gwendolyn Wagner
Chloe White
Allison Witherspoon
Shaofang Xue
Roshini Yuvarajan
Kaitlyn Zamagni

04.

POSTER SESSION NO. 4

4:30PM-6:00PM



PRESENTERS

Lillian Agarwal
Monica Aguilera
Jacob Aickareth
Arianna Albertorio
Abdulkader Almosa
Sedra Amassyal
Jamilah Ameg
Yasmin Amin
Adam Amor
Jose Andrade
Aarathi Annamalai
Ariana Aranda
Jazmin Arzate
Niyati Babaria
Esha Basoor
Anna Batalova
Darielle Baustert
Kathryn Bayouth
Jeffrey Bernard
Pinak Bhuban
Anthony Bierschenk
Abbey Bing
Alexander Brito
Alexandra Brojanac
Alexis Brown
Kaitlyn Bui
Callie Butcher
Abbey Calabrese
Eleanna Carris
Shivani Challakonda
Harrison Childre
Lauren Conger
Hallie Conklin
Jessica Contreras
Wyatt David
Gabrielle DeHaven
Jayci Derby
Megan Des Bordes
Matthew DiLeo
Minh Do
Faith Dolan
Zarek Driver

Cherish Dunlap
Brenda Duran
Bryan Estrada
Charles Everingham
Hannah Fellner
Hannah Fornash
Tasnim Gadalla
Mark Gao
Tina Greene
Brenna Gregory
Preston Landry Griffin
Ana Gutierrez
Karsyn Halbgewachs
Annabelle Hays
Rylea Helmberger
Camille Hernandez
Hoang Ho
Cade Holland
Jessica Holliday
Blake Houldsworth
Taylor Hutton
Angelica Infante
Isha Iqbal
Alexis Jays
Elizabeth Jeffery
Jordan Kankam
Sara Kiros
Victoria Knebel
Madilynn Kusch
Abraham Le
Ethan Lumongsud
Keely Lyons
Claire Malone
Elias Martin
Isabella McCormack
McKenna McKay
Brady McLain
Jocelyn Medina
Mark Mikhael
Lindsee Miller
Connor Mills
Rohan Mittal

Raqeeb Mohammed
Ghufran Murtuza
Bailee Newham
Lars Northcut
Alexander Nunnery
William Onyedionu
Melody Paccione
Jilpa Patel
Manini Penikalapati
Katlyn Perez
Caleb Perry
Emily Pham
Rhea Ramani
Nayelly Rangel
Madison Reddock
Katherine Rodriguez
Natalie Rychener
Sofia Ryne
Sebastian Salinas
Adolph Salinas
Isaiah Sanchez
Vishal Sandilya
Daniel Self
Shadt Skawratananond
Addison Slaton
Dorian-David Smith
Sydney Stanley
Musfique Syed
Tanner Taylor
Savannah Ticknor
Coby Trovinger
Chloe Turner
Vishal Ubha
Daniel Ude
Stephanie Valdez
Haley Walker
Jorja Washington
Nolan Watt
Hannah Weaver
Austin Wheelock
Ashley Williams

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Kelsey Agu
Monica Aguilera
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Abdulkader Almosa
Derrick Andreasen
Zoe Andrews
Allison Barnett
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Megan Bednarz
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Monica Nag
Shruti Nagawekar
Daniah Nesar
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Kellie Schwendiman
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Farees Syed
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Chloe Turner
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Jeffrey Bernard
Mauricio Cerda
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Brenda Duran
Bryan Estrada
Andrea Estrella
Tasnim Gadalla
Stephanie Gregory
Yaizeth Gurrola-Mares
Jaden Hendrix
Lauren Herrera
Linda Mann
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Lauren Parworth
Anayansi Ramirez

PROGRAMS

Maris Rodriguez
Adolph Salinas
Paige Skeets
Abigail Torres
Stephanie Valdez
Redmon Warmsley

MCNAIR SCHOLARS

Tirza Alcalá
Melanie Arciniega
Jazmin Arzate
Alexandra Brojanac
Tina Greene
Danielle Haakinson
Francine Hernandez
Lauren Herrera
Kalaya Hicks
Yasmin Khilji-Neal
Sara Kiroso
Daniel Solorzano
Vincente Zavala

PLAINS BRIDGES

Jeffrey Bernard
Angelica Infante
Katlyn Perez
Adolph Salinas
Stephanie Valdez

USDA REEU NUTRITION BEST SCHOLARS

Bryan Estrada
Tasnim Gadalla
Brawson Gould
Jersson Hernandez
Savannah Hunnicutt
Krithika Maki
Gretchen Plocek
Jorja Washington

SACNAS

Jose Andrade
Jeffrey Bernard
Angelica Infante
Katherine Rodriguez
Adolph Salinas

Stephanie Valdez

RURP

Téa Cornelius
Alexandra Gonzalez
Muhammad Hassan Irshad
Junia Lee

HONORS URS

Benjamin Agarwal
Lillian Agarwal
Jennifer Agu
Jacob Aickareth
Jonathan Akene
Adam Amor
Aarthi Annamalai
Claire Babcock
Sofia Banjara
Esha Basoor
Darielle Baustert
Hannah Belinne
Joshua Bielss
Anthony Bierschen
Abbey Bing
Alexander Brito
Alexis Brown
Kaitlyn Bui
Callie Butcher
Abbey Calabrese
Maverick Campbell
Eleanna Carris
Breanna Carruth
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Shivani Challakonda
Jordan Chenault
Harrison Childre
José Conde
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Alexandra Fletcher
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Karsyn Halbgewachs
Joel Heath Hampton
Darby Hanes
Annabelle Hays
Rylea Helmberger
Camille Hernandez
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Tessa Hoang
Cade Holland
Jessica Holliday
Daniel Hsia
Isha Iqbal
Olivia Iskander
Riley Jakino
Jordan Kankam
Elina Khusnatdinov
Gabriel Koeller
Sreevalli Kolli
Madilynn Kusch
Hanuk Kwon
Jeremy Lawrence
Abraham Le
Joshua Lewis-Sandy
Ethan Lumongsud
Keely Lyons
Kyle Markel
Darren Marrs
Elias Martin
Aleeza Mason
Julianna McDonald
McKenna McKay
Jocelyn Medina
Mark Mikhael
Courtney Miller
Lindsee Miller
Connor Mills
Rohan Mittal
Raqeeb Mohammed
Ghufran Murtuza
Bailee Newham
Imani Obasi
Laura Ownby
Joseph Pantoya

Cami Parks
Jilpa Patel
Samuel Patton
Anya Pazhoor
Caleb Perry
Sara Phy
Gray Podolak
Madison Pomroy
Rhea Ramani
Jacob Richardson
Natalie Rychener
Sebastian Salinas
Isaiah Sanchez
Daniel Self
Nathan Shapiro
Shadt Skawratananond
Musfique Syed
Ganesh Chetan Tallam
Tanner Taylor
Coby Trovinger
Chloe Turner
Vishal Ubha
Daniel Ude
Nolan Watt
Hannah Weaver
Jaxon White
Sarah White
Colton Wittwer

CISER

Rachel DeVolder
Paula Garcia
Tessa Hoang
Maxwell Houseal
Riley Jakino
Julia John
Rilee Keane
Brady McLain
Rohan Mittal
Margaret (Addie) Munn
Ghufran Murtuza
Alexander Nunnery
Ava Oliver
Manini Penikalapati
Emily Pham
Nayelly Rangel
Tanner Taylor
Haley Walker

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BY VISITING TRUE.TTU.EDU OR SCANNING THE QR CODE BELOW.



TRUE SCHOLARS: Center for Transformative Undergraduate Experiences Scholars Program

TRUE URCA FUNDING: TrUE Undergraduate Research & Creative Activity Funding

BAT-LSAMP: Bridges Across Texas - Louis Stokes Alliance for Minority Participation

MCNAIR SCHOLARS: Ronald E. McNair Postbaccalaureate Achievement Program

PLAINS BRIDGES: Plains Bridges to the Baccalaureate Program

USDA REEU NUTRITION BEST SCHOLARS: Nutrition Bench-to-Community Engaged Scholars in Texas (Nutrition BEST) Program

SACNAS: Society for Advancement of Chicanos and Native Americans in Science

RURP: Rawls College of Business Undergraduate Research Program

HONORS URS: Honors College Undergraduate Research Scholars

CISER: Center for the Integration of STEM Education & Research

KEYNOTE



DR. LARA JOHNSON
MD, MHS, FAAP, SFHM

UNDERGRADUATE RESEARCH CONFERENCE BANQUET

FT. DR. LARA JOHNSON

THURSDAY, APRIL 13TH AT 6:30PM - 8:30PM

Dr. Johnson is a Professor in the Departments of Pediatrics and Medical Education at Texas Tech University Health Sciences Center and currently serves as the Program Director for the fellowship in Pediatric Hospital Medicine. She is board certified in Pediatrics and Pediatric Hospital Medicine. She received a MD from Baylor College of Medicine and completed her pediatrics residency at Texas Tech University Health Sciences Center in Lubbock. She pursued additional training in the Robert Wood Johnson Foundation Clinical Scholars Program at Yale College of Medicine. She teaches throughout all four years of the medical school curriculum as well as with residents and fellows. She is a member of the Executive Physician Advisory Council at Covenant Children's Hospital.

Hello,

My name is Rilee Keane, and I am a senior cell and molecular biology major. For the past few years, I have served in a microbiology lab under Dr. Peter Keyel at the TTU Department of Biological Sciences. Conducting research on the parasitic disease Leishmaniasis has been quite an adventure! I am so grateful for the resources and support afforded to me through CISER's Program, which has allowed me a footing in the research realm.

Established in 1992, CISER has encouraged and enabled the integration of science education and research at all educational levels while exploring innovative mechanisms for doing so. This year, CISER continues to expand educational opportunities for undergraduate students in all STEM fields. As the President of the CISER Scholar Service Organization (SSO) at Texas Tech, I have been honored to serve such a community.

During my time in CISER, I sought to reciprocate the level of investment the program has offered me. CISER has been a platform on which I learned to be confident as an undergraduate researcher, scholar, and student. I am grateful to have participated in research alongside my fellow CISER scholars. As an organization, we recognize that our success is only as great as its directorship, and CISER has been blessed to be led trans-generationally under the tenacious, high-capacity, yet humble leaders found in Julie Isom and Dr. Lou Densmore.

What an honor to be a part of a generation of world-changers and difference-makers. May we not simply live to make livings, but to make a positive impact in the lives around and beyond us. Here's to a wonderful DTI 2023!

Sincerely,

Rilee Keane

Rilee Keane



RILEE KEANE
SSO, President



ALEX NUNNERY
SSO, Vice-President



MANINI PENIKALAPATI
SSO, Vice President



ANNA JAVINS
SSO, Treasurer



ADDIE MUN
SSO, Treasurer



AVA OLIVER
SSO, PR Director



DR. LOU DENSMORE
Associate Program Director for
Research



JULIE ISOM
Associate Director for
Undergraduate Research

DAY TWO

ENGAGED SCHOLARSHIP SYMPOSIUM

WED, APRIL 12TH

Fostering university-wide engagement through scholarship.

8:45 AM - 10:00AM

**Engaged Scholarship Symposium Panel
Session One**

10:00AM - 11:00AM

**The Importance of Humanities
Outside the Academy**

ft. Dr. Robert Newman, President of the National Humanities Center

10:15AM - 11:30AM

**Engaged Scholarship Symposium Panel
Session Two**

11:30AM - 1:15PM

**Engaged Scholarship Awards
& Keynote Luncheon**

ft. Dr. Robert Newman, President of the National Humanities Center

1:30PM - 2:45PM

**Engaged Scholarship Symposium Panel
Session Three**

3:00PM - 4:15PM

**Engaged Scholarship Symposium Panel
Session Four**

SESSION ONE

8:45AM - 10:00AM

Building Success in

ENGAGED SCHOLARSHIP

RED RAIDER LOUNGE

PROJECT TITLE:

The Scholarship of Engagement in Faculty Evaluation

This session will consider institutional and college-level policy statements for Texas Tech and the College of Education, that are related to engaged teaching, research, and service as examples of institutional policies that may inform the faculty evaluation process. Components of national models will be reviewed in order to identify common themes that can be used by different disciplines to craft their own elements for faculty evaluation of community engaged scholarship.

PRESENTERS:

Dr. Valerie Paton, Professor, Dept. of Educational Psychology, Leadership & Counseling; **Dr. Kamau Siwatu**, Professor & Chair, Dept. of Educational Psychology, Leadership & Counseling; **Sarah Schiffecker**, Research Assistant, Psychology, Leadership & Counseling, College of Education

PROJECT TITLE:

Navigating Grants with Strong Community Engagement Requirements

Because of tenure and promotion policies, faculty feel compelled to develop and submit grant proposals as an additional way to showcase their scholarship activities. Some fund granters require partnerships when focusing on improving various aspects of the communities, and faculty may find themselves peripherally involving the community in development of such proposals. In this session, Dr. Matteson will discuss how to navigate such grants by articulating the steps undertaken to submit a US Department of Education Promise Neighborhood grant proposal in which community engagement was paramount.

PRESENTERS:

Dr. Shirley Matteson, Interim Vice Provost for Outreach & Engagement, Associate Professor of Curriculum and Instruction, College of Education

Engaged Research for

SOCIAL IMPACT

MATADOR ROOM

PROJECT TITLE:

Veggies Win! Adding Vegetables to Meals for Families at Early Head Start

This session will focus on Veggie Wins, a multi-disciplinary program designed and implemented with the collaboration of researchers in nutrition, child development, and behavioral science along with Early Head Start (EHS) teachers and staff. Presenters will focus on understanding the key development and logistical components of nutritional behavior intervention, describing how parental self-efficacy is a critical component in improving nutrition behaviors, and developing specific adaptive techniques to help address toddlers' eating behaviors.

PRESENTERS:

Dr. Conrad Lyford, Professor, Agricultural & Applied Economics, Davis College of Agricultural Sciences and Natural Resources; **Dr. Wilna Oldewage-Theron**, Professor, Nutritional Sciences; **Dr. Stephanie Shine**, Associate Professor, Human Development & Family Sciences and Executive Director of Center for Early Head Start; **Dr. Sara Dodd**, Professor, Human Development & Family Sciences, and Executive Director for the Center of Adolescent Resiliency, College of Human Sciences

PROJECT TITLE:

She Space International Project, International Science Outreach, Educational Program for Female High School Students

She Space International (SSI) is a multi-national science outreach, educational program for the advancement of STEM among female high school students (ages 14-16) that aims to suppress gender stereotypes by introducing female role models and overcome self-induced STEM-related prejudices by introducing new and interesting subjects. This session will concentrate on the successes and challenges of working with a large international group.

PRESENTER:

Dr. Karin Ardon-Dryer, Assistant Professor, Dept. of Geosciences, Atmospheric Science Group, College of Arts and Sciences

PROJECT TITLE:

Examining Turning Points in Building and Sustaining a Successful Long-term Engaged Scholarship Partnership

The Literacy Champions partnership began in 2017 between a team of literacy researchers from TTU and a team of English educators at a historically "underperforming" high school. Over the past six years, the partners have fostered a collaboration that continues to evolve and become more sophisticated from year to year. In this session both researchers and community partners will discuss the impacts of a long-term engaged scholarship study and attributes of their successful partnership.

PRESENTERS:

Dr. Mellinee Lesley, Professor, Dept. of Curriculum & Instruction, College of Education; **Amy Higgins**, Instructional Coach, Lubbock Independent School District; **Elizabeth Stewart**, Doctoral Candidate, Curriculum & Instruction, College of Education; **Johanna Keene**, Doctoral Student, Curriculum & Instruction, College of Education

SESSION TWO

10:15AM - 11:30AM

Building Mutually Beneficial,

SUSTAINABLE PARTNERSHIPS

MATADOR ROOM

PROJECT TITLE:

Community Participant Perspectives: Using F2F and Virtual Focus Groups to Gather Qualitative Data

Communities and universities share common visions and leadership for engaged partnerships, however, most literature focuses on university participants' perceptions of partnerships. In 2019 and 2020 TTU and TTUHSC El Paso faculty members, Dr. Valeria Paton, Dr. Christiane Herber-Valdez, and Research Assistant Sarah Schiffecker, conducted a study that utilized focus groups to gather community partner perspectives. Presenters will discuss the methods utilized to gather community perspectives and their findings.

PRESENTERS:

Dr. Valerie Paton, Professor, Dept. of Educational Psychology, Leadership & Counseling, College of Education; **Dr. Christiane Herber-Valdez**, Assistant Vice Provost & Assistant Professor, Office of Academic Affairs; Medical Education, TTU HSC El Paso; **Sarah Schiffecker**, Research Assistant, Dept. of Educational Psychology, Leadership & Counseling, College of Education

PROJECT TITLE:

Integrating Community Service into Language Curriculum and Building Long-term and Sustainable Partnerships with ISDs

Collaborators, Dr. Yanlin Wang of Texas Tech University, Melissa Hernandez, Principal of Ramirez Elementary School, Mary Dickerson, Principal of Plainview Collegiate High School, and Hunter D'Camp, Chinese language teacher at Ramirez Elementary School will present on their Chinese service-learning course and its aim to increase the cultural diversity in the community. Presenters will articulate examples of incorporating community-engaged and community-based learning activities, as well as strategies to establish mutually beneficial partnerships.

PRESENTER:

Dr. Yanlin Wang, Assistant Professor, Dept. of Classical & Modern Languages & Literatures, College of Arts and Sciences; **Melissa Hernandez**, Principal, Ramirez Elementary School; **Mary Dickerson**, Principal, Plainview Collegiate High School; **Hunter D'Camp**, Chinese language teacher, Ramirez Elementary School

PROJECT TITLE:

Bridge Adventure: Connecting Diverse Students to Each Other, Rural Communities, and Careers through Experiential Learning

Bridge Adventure is an experiential learning program that focuses on appreciation for the outdoors. Starting in 2021, two cohorts of students have been selected for the program which consists of 20 active participants. Students in the program engage in undergraduate research on topics including Leave No Trace communications research and a study of post-fire forest regeneration in subalpine forest area that experienced two overlapping wildfires within a 20-year period. This session will include one of the program's Co-PIs and two student participants who will discuss how Bridge Adventure is using outdoor experiences to teach leadership and self-awareness through service, research, and adventure.

PRESENTER:

Dr. Lindsay Kennedy, Assistant Professor, Dept. of Agricultural Education & Communications; **Dr. Nathan Gill**, Assistant Professor, Dept. of Natural Resources Management; **Jake Burke**, Undergraduate Student Participant, Davis College of Agricultural Sciences and Natural Resources

Engaged Research to Make a

SOCIAL DIFFERENCE

RED RAIDER LOUNGE

PROJECT TITLE:

Lubbock City Voices

Lubbock City Voices is a project designed for an experimental urban theory seminar, where students gather dozens of new oral histories from community members. These histories focus on what the city of Lubbock means to various residents whose lived experiences combine to assemble a rich cross-section of Lubbock's urban history. The session will discuss ethical and technical questions for newcomers to oral history as well as curricular benefits and challenges for graduate study.

PRESENTER:

Dr. David Turturo, Assistant Professor, Dept. of Architecture; **Najmeh Malekpour Bahabadi**, Research Assistant, Huckabee College of Architecture

PROJECT TITLE:

Oral History of Media and Communication Practices Surrounding the COVID-19 Pandemic on the South Plains

This study, currently underway as part of a Spring 2023 graduate seminar will explore the lived experience of the COVID-19 pandemic in greater Lubbock through the lens of media practice, communication, and mis-/disinformation issues. The presenter will report on work in progress, including interviews with a variety of local media practitioners, public health officials, local/school government leaders, and others. The primary goal of the session is to describe locally relevant, research driven collaboration in the classroom and provide opportunities for others to explore and potentially integrate this engaged scholarship process into their own teaching, research, and outreach missions.

PRESENTER:

Robert Peaslee, Associate Professor and Chair, Dept. of Journalism & Creative Media Industries, College of Media & Communications, **Elissa Stroman**, Assistant Archivist, TTU Southwest Collection; and **Hanne Murray**, Doctoral Student, College of Media & Communication

PROJECT TITLE:

Socioenvironmental Hazards in Lubbock TX: Co-Producing Narratives through Social Mapping and Community Experiences

"Envision: A Cartography of Risk in Lubbock" was an outreach educational activity with high school students organized in autumn 2022 by the Red, Equity in Disaster (RED) Lab and supported by a group of collaborators from the Department of Geosciences, AEROS Lab, YouthMappers, and STEM CORE at Texas Tech University (TTU). This presentation will describe and discuss the results of this learning process focused on social and environmental hazards, like air pollution, tornadoes, flooding, and socioeconomic disparities. The presenter will share how RED Lab and students co-produced through social mapping narratives of natural hazards in Lubbock, based on the experiences of the local communities. Attendees will discuss possible directions of outreach and participatory approaches that could be applied in other research projects.

PRESENTER:

Rodolfo Hernandez, Senior Research Associate, Dept of Geosciences, College of Arts and Sciences

SESSION THREE

1:30PM - 2:45PM

Award Winning

ENGAGED SCHOLARSHIP

RED RAIDER LOUNGE

PROJECT TITLE:

The Importance of Community Engaged Scholarship and Research to Address Ongoing Vietnam War Legacies



One of the most compelling Vietnam War legacy issues is the missing-in-action and the need to account for soldiers from all sides whose remains have not yet been found and returned to their families. The U.S. Defense POW/MIA Accounting Agency (DPAA) lists 1,581 Americans as missing; the government of Vietnam estimates 200,000 soldiers missing; and officials from the former South Vietnamese government estimate another 200,000 soldiers missing. The Institute for Peace & Conflict (IPAC) and Vietnam Center & Sam Johnson Vietnam Archive (VNCA) are proud to be playing a role in accounting for the missing from all sides, doing so through projects that incorporate community-engaged scholarship and research. To assist in accounting for the missing, IPAC/VNCA has developed strong partnerships and relationships with U.S. and Vietnamese government agencies, organizations, and citizens.

PRESENTERS:

Dr. Stephen Maxner, Director, Vietnam Center & Sam Johnson Vietnam Archive (VNCA), College of Arts and Sciences; Dr. Ron Milam, Associate Professor of History and Executive Director, Institute for Peace & Conflict (IPAC), College of Arts and Sciences; Dr. Alex-Thai D. Vo, Research Fellow & Assistant Professor, VNCA; Dr. Uyen "Carie" Nguyen, Defense POW/MIA Accounting Agency (DPAA) Research Partner Fellow, IPAC; Mike Dutil, Head of Information Technology, VNCA

AWARD:

2023 President's Excellence in Engaged Scholarship Award Winner in Engaged Research



PROJECT TITLE:

South Plains Clothing Design Challenge

South Plains Clothing Design Challenge (SPCDC) is a service-learning project that provides custom-designed outfits for foster care children living in the Children's Home of Lubbock. Students in their third and fourth years in the Apparel Design and Manufacturing (ADM) program at Texas Tech work collaboratively with a child in need to create an entire ensemble of clothes based on style preference, taste, and functionality of the garments. The SPCDC has several goals, one of which is to alleviate the impact of poverty on children living in a group home and to create pathways out of poverty through exposure to new information and a potential career path.

PRESENTER:

Ashley Rougeaux-Burnes, Assistant Professor, Dept. of Design, College of Human Sciences

AWARD:

2023 President's Excellence in Engaged Scholarship Award Winner in Engaged Teaching



PROJECT TITLE:

Social Engagement as Care: The Animation-Making Workshops (AMW) at TTU

Since 2019, the Animation-Making Workshops (AMW), part of the J.T & Margaret Talkington College of Visual and Performing Arts' NEA Research Lab, services under-or-misrepresented community groups in the context of a research project that seeks to assess the affordances of the animation making process as educational and therapeutic tool. AMW takes advantage of the experiences developed by socially engaged animation practitioners, and benefits from established methodologies used in the areas of Art Therapy, Digital Storytelling, and Filmmaking as Psychotherapy. Rooted in the values of Care Ethics and the principle that all beings are vulnerable but endure different degrees of precariousness, the AMW team has partnered with other TTU units and various community organizations in a transdisciplinary project that also involves TTU graduate and undergraduate students. Partners include the Burkhart Center for Autism Education and Research, the Center for Collegiate Recovery Communities, Bean Elementary School, Parkway Sommersville / Guadalupe Center, the Office of Dispute Resolution of Lubbock County/Juvenile Justice Youth, and the Lubbock Arts Alliance.

PRESENTER:

Dr. Jorgelina Orfila, Associate Professor, School of Art; **Dr. Francisco Ortega**, Associate Professor, School of Art, J.T & Margaret Talkington College of Visual and Performing Arts

AWARD:

2023 President's Excellence in Engaged Scholarship Award Winner in Engaged Creative Activity



PROJECT TITLE:

Reducing Mental Health Concerns in Family Members with Dementia in Lubbock and Rural Texas

Recent estimates suggest that Lubbock County could have over 5,000 individuals that are suffering from some sort of dementia, and most of the patients have at least one informal caregiver (e.g., spouse; sibling) who is responsible for their care. Informal caregivers face significant increases in stress and decreases of resources thus leading to an increase in mental health concerns such as depression and generalized anxiety. Dr Singer along with graduate and undergraduate psychology students work collaboratively with the Garrison Institute of Aging to provide needed mental health services to informal caregivers, significantly impacting their life and coping skills. Students, in turn, gain valuable experience in working with older adults, individuals with Dementia, Parkinson's and Aphasia, and their family members.

PRESENTER:

Dr. Jonathan Singer, Assistant Professor, Dept. of Psychological Sciences, College of Arts and Sciences; **Sarah Sparks**, Research Assistant, College of Arts and Sciences

AWARD:

2023 President's Excellence in Engaged Scholarship Award Winner in Engaged Service

SESSION FOUR

3:00PM - 4:15PM

Award Winning

ENGAGED SCHOLARSHIP

RED RAIDER LOUNGE

PROJECT TITLE:

Let My People Go: The Old Canaan Cemetery Bioarchaeology Project



The Old Canaan Cemetery Bioarchaeology project is a community engaged archaeological field project in partnerships with the living members of the New Canaan Missionary Baptist Church community in Marshall, Tx. Drs. Anna Novotny and Tamra Walter are working collaboratively with church deacons and church members to document the church cemetery, including size, number of graves, establish the biological profiles of those buried there as well as creating a better infrastructure to visit and maintain the cemetery. TTU researchers hope to create an archaeological protocol that can be replicated at other endangered historic cemeteries.

PRESENTERS:

Dr. Anna Novotny, Associate Professor, Dept. of Sociology, Anthropology, and Social Work, College of Arts and Sciences; **Dr. Tamra Walter**, Associate Professor, Department of Sociology, Anthropology, and Social Work, College of Arts and Sciences

AWARD:

2023 President's Emerging Engaged Scholarship Award Winner

PROJECT TITLE:

Raider Creative Advertising Student Agency Keeps Families Close



Cyndie Buckle, an advertising and brand strategy lecturer in the College of Media & Communications, and her students in the Raider Creative Student Advertising Agency developed a partnership with the Ronald McDonald House Charities of the Southwest (RMHCSW) where they plan, execute, and evaluate campaigns for non-profit fundraising events to benefit the RMHCSW. Since this collaboration began in 2020 students have raised \$15,000 in donations from local businesses. The active learning method of teaching advertising campaigns provides TTU students the opportunity to apply learned skills and engage in real world opportunities.

PRESENTERS:

Cyndie Buckle, Lecturer, Dept. of Advertising, College of Media & Communications

AWARD:

2023 Exemplary Program Award Recipient (Excellence in Engaged Scholarship category)



PROJECT TITLE:

The R.E.Y.N.A (Reducing Encounters with Youth through Neighborhood Alliances) Project with the Lubbock Police Department

Dr. Pusch and Anish Quenim established a partnership with the Lubbock Police Department Community Engagement Unit (LPDCEU) and proposed R.E.Y.N.A. as a possible intervention project. With faculty, students, LPD, and Community working in unison, Dr. Pusch and Anish hope to establish measure to predict, intervene and positively influence community youth who are at risk of first-time arrest and re-arrest. In this session, the presenters will discuss the following topics: Assessing juvenile delinquency in Lubbock, Evidence -based crisis negotiations for community crisis intervention, Interdisciplinary partnerships for community success, asset-based community development, and going beyond the classroom with student community engagement for academic success.

PRESENTERS:

Dr. Natasha Pusch, Assistant Professor, Dept. of Sociology, Anthropology, and Social Work, College of Arts and Sciences; **Anish Quenim**, Research Assistant, Dept. of Sociology, Anthropology, and Social Work, **Dr. Andrea Button-Schnick**, Assistant Professor, Dept. of Sociology, Anthropology, and Social Work; **Dr. Adam Schmidt**, Associate Professor, Dept. of Psychological Sciences, College of Arts and Sciences; **Trent Seltzer**, Associate Professor, Public Relations and Strategic Communication Management, College of Media and Communication

AWARD:

2023 Exemplary Program Award Recipient (Emerging Engaged Scholarship category)



PROJECT TITLE:

Supporting Animals and Veterans through Enrichment (SAVE): An Exploratory Study on a Brief Canine Socializing Intervention

An increasing number of US military veterans are accessing education benefits, but the stress of reintegration compounded with any existing post-traumatic stress can significantly impact their health and wellness. The aim of this project is to develop a program where student veterans can come and interact with and socialize shelter dogs on a routine basis. The project involves brief interactions between student veterans and shelter dogs to explore if student veterans' report an improvement in mood states post-interaction and if shelter dogs display reduced behavioral indicators of stress during the interaction compared to in shelter assessments. This project involves partnerships with the TTU Military and Veterans Program, TTUHSC Veterans Resource Center, and the Lubbock Animal Shelter and Adoption Center. SAVE was launched in Spring of 2022 and finished data collection in January 2023. The results of this exploratory project will be used to inform future intervention research aimed towards developing a standardized program to concurrently support veteran and shelter dog well-being within the Lubbock community.

PRESENTERS:

Dr. Anastasia Stellato, Assistant Professor, Dept. of Animal and Food Sciences, Davis College of Agricultural Sciences and Natural Resources; **Emily Webberson**, Masters Student, Dept. of Anima and Food Sciences, Davis College of Agricultural Sciences and Natural Resources; **Katy Schroeder**, Assistant Professor, Dept. of Counselor Education; **Gracie Guerra**, Director, TTU Military & Veterans Programs; **Matt Knight**, Unit Manager, TTU Military & Veterans Programs; **Sara Henly**, Director, TTUHSC Veterans Resource Center

AWARD:

2023 President's Emerging Engaged Scholarship Award Winner

CURRICULAR ENGAGEMENT

PROJECT TITLE:

Connecting the Dots: Social Work Community Engagement with TTUHSC Free Clinic and Lubbock Impact

Lubbock Impact is a nonprofit community organization that empowers the working poor by providing enrichment programs, and resources such as the free medical clinic, dinners, the clothing closet, and food pantry. This discussion led by Dr. Debra Lavender-Bratcher and consisting of three social work students, the Executive Director of Lubbock Impact, and community members who receive services will center around community engagement provided by the students, the importance of professional social work integration with community organizations, and the participant benefits from services provided through TTU social work students.

PRESENTER:

Dr. Debra Lavender-Bratcher, Associate Professor, Dept. of Sociology, Anthropology, and Social Work, College of Arts and Sciences

PROJECT TITLE:

Engaging with Secondary Family and Consumer Sciences Teachers to Improve Work-Based Learning Experiences

Dr. Miller's study examined the quality of work-based learning (WBL) opportunities provided in public secondary Family & Consumer Sciences (FCS) programs in Texas. This study also provided professional development training to help FCS teachers integrate various WBL experiences into the curriculum, as well as learning how to build strong partnerships with business/community partners. This session includes examining the WBL experiences provided in secondary education, exploring the importance of evaluating these experiences, and discussing the key indicators of high-quality programs.

PRESENTER:

Cynthia Miller, Assistant Professor, Dept. of Family and Consumer Sciences Education, College of Human Sciences

PROJECT TITLE:

Research Behind the Walls and Razor Wire – A Partnership Worthy of Pursuit

Research is an essential part of the criminal justice arena and corrections practitioners need evidence-based practices that aim to prevent crime, reduce recidivism, decrease violence, and facilitate programs that lead to successful re-entry. In this session, Dr. Roberson will recap his most recent experiences conducting an engaged scholarship research study in the South Dakota Department of Corrections. Participants will hear of some of the struggles this type of research can face, from IRB approval to getting the support needed from the correctional staff where the studies may be conducted.

PRESENTER:

Dr. Kyle Roberson, Assistant Professor, Dept. of Family & Consumer Sciences Education, College of Human Sciences

DAY THREE

INNOVATIVE RESEARCH DEMO DAY & KEYNOTE LUNCHEON

THURS, APRIL 13TH

Innovation that bridges the gap between the university and industry.

8:00 AM - 1:30PM

Conference Check-In

8:15AM - 1:30PM

Innovative Research Demo Day

11:30AM - 1:00PM

Keynote Luncheon

ft. Ira Green, Founder & CEO of Freedom Brands

5:30PM - 6:30PM

TrUE Scholars Mocktail Social

Invite Only

6:30PM - 8:30PM

URC Banquet

*ft. Dr. Lara Johnson, Professor in the Departments of Pediatrics and
Medical Education*

Invite Only

DEMO DAY

Meet students and faculty from Texas Tech Health Sciences Center, the TTU College of Engineering, and the Rawls College of Business. Also, learn more about the local Sling Health Chapter, a university Student Life-supported pre-incubator program that unites student teams with clinicians and local entrepreneurs to begin healthcare solution development and commercialization in the areas of device, diagnostics, and digital health.

Attendees will have the opportunity to browse the posters and vote on their favorite projects. Attendees will vote on 2 awards: best research project demo by a TTUHSC innovator and best research project demo by a student in engineering. The projects that receive the highest votes in each category will win the first-place (\$500) and second-place (\$250) People's Choice Awards!



PROJECT TITLE:

Nanotechnology Enabled Antibiotics

The use of antibiotics to fight bacterial infections can result in high concentrations of antibiotic biowaste in the environment which can, in turn, increase bacterial resistance to antibiotics. To overcome this issue, biodegradable antibiotics have been a subject of interest. Our research shows that assembly of the hydrophilic and antimicrobial inactive linear-chain polymers into nanostructured polymer molecular brushes (PMBs) turns "ON" their antimicrobial activities collectively, while disassembly of the nanostructured PMBs turns the acquired activities "OFF". From this, we show that nanoantibiotics kill bacteria by selectively disrupting the bacterial membranes while remaining benign to mammalian cells, and environmentally degradable nanoantibiotics help solve the long-standing problem of continuous accumulations of antibiotic wastes in natural habitats. We believe the development of environmentally degradable nanoantibiotics represents a milestone in the search for new antibiotics and has a great commercialization potential to fight drug-resistant bacterial infections.

PRESENTERS:

George Hana and Henry Liang, PhD



PROJECT TITLE:

Advanced Casting Systems-molds for Antibiotic-laden Cement Temporary Implants

In the surgical management of some traumas, prosthetic joint infections, or large bone and soft tissue defects there will often be a need for local antibiotic delivery. One means of accomplishing this is by creating antibiotic-laden cement constructs that can be temporarily implanted to occupy space and elute antibiotics to a regional area in a dose that otherwise may be harmful if given systemically. Advanced Casting Systems created a way to easily and quickly generate these constructs in a much more efficient manner than is customary. In doing this, it alleviates the personnel needed in the operating room, streamlines an otherwise cumbersome process, and optimizes the resources needed.

PRESENTER:

Caleb Gottlich, MD

**PROJECT TITLE:**Just in Time: Rapid Cardiac Response

Sudden cardiac arrest is both an economic and physical health costly ailment in the United States. There is currently no service that monitors those with pre-existing conditions who are at a higher risk for sudden cardiac arrest. There is existing technology, however, that can be used to create a wearable product to create an immediate response for those who are at high risk for sudden cardiac arrests. The device we will be developing will be able to detect changes in both heart rate and the body's electrical signals to alert EMS of an upcoming sudden cardiac arrest while also administering a shock to stabilize the patient until help arrives. Just in Time: Rapid Cardiac Response is a product that will ensure the highest chance of survival and lower the risk of neurological disturbances.

PRESENTERS:**Erin Adams, Matthew Li, Pranathi Bingi, Meron Tesfaye and Ron Banister, MD**

**PROJECT TITLE:**Just the Essentials

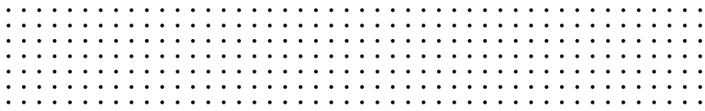
Worldwide, billions of people consume over-the-counter drugs and supplements. Many times, companies put chemicals in these drugs that could be harmful to consumers. We believe that education is the first step in mitigating the effects of these harmful substances in commonly consumed products and seek to empower the consumer to make informed decisions on which drugs they choose to use. With this in mind, we are working to develop a smartphone-based application with a barcode scanner that will serve as an easy-to-access resource for consumers to determine which over-the-counter drug products are safe for them to consume.

PRESENTERS:**Jacob James, Yaw Adu, Allison Vicklund, Matthew Mahek, and Benjamin Lasota**

**PROJECT TITLE:**Myelin Helmet Sensor

The functionality and life span of helmets is incredibly difficult to ascertain. Few people are aware that helmets need to be regularly replaced, and without physical and visual impairment to the helmet, there is very little incentive to change helmets. Some high-end helmets have the capability to inform users of injury, concussions, etc, but the average consumer helmet has no visual, auditory, or sensory indicators of defects until the helmet is visibly broken or an injury has occurred. Our team is therefore working to address this issue by developing visual indicators that help helmet owners assess the integrity and functionality of their helmets. In doing so, we aim to optimize a helmet's performance and limit the chance of injury to the user.

PRESENTERS:**Vishal Bandaru, Marilyn Mathew, Jarrett Toland, Liliana Moreno, Madison Hanson, Christa Oliver, Ryan Garcia, Varshini Suresh, and Blake McLemore**



PROJECT TITLE:

Cardio Compression

Currently, the medical community struggles to efficiently monitor the efficacy of chest compressions during a medical code. Precisely, medical workers on Code Teams and emergency response teams cannot easily measure perfusions or determine if there is proper blood flow to vital organs such as the brain while performing chest compressions in an effort to maintain circulation while reviving patients. Cardio Compression (CardioPress) proposes developing a medical device to increase the efficacy of chest compressions in a way to influence positive outcomes during medical codes. This medical device would assess the effectiveness of chest compressions and decrease the healthcare costs associated with keeping patients longer due to complications from coding.

PRESENTERS:**Foster Ogu, Jacob James, Anna Rossini, and Ron Banister**

PROJECT TITLE:

StarForge: A Design for a Plasma-Assisted Chemical Reactor to Reduce Infrastructure Needs for In-Situ Resource Utilization of Metals

In-situ resource utilization (ISRU), or the ability to access raw materials in space, has been identified as a necessary step in NASA's goals of establishing permanent and sustainable human presence in space. However, while the materials necessary for everyday human life are abundant in space, the processes used today to extract and refine them into useful material are far too heavy and complex to be transported directly into space. The team has designed a process with the potential to serve as a vital method to enable cost-effective ISRU in support of permanent human presence in space, while showing promising applications in the metal processing industry on Earth.

PRESENTERS:**Adrian Brink, Aaron Chadwick, Devon Yeager, Francisco Aguilera, Luke Jackson, Max Kennedy, and Parker White**

PROJECT TITLE:

Motorized Knee Brace



This project aims to design and develop a motorized knee brace that acts as a portable physical therapy device to improve mobility and physical therapy compliance for individuals with knee joint conditions. The research methodology involves conducting a literature review, user research, designing and prototyping the device, testing it on a sample population, and evaluating its effectiveness. The anticipated conclusions are that the device will improve knee joint mobility and improve the overall quality of life for patients.

PRESENTERS:

Pinak Bhuban, Eric Arevalo, Trey Vela, Brianna Wilkerson, Sean Atchue, and Evan Potvin

PROJECT TITLE:

Remote-controlled Decontamination Boat



Playa lakes are primarily filled with runoff; therefore they are prone to contamination. We created a remote-controlled boat designed to collect water samples, eliminating the need to wade into potentially contaminated waters. Our design will simplify the process by decreasing collection time and increasing sampling efficiency.

PRESENTERS:

Nathan Broyles, Allie Smith, Carl Cassel, Carly Weaver, Blake Moore, Liam Schaap, Ben Rush, Chris Smith

PROJECT TITLE:

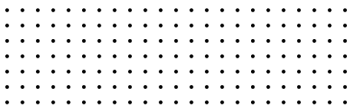
Forklifts in Refrigeration Industry



Our capstone design project aims to increase the efficiency of forklifts in the refrigeration industry, due to constant exposure to extremely low temperatures that lower the viscosity of the hydraulic fluid. This project is a controls system heater in which integrates into the hydraulic fluid reservoir to heat the fluid at its ideal temperature while maintaining stability and control. This ensures smooth operations.

PRESENTERS:

Fabian Borunda, Francis Garcia, Gabriel Hernandez, and Trey Saltzman



PROJECT TITLE:

Tesla Control Valve

Our project is analyze the application of a Tesla Valve, control valve with no moving parts. Today, Tesla Valves do not have many practical applications so we decided to place one at the inlet of a Chinese Valveless Pulse Jet Engine. In theory, the Tesla Valve will ensure the thrust continues in one direction which increases the efficiency of the engine.

PRESENTERS:

Anna Slovak, Zach Lee, Ben Jensen, Tyler Maurer, Bodee Humphreys, and Jake Bradford



PROJECT TITLE:

ASME Robot Design

The ASME Robot design team has developed and manufactured a remote-controlled vehicle based on an Arduino and a custom body design that gathers energy through solar and wind power. This robot drives around an obstacle course to recharge, gather, and drop off weights in a specified zone, all in a 15 minute time period. The robot will compete in around a month.

PRESENTERS:

Elliot Pak, Blake Houldsworth, Akshata Bhide, Deborah Ukoha, Joshua Dira, Alejandro Cardenas, and Oluwasayofunmi Felix-Aremo

DAY FOUR

TEXAS TECH ACCELERATOR COMPETITION

FRI, APRIL 14TH

Launching startups to foster an innovative community.

8:00 AM - 10:00AM

Conference Check-In

Texas Tech Innovation Hub
3911 4TH Street

9:00 AM - 12:15PM

Texas Tech Accelerator Competition

Texas Tech Innovation Hub
3911 4TH Street

2:00 PM - 3:00PM

Social Innovation Challenge

Texas Tech Innovation Hub
3911 4TH Street

5:30 PM - 7:00PM

DTI Closing Party & Awards Ceremony

Texas Tech Innovation Hub
3911 4TH Street

FINALISTS

2023 TEXAS TECH ACCELERATOR COMPETITION

The Texas Tech Accelerator Program is designed to help faculty, students, and other entrepreneurs in the region launch startup companies or discover licensing opportunities based on inventions and university technology. Come and be a part of TTU's own "Shark Tank" event! As a conference attendee, you will see first-hand how startup founders pitch and the tough questions investors ask. Teams accepted into this year-long program will be awarded \$25,000 each to launch their startup.

ABBYROSE

Team: Abby Rosilier, TTU Rawls College of Business Administration student, Aubrey Rosilier, community entrepreneur, and Zack Rosilier, community entrepreneur

A patented phone case rack called the Rose Rack that showcases your phone cases in an organized and aesthetic way.

AGRIVOLTAICS ROYALTY

Team: Blake Mendez, Tulane University Alumni

CleanCo Energie, Inc, is an agrivoltaics project operating company that is developing a cash flow royalty system called the Agrivoltaics Royalty, which pays above and beyond a typical solar land lease.

AURORAX LLC

Team: Dr. Bashir Morshed, TTU Faculty, and Mst. Moriom R. Momota, doctoral student at Texas

Inkjet-printed super-capacitors for solid-state energy storage solution that is safe, inexpensive, quick to recharge, high energy-density, and does not degrade.

DOG DAYS

Team: Marqui Benavides, M.S., RDN, LD, Doctoral Student in Nutritional Sciences

An indoor/outdoor dog park to promote the health and wellness of local pets.

DYMEDROP

Team: Blake Hicks, TTU Alumni, community entrepreneur, and Brooke Hicks, community entrepreneur

Dymedrop is a platform for selling content-rich tickets for event based-attractions.

G&G RANCH

Team: Gabriella Hale, Doctoral Student (RA) of fundamental plant genetics research, and Gary Hale, community entrepreneur

G&G Ranch was founded with a commitment to reduce labor requirements and financial inputs of organically growing specialty-crops utilizing a protective, overhead crop netting system consisting of a suspended, full enclosure insect net around a crop canopy.

GOOD STUFF LBK

Team: Nicholas Hay, TTU Alumni

Good Stuff LBK is an event listing directory for the Lubbock community focused on promoting arts, culture, music, entertainment, food, and small business throughout the city in one easily accessible location.

HICE RECOVERY

Team: Will Stetson, TTU Student

The Hice pack is the first ever all electric heating and cooling pad that is temperature controlled, mobile and adjustable to fit any part of your body.

HOMETOWN HATS CO.

Team: Daniel Hernandez, TTU Alumni, community entrepreneur, J. Tom Snelson, community entrepreneur, and Phillip Ortiz, community entrepreneur

Hometown Hats Co. is focused on providing apparel products to allow customers to represent not only where they call home but also their favorite places around the United States.

MONETA

Team: Dr. Tim Mathis, PE, TTU Faculty, Wendy Adele Humphry, Associate Dean of Texas Tech University School of Law and Mark Matis, Texas A&M Student

Moneta provides a software app for managing systems safety according to the High Reliability Organization (HRO) paradigm.

NEW AMERICAN FABRIC (NAF)

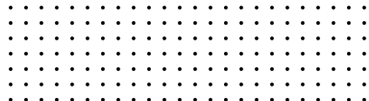
Team: Dr. Phat Tran, TTUHSC Faculty, Dr. Ted Reid, TTUHSC Faculty, Dr. Abidi Nouredine, and Dr. Nick Bergfeld, TTU Instructor

The NAF selenium fabric technology can be covalently attached to cotton and then can catalytically generate superoxide radicals that kill bacteria without harming tissue.

PONTOS

Team: Adam Mulsow, TTU Alumni, community entrepreneur, Amanda Mulsow, community entrepreneur, Will Bednarz, community entrepreneur, and Lindsey Ring, community entrepreneur

Pontos is a collapsible kayak that increases the accessibility of outdoor recreation and paddle sports.



RISKCUIERS

Team: Dr. Akbar Namin, TTU Faculty, Dr. Keith Jones, TTU Faculty, and Saroj Gopali, TTU doctoral student

Create a platform to automatically measure susceptibility of employees to social engineering attacks for the purpose of estimating the premium of coverage for data insurance.

SOILED MYSELF

Team: Oliver Adamo, Department of Mathematics and Statistics student

Premium houseplant potting soil that prioritizes sustainability and accessibility.

TERRA-FORM

Team: Steve Guzman, TTUS Graduate, community entrepreneur, and Jody Hicks, TTUS Alumni, community entrepreneur

Terra-Form is pushing the development of mechanized formworks for sustainable rammed earth construction applications around the globe to reduce cost, carbon footprint, & overall energy consumption.

JUDGES



IRA KAGOVSKY-GREEN
CEO,
Freedom Brands



DR. WERNER KUHR
Associate Vice President for
Innovation & Entrepreneurship,
Texas Tech University



DAREESA REID
Co-Founder,
Notable Systems &
Advisor, Avant-garde Health



KEITH DAVIDSON
Principal-Consulting CFO,
CLA, LLP



JENNIFER SOUTER
Senior Licensing Associate,
Office of Research
Commercialization



DANIEL GREEN
President,
EverChain North America

FINALISTS

2023 SOCIAL INNOVATION CHALLENGE

The Social Innovation Challenge is designed to support entrepreneurs and innovators with venture ideas that create change and make a social impact. The selected venture will be a part of the TTU Accelerator Program and receive \$25K, mentorship, and access to co-working space to help them develop into thriving, sustainable ventures that make a measurable impact!

SMALL TOWN SCIENCE

Team: Dylan Eralie, M.S., TTU doctoral student, and Ryan Eralie

A non-profit company that provides science education resources for ambition youth in areas of low economic resources, in particular rural areas.

VALKYRIE UAS SOLUTIONS

Team: Tyson Harmon, community entrepreneur, and Catherine Self, community entrepreneur

Valerie UAS Solutions will develop a national blueprint for Beyond Visual Line of Sight BVLOS operations that will further enable rural healthcare, tele-health services and shielded UAS corridors.

WAXNEXT

Team: Germaine Njoh, M.S., TTU doctoral student

Wax'Next is an e-commerce retailer dedicated to offering luxury and exclusive items (e.g., clothing and shoes, accessories, home goods and decor, art) made by sustainable African brands and designers which are not easily accessible to customers.

JUDGES



GLEND A MATHIS

Executive Director,
YWCA of Lubbock



SAM SUMNER

Director, Texas Tech University
Outreach & Engagement



CHAD WHEELER

Executive Director,
Open Door



STEPHEN WARREN

President, Community
Foundation of West Texas



JAAFAR ABDULLAH

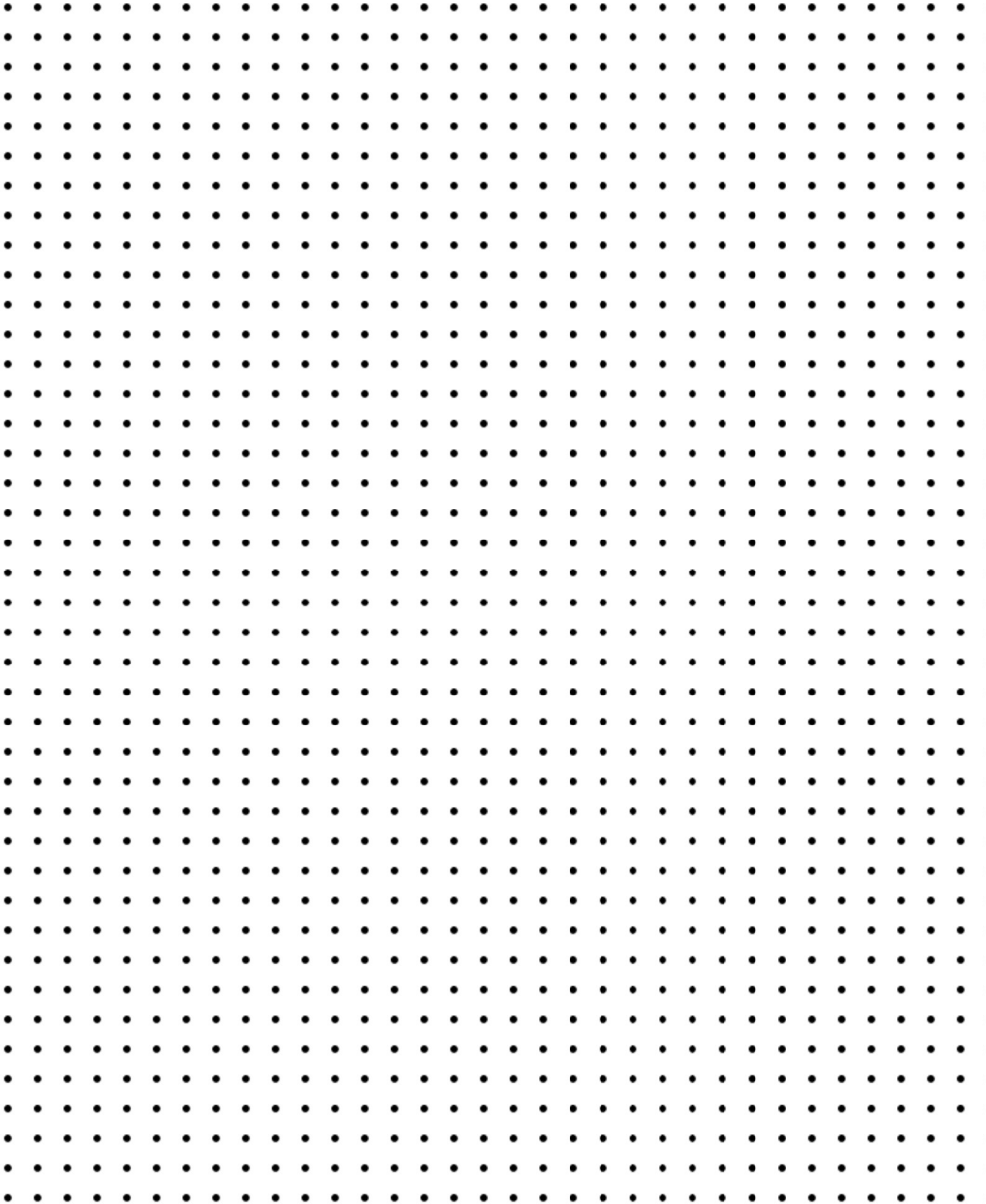
CEO, Innovative Guidance,
Entrepreneurship, & Outreach
Center

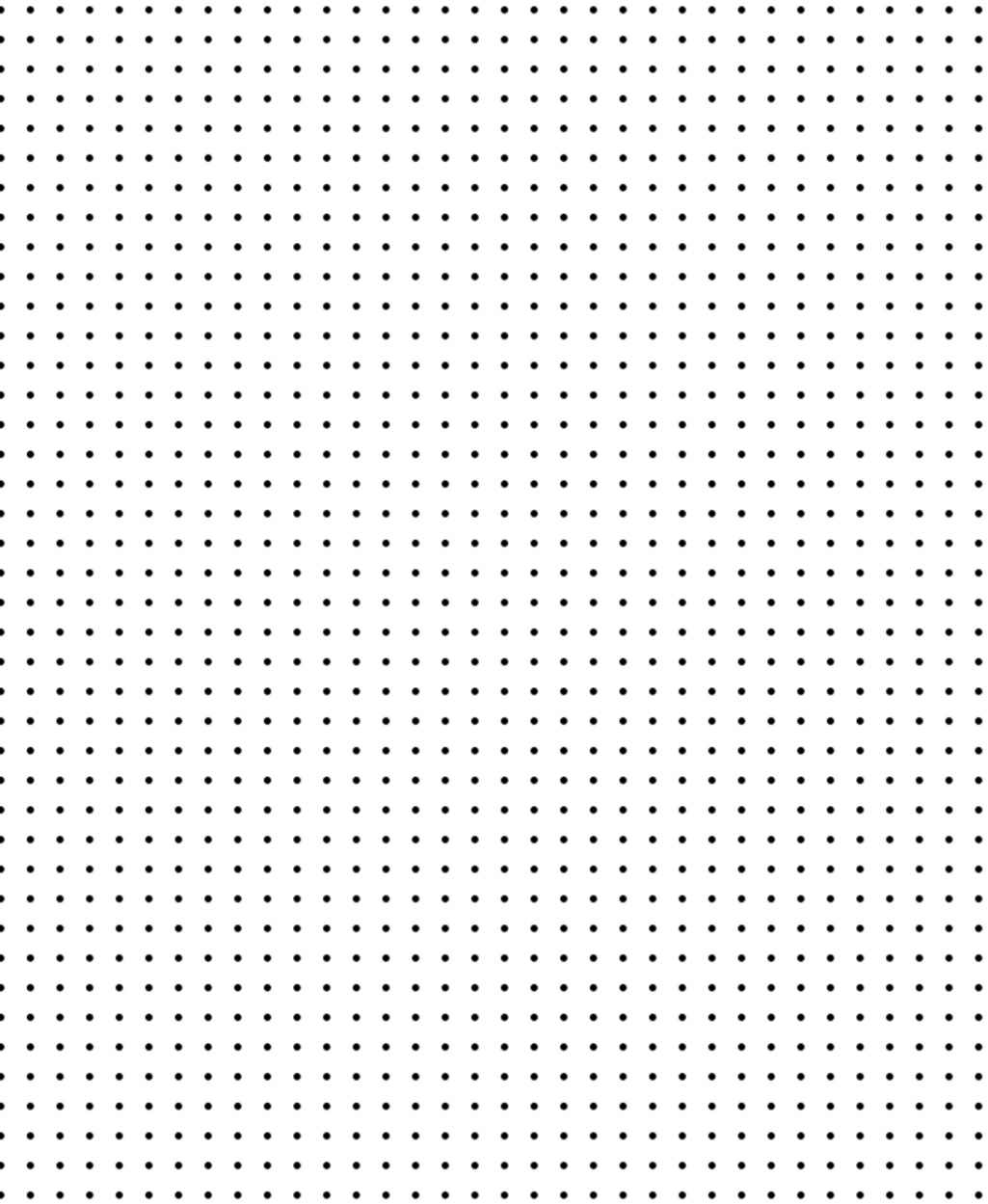


TAMI SWOBODA

Senior Vice President,
Community Foundation of
West Texas

NOTES





Get social!

Use #DTI2023 and share your experience at this year's Discoveries to Impact! Follow our partners on Facebook, Instagram, & Twitter.

CISER

@TTUCISEROutreach

Innovation Hub

@iHubTTU

Outreach & Engagement

@TTUOutreachandEngagement

TrUE

@TTUTrUE

LOCATIONS

STEP 01: VEHICLE REGISTRATION

Register your vehicle online by scanning the QR code.



STEP 02: COME TO #DTI2023

Park in any of the highlighted parking lots.

Student Union Building

The Texas Tech Student Union Building (SUB) is located at the heart of campus.

Parking Lot R11

Band lot. Parking lot south of the SUB.

Flint Ave Parking Garage

Park and pay option located on the top level of the parking garage.

Innovation Hub

3911 4TH Street, Lubbock, TX

The Texas Tech Innovation Hub is located on 4TH Street between the University Medical Center and Quaker Ave.

Parking Lot

Free parking located at the Innovation Hub. No registration required.

PARKING





Stay **IN THE LBK**

 **6TH BEST BUSINESS CLIMATE**
FOR MID-SIZED CITIES - Business Facilities (2021)

9TH MOST AFFORDABLE CITY

- Business Facilities (2021)

3RD BEST CITY TO START A BUSINESS

- Wallet Hub (2021)



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Undergraduate Research Scholars Program

Undergraduate Research Scholars

1992-Present

CISER Scholar Service Organization

1997-Present

CISER strives to build a **seamless community of Science, Technology, Engineering, and Math (STEM)** K-12 students and teachers, undergraduate and graduate students, university faculty, professors, informal science educators, and local, state, and national leaders. Members of this community are involved in a broad spectrum of STEM education, research, and leadership activities designed to promote literacy and effective participation in STEM-related careers and endeavors.

.....
Questions? Please contact: Julie.Isom@ttu.edu

www.ciser.ttu.edu | www.emergingresearch.ciser.ttu.edu



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THE TOTAL DOLLAR AMOUNT INVESTED INTO INNOVATION HUB STARTUP TEAMS.



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**MONDAY THROUGH FRIDAY
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TEXAS TECH INNOVATION HUB



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Engaged Scholarship

involves scholarly activities designed to address a community need or societal issue through:

- Research
- Creative Activity
- Teaching
- Service

Visit Our Website:

outreachandengagement.ttu.edu

Email us at:

universityoutreachandengagement@ttu.edu

OUR SERVICES

- Facilitate partnerships between faculty and communities (non-profit agencies, K-12 schools, healthcare, civic groups, and others)
- Help identify external funding opportunities.
- Recognize faculty for excellence in engaged scholarship
- Provide programs, resources and tools for Texas Tech faculty, staff, and community partners



TrUE | SCHOLARS

The TrUE Scholars program supports first-year and current TTU students through the entire continuum of Undergraduate Research and Creative Activities (URCA) during their time at TTU. The program recruits, trains, and launches talented students into marquee experiences designed to set them apart.

true.ttu.edu/scholars

Year 1



Novilleros (Novice)

Explore research & creative activities

- Explore opportunities
- Learn new skills
- Build your network

Year 2



Toreadors (Apprentice)

Work on group project with your fellow Toreadors

- Join a team
- Work with a professor
- Get funded

Year 3-4



Matadors (Practitioner)

Launch into a one-on-one faculty-led project

- Find a mentor
- Get funded
- Pursue your passion



**Recognition at graduation*



Dear Discoveries to Impact Family,

Thank you for being a part of our 15th annual Texas Tech University Undergraduate Research Conference! We are struck by the weight of the legacy we benefited from in today's undergraduate research and creative activities landscape. Whether you remember the early days of Student Research Weeks with the Howard Hughes Medical Institute Undergraduate Research Scholars and the TTU Honors College --or the climbing wall kick-off with the Center for Undergraduate Research--or a cramped poster session in the second-floor Student Union Matador Room--or this is your first year to join us, just look around.

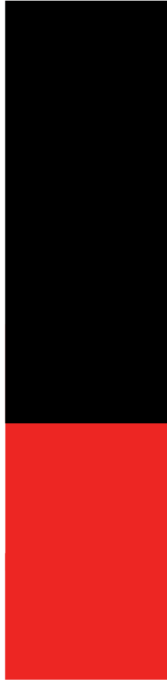
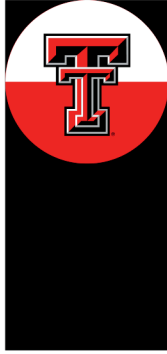
It is impossible to miss the fingerprints of faculty mentors, undergraduate scholars, support staff, and community stakeholders as you walk through our poster sessions and speak with our amazing students!

We honor this legacy through continuing the work and joining together to find the support and resources needed to ensure undergraduate students continue to grow and succeed.

Thank you to the DTI Week Committee, our campus partners, the Lubbock Economic Development Alliance, community sponsors--and most importantly our students--for embodying the spirit of our *Legacy of Impact!*

A handwritten signature in black ink, reading 'Levi Johnson', is written in a cursive style.

Levi Johnson--TrUE Director



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Office of the President

WE WILL SEE YOU NEXT YEAR!

DTI /
2024

MEET THE BEST OF THE BEST AT THE
2024 DISCOVERIES TO IMPACT



APRIL 8TH - 12TH, 2024
ADMIT ONE
REGISTRATION COMING SOON!

DISCOVERIES TO IMPACT
NO. **06**

THANK YOU FOR MAKING DISCOVERIES TO IMPACT A PART OF YOUR
RED RAIDER EXPERIENCE. SEE YOU NEXT YEAR!

STAY UP-TO-DATE WITH ALL OUR UPCOMING EVENTS!

ESTABLISHED
2018



LUBBOCK,
TX

TICKET № 022011

TICKET № 022011

