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)
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

Levi Johnson,
Director, Center for Transformative Undergraduate Experiences

Julie Isom,
Associate Director for Undergraduate Research, CISER

Taysha Williams
Managing Director,
Innovation Hub at Research Park

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2023 DISCOVERIES TO IMPACT | 5
EVENT APP

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

### TUES, APRIL 11TH

**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

**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

**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

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

TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER.
Office of the President

TEXAS TECH UNIVERSITY
Rawls College of Business

TEXAS TECH UNIVERSITY
Office of Research
& Innovation

TEXAS TECH UNIVERSITY
Graduate School

TEXAS TECH UNIVERSITY
Teaching, Learning & Professional Development Center

TEXAS TECH UNIVERSITY
Honors College

TEXAS TECH UNIVERSITY
College of Human Sciences

TEXAS TECH UNIVERSITY
Edward E. Whitacre Jr.
College of Engineering

TEXAS TECH UNIVERSITY
College of Education

TEXAS TECH UNIVERSITY
College of Arts & Sciences

tyler
technologies

DICKINSON WRIGHT
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 AM - 10:00 AM</td>
<td>Come &amp; Go Breakfast</td>
</tr>
<tr>
<td>8:00 AM - 4:00 PM</td>
<td>Conference Check-In</td>
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<tr>
<td>8:30 AM - 9:00 AM</td>
<td>Poster Setup</td>
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<tr>
<td>9:00 AM - 10:30 AM</td>
<td>Poster Session No. 1</td>
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<td>11:00 AM - 11:30 AM</td>
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</table>
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 Bruossard
Georgina Bruette
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 Khusnatiadinov
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
Aleesha 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 Pothakary
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

TOREADOR POSTER SESSION NO. 2
11:30AM-1:00PM

PRESENTERS

Kelsey Agu              Muhammad Hassan Irshad
Monica Aguilera        Junia Lee
Derrick Andreasen      Jonathan Locke
Zoe Andrews            Karagan Lynn
Allison Barnett        Abigail Mammen
Megan Bednarz           Jocelyn Medina
Jackson Bell            Rose Melendez
Meera Bhakta           (Mohammed) Ghufran Muruza
Isabel Billings        Solai Muthuraman
Julia Bullock           Monica Nag
Ayrthon Capili          Shruti Nagawkar
Alexa Chavez           Amarachi Ngwaba
Vijay Chelikani        Stella Niederauer
Juliette Cloutier      Leslie Omonzane
Téa Cornelius           Matthew Ontiveros
Cathryn Corrales       Sochinenyenwa Onubogu
Fatima DeAnda          Lauren Parworth
Theresa Dinh           Bindika Patel
Mindy Duncan            Hannah Powell
Riley Edwards           Anayansi Ramirez
Bryan Estrada           Mason Reyna
Andrea Estrella         Sarah Ronda
Kensington Fansler      Kellie Schwendiman
Hannah German           Paige Skeets
Alexandra Gonzalez      Christopher Stines
Stephanie Gregory       Emily Tucker
Yaizeth Gurrola-Mares  Redmon Warmesley
Jaden Hendrix           Roshini Yuvarajan
Linh Ho
Katherine Hopkins      
Chidera Inyang
# 03. Poster Session No. 3

**2:00PM-3:30PM**

## Presenters

<table>
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<tr>
<th>Benjamin Agarwal</th>
<th>Audra Hoefelemeyer</th>
<th>Laura Ownby</th>
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<td>Muhammad Ali Ahsan</td>
<td>Alexandra Holderman</td>
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<td>Chinyere Ayika</td>
<td>Mara Hosaka</td>
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<td>Claire Babcock</td>
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<td>Samuel Baker</td>
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<td>Lexi Brown</td>
<td>Julia John</td>
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<td>Brighton Butler</td>
<td>Evan Johnson</td>
<td>Debra Reiger</td>
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<tr>
<td>Vijay Chellikani</td>
<td>Madisen Johnson</td>
<td>Sofi Reyes</td>
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<tr>
<td>Jordan Chenault</td>
<td>Jessie Judd</td>
<td>Jacob Richardson</td>
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<tr>
<td>Connor Chiu</td>
<td>Taehoon Kang</td>
<td>Dakota Robison</td>
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<td>Corey Chiu</td>
<td>Rhea Karkera</td>
<td>Maris Rodriguez</td>
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<td>Juliette Cloutier</td>
<td>Rilee Keane</td>
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<td>Allie Colan</td>
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<td>Dana Marie Danso</td>
<td>Sreevalli Kolli</td>
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<td>Dawit Desta</td>
<td>Jeremy Lawrence</td>
<td>Anna Sanchez</td>
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<td>Rachel DeVolder</td>
<td>Madeline Leeah</td>
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<td>Sarah Duffin</td>
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<td>Kelly Elliott</td>
<td>Shelby Lively</td>
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<td>Ryan O 'Neil Ellis</td>
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<td>Mikael Garner</td>
<td>Suzanne Makerecha</td>
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<td>Garrison Garza</td>
<td>Darren Marrs</td>
<td>Miranda Tello</td>
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<td>Kiara Garza</td>
<td>Julianna McDonald</td>
<td>Abigail Torres</td>
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<td>Hannah German</td>
<td>Sydney Mendoza</td>
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<td>Danielle Haakinson</td>
<td>Cameron Merryman</td>
<td>Emma Vasquez</td>
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<td>Joel Heath Hampton</td>
<td>Courtney Miller</td>
<td>Gwendolyn Wagner</td>
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<td>Sydney Harrison</td>
<td>Mackensie Morgan</td>
<td>Chloe White</td>
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<td>Jersson Hernandez</td>
<td>Margaret (Addie) Munn</td>
<td>Allison Witherspoon</td>
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<td>Samantha Herndon</td>
<td>Kaytlynn Nair</td>
<td>Shaofang Xue</td>
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<tr>
<td>Lauren Herrera</td>
<td>Alexis Nava</td>
<td>Roshini Yuvarajan</td>
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<td>Payton Hess</td>
<td>Daniah Nesar</td>
<td>Kaitlyn Zamagni</td>
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<td>Tessa Hoang</td>
<td>Kelvin Obazughanmwen</td>
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<tr>
<td>Trier Hodge</td>
<td>Ava Oliver</td>
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</tbody>
</table>
04.

POSTER SESSION NO. 4
4:30PM-6:00PM

PRESENTERS

Lillian Agarwal
Monica Aguilera
Jacob Aickareth
Arianna Albertorio
Abdulkader Almosa
Sedra Amasyalii
Jamilah Ameq
Yasmin Amin
Adam Amor
Jose Andrade
Aarthi 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
Eleana 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 Mikhail
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
Musifique Syed
Tanner Taylor
Savannah Ticknor
Coby Trovinger
Chloe Turner
Vishal Usha
Daniel Ude
Stephanie Valdez
Haley Walker
Jorja Washington
Nolan Watt
Hannah Weaver
Austin Wheelock
Ashley Williams
TrUE SCHOLARS
Jennifer Agu
Kelsey Agu
Monica Aguilara
Muhammad Ali Ahsan
Abdulkader Almosa
Derrick Andreasen
Zoe Andrews
Allison Barnett
Maria Barrera-Castillo
Megan Bednarz
Jackson Bell
Meera Bhakta
Isabel Billings
Clive Binu
Alexandra Brojanac
Julia Bullock
Abbey Calabrese
Ayrthon Capili
Alexa Chavez
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Juliette Cloutier
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Téa Cornelius
Cathryn Corrales
Shelby Courreges
Fatima DeAnda
Matthew DiLeo
Theresa Dinh
Zarek Driver
Mindie Duman
Riley Edwards
Akre Esmisian
Bryan Estrada
Andrea Estrella
Kensington Fansler
Alexander Favela
Tasnim Gadalla
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Amarachi Ngwaba
Stella Niederauer
Leslie Omonzane
Matthew Ontiveros
Sochinenyenwa Onubogu
Lauren Parworth
Bindika Patel
Manini Penikalapati
Kaitlyn Perkins
Gretchen Plocek
Milcah Poothakary
Hannah Powell
Sarah Qureshi
Anayansi Ramirez
Mason Reyna
Kenneth Rogers
Sarah Ronda
Kellie Schwendiman
Paige Skeets
Daniel Solorzano
Christopher Stines
Farees Syed
Emily Tucker
Chloe Turner
Daniel Ude
Zachary VanSaders
Gwendolyn Wagner
Redmon Warmley
Chloe White
Eric Wouters
Bustona Yusebakhmedova
Roshini Yuvarajan

TrUE URCA FUNDING
Chloe Baines
Madeline Fricke
Tina Greene
Danielle Haakinson
Annabelle Hays
Tessa Hoang
Jessica Holliday
Justin Hutcheson
Sreevalli Kolli
Ethan Lumongsd
Isabella McCormack
Ty Mitchell
Ghufran Murtuza
Cam Parks
Eduardo Pena Mora
Ashlinn Peters
Emily Pham
Gabrielle Prime
Abigail Pyne
Emerald Julianna Salinas
Camille Schweppe
Rachel Self
Abhishek Singh
Elijah Stahr
Miranda Tello
Austin Wheelock
Kanglin Xu

BAT-LSAMP
Isaac Bernal
Jeffrey Bernard
Mauricio Cerda
Cathryn Corrales
Fatima DeAnda
Brenda Duran
Bryan Estrada
Andrea Estrella
Tasnim Gadalla
Stephanie Gregory
Yaizeth Gurrola-Mares
Jaden Hendrix
Lauren Herrera
Linda Mann
Matthew Ontiveros
William Onyedionu
Lauren Parworth
Anayansi Ramirez
PROGRAMS

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

MCNAIR SCHOLARS

Tirza Alcala
Melanie Arciniega
Jazmin Arzate
Alexandra Brojanac
Tina Greene
Danielle Haakinson
Francine Hernandez
Lauren Herrera
Kalaya Hicks
Yasmin Khilji-Neal
Sara Kiros
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
Brawnson Gould
Jersson Hernandez
Savannah Hunnicutt
Krithika Maki
Gretchen Plocek
Jorja Washington

SACNAS

Jose Andrade
Jeffrey Bernard
Angelica Infante
Katherine Rodriguez
Adolph Salinas

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 Bierschenk
Abbey Bing
Alexander Brito
Alexis Brown
Kaitlyn Bui
Callie Butcher
Abbey Calabrese
Maverick Campbell
Eleanna Carris
Breanna Carruth
Hogan Caver
Shivani Challakonda
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Harrison Childre
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Stephanie Grimes
Karsyn Halbgewachs
Joel Heath Hampton
Darby Hanes
Annabelle Hays
Rylea Helmerger
Camille Hernandez
Hoang Ho
Linh Ho
Tessa Hoang
Cade Holland
Jessica Holliday
Daniel Hsia
Isha Iqbal
Olivia Iskander
Riley Jakino
Jordan Kankam
Elna Khusnatinov
Gabriel Koeller
Sreevali 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 Mikhail
Courtney Miller
Lindsee Miller
Connor Mills
Rohan Mittal
Raqeeb Mohammed
Ghufran Murtuza
Bailee Newman
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

**TRUE SCHOLARS:** Center for Transformative Undergraduate Experiences Scholars Program

**TRUE URCA FUNDING:** TrUER 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

**VIEW THE 2023 URC PRESENTATION DIRECTORY**

BY VISITING TRUE.TTU.EDU OR SCANNING THE QR CODE BELOW.
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
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<th>Time</th>
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<tr>
<td>8:45 AM - 10:00AM</td>
<td>Engaged Scholarship Symposium Panel Session One</td>
</tr>
<tr>
<td>10:00AM - 11:00AM</td>
<td>The Importance of Humanities Outside the Academy</td>
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<td>ft. Dr. Robert Newman, President of the National Humanities Center</td>
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<tr>
<td>10:15AM - 11:30AM</td>
<td>Engaged Scholarship Symposium Panel Session Two</td>
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<tr>
<td>11:30AM - 1:15PM</td>
<td>Engaged Scholarship Awards &amp; Keynote Luncheon</td>
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<td></td>
<td>ft. Dr. Robert Newman, President of the National Humanities Center</td>
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<tr>
<td>1:30PM - 2:45PM</td>
<td>Engaged Scholarship Symposium Panel Session Three</td>
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<tr>
<td>3:00PM - 4:15PM</td>
<td>Engaged Scholarship Symposium Panel Session Four</td>
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SESSION ONE
8:45AM - 10:00AM

Building Success in
ENGAGED SCHOLARSHIP

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
**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

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

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 RAIDERS 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 Dutill, 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 Somerville / 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 Aphasias, 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**

**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

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**PROJECT TITLE:**
Raider Cre8tive 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 Cre8tive 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 Strategi Communication Management, College of Media and Communication

**AWARD:**
2023 Exemplary Program Award Recipient (Emerging Engaged Scholarship category)

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**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
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 DEMO
DAY & KEYNOTE LUNCHEON

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<td>Conference Check-In</td>
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<td>8:15AM - 1:30PM</td>
<td>Innovative Research Demo Day</td>
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<tr>
<td>11:30AM - 1:00PM</td>
<td>Keynote Luncheon ft. Ira Green, Founder &amp; CEO of Freedom Brands</td>
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<td>5:30PM - 6:30PM</td>
<td>TrUE Scholars Mocktail Social Invite Only</td>
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<tr>
<td>6:30PM - 8:30PM</td>
<td>URC Banquet ft. Dr. Lara Johnson, Professor in the Departments of Pediatrics and Medical Education Invite Only</td>
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Innovation that bridges the gap between the university and industry.
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.

**PRESENTERS:**
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

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**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

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**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

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**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

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**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

Launching startups to foster an innovative community.

FRI, APRIL 14TH

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
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 Noureddine, 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.
RISKCUERS
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 KAGOFSKY-GREEN
CEO, Freedom Brands

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

DAREEESA 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
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.
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.
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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Questions? Please contact: Julie.Isom@ttu.edu
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Provides innovative and collaborative leadership and support for the university’s strategic priority of engagement with communities across the region, state, nation, and world.

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

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
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!

Levi Johnson--TrUE Director
Thank you for making Discoveries To Impact a part of your Red Raider experience. See you next year!

Registration Coming Soon!

Admit One

April 8th - 12th, 2024

2024 Discoveries To Impact

Meet The Best Of The Best At The University Of Texas - Lubbock

We Will See You Next Year!