

**18TH ANNUAL  
UNDERGRADUATE RESEARCH, CREATIVITY,  
AND INNOVATION FESTIVAL**



**APRIL 7, 2026**

# OFFICIAL PROGRAM

The Undergraduate Research, Creativity, and Innovation Festival  
is brought to you by

**ACU Undergraduate Research, Creativity, and Innovation**

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## A Message from the Director:

It's a pleasure to welcome you to campus for this year's festival! ACU is delighted to host the 18th annual Undergraduate Research, Creativity, and Innovation Festival.

This year, the festival will continue its two-part format, including the evening of April 6 and the full day of April 7. The evening of Monday, April 6 will be dedicated to the Excellence in Oratory Forum contest, where students will showcase their exceptional public speaking skills. A notable segment of the Oratory Forum will feature our students' performances of scriptural passages and powerful speeches delivered by the likes of John F. Kennedy, Frederick Douglass, Barbara Jordan, Gabriela Mistral, and C.S. Lewis. On Tuesday, April 7, students will present their research and creative scholarship as well as poster presentations reflecting a wide breadth of undergraduate scholarship. Attendees on Tuesday are invited to observe projects across a spectrum of disciplines, including biology, engineering, physics, history, literary criticism, rhetorical criticism, biochemistry, biblical studies, missiology, and marketing. This diversity reflects ACU's commitment to helping train students to love the Lord with all their heart, mind, soul, and strength (Mark 12:30).

As with last year's festival, students are encouraged to complete the URCI Festival Badge through ACU Compass. To earn this recognition, students must complete three steps: festival registration, check-in, and the post-festival survey. The badge also requires students to choose to complete an additional three activities throughout the events of Monday and Tuesday (e.g., attend an oral presentation session, visit with a poster presenter, etc.). This badge represents a fun, organized, and scholarly way to engage with the festival. I hope all ACU students complete it!

Finally, I offer a deeply heartfelt thanks to our faculty, whose mentorship fuels student discovery and creativity. I equally applaud our students' hard work and dedication to their scholarly craft. This festival showcases the best and breadth of ACU, made possible by the [insert here] and the Office of Research and Sponsored Programs. I am personally grateful for the excellent work of the URCI Planning Committee, particularly Dr. Aaron Robison, Dr. Kholo Theledi, Dr. Jim Drachenberg, Dr. Josh Brokaw, and Payton Herring. Thank you all for joining us!

Dr. Randall Fowler

Director of Undergraduate Research, Creativity, and Innovation

Assistant Professor of Political Rhetoric and Communication Foundational Course Director

## **Festival Schedule Overview**

### **Monday, April 6, 6:00-7:30 PM URCI Excellence in Oratory Forum**

ACU Library, Packer Forum (2nd Floor)

### **Tuesday, April 7, 7:45 AM – 3:00 PM Registration**

Lobby of the Hunter Welcome Center

#### **8:05 – 9:20 AM Oral Presentations**

HS1: Innovative Rehabilitation and Therapies – LYNAY Classroom

AH 1: Women, Race, and Polarization – AT&T Theater

SOCI 1: Communal and Experiential Learning - McCaleb Zone B

#### **9:30 – 10:50 AM Oral Presentations**

HS2: Human Behavior – LYNAY Classroom

AH 2: Spirituality in Cultural Contexts and Original Works – AT&T Theater

STEM 1: Research in Nuclear Energy and Mathematics – McCaleb Room Zone A

SOCI 2: Social Influences - McCaleb Zone B

#### **11:00 – 11:30 AM Chapel – LYNAY Classroom**

Dr. J.D. Wallace, “Toxic Leadership and the Bramble King: Called to More”

#### **11:30 – 1:00 PM Lunch is served**

McCaleb Room Zone C

#### **11:30 – 12:10 PM Poster Session I**

Hunter Welcome Center Atrium

#### **12:15 – 1:00 PM Poster Session II**

Hunter Welcome Center Atrium

#### **1:30 – 2:50 PM Oral Presentations**

AH 3: Christian Literature and History – AT&T Theater

STEM 2: Research in Biological Science – McCaleb Room Zone A

#### **3:00 – 4:20 PM Oral Presentations**

STEM 3: Research in Chemistry, Biochemistry, and Computer Science – McCaleb Zone A

#### **4:30 – 6:00 PM Top Scholars Presentations – Reeves Alumni Conference Room**

#### **6:00 – 7:15 PM Dinner and Awards Ceremony**

McCaleb Room Zone B and C

## Sessions

Tuesday, April 7, 8:05 to 9:20

### High School 1: Innovative Rehabilitation and Therapies (LYNAY Classroom)

- HS1 – *Pawsitive Rehabilitation: Exploring How Robotic Animals Can Be Implemented into Correctional Facilities*  
Layla Robinson
- HS2 – *Existential Bibliotherapy in Schools: How Depressed Adolescents Can Find Meaning*  
Lilly Vega
- HS3 – *An Analysis of the Presence of Various Genres Within Musical Therapy Treatments for Veterans Medically Diagnosed with PTSD*  
Vivian Dyer
- HS4 – *Breaking the Silence: A Qualitative Evaluation of Augmentative and Alternative Communication Device Limitations and Potential Solutions*  
Alice Anne Riley

### Arts & Humanities 1: Women, Race, and Polarization (AT&T Theater)

- AH1 – *“If Women Had Written Stories”: The Wife of Bath and Janie Cranford*  
Avery Morris
- AH2 – *Edna Needed Therapy: The Awakening and Modern Postnatal Support*  
Brenna Barbarick
- AH3 – *Dreamers of the Golden West*  
Kara Nichols
- AH4 – *Intersectionality's Role in Combating Polarization as Evidenced in “Everything Sad Is Untrue”*  
Emma Walls

### Social Sciences 1: Communal and Experiential Learning (McCaleb Zone B)

- SS1 – *Developing Literacy Teachers’ Instructional Adaptiveness Through a Two-Year Professional Learning Community*  
Brooklyn Arreola, Andrew Huddleston, Stephanie Talley
- SS2 – *Student Investment Funds: Experiential Learning in a Global Context*  
Rachel Wilson, Clarisa Macdonald, Olivia Crist, Ella Kate Siewert, Nicolas Schott, Brittany Deeg, Jody Jones
- SS3 – *Beyond the Barriers: Understanding Student Mission Engagement*  
Shelby Richardson, Ashlyn Wright, Moraa Onchangwa

9:30 to 10:50

### High School 2: Human Behavior (LYNAY Classroom)

- HS5 – *Going All In: How the Strategic Risk of Poker Applies to Prospect Theory*  
Anson Cobarruvias
- HS6 – *Developmental Pathways of Oppositional Defiant Disorder and Conduct Disorder in Early Childhood to Adolescents*  
Emily Brumley
- HS7 – *Beyond the Charts: Applying “Swiftonomics” to Increase Macroeconomic Stability in Markets Experiencing Recessions*  
Alyssa Bridge

## **Arts & Humanities 2: Spirituality in Cultural Contexts and Original Works (AT&T Theater)**

- AH5 – *From East to West: How the Roman Empire Shaped Christian Monasticism*  
Hayley Hampton
- AH6 – *Living in the Red: A Look into Evangelism in Post-Soviet Russia*  
Kallie Morris
- AH7 – *“You Will Know Them by Their Fruit” A Historiography of American Evangelicalism*  
Molly Fortner
- AH8 – *From Ritual to Revenue: Postsecularism, Media Commercialism, and Racial Exploitation in ESPN’s College Football Playoff Coverage*  
Madeline Majors
- AH9 – *As Views Alter*  
Khloe Clark

## **STEM 1: Research in Nuclear Energy and Mathematics (McCaleb Room Zone A)**

- ST1 – *A Radiological Survey of ACU’s Science and Engineering Research Center*  
Gage McClaine, Jim Drachenberg
- ST2 – *Radionuclide Identification in NEXT Lab Environment Samples*  
Judah Jackson, Gage McClaine
- ST3 – *Background Beryllium Survey of ACU’s Science and Engineering Research Center*  
Pierson Taylor
- ST4 – *The First Step to Winning: Catan Placement Strategies*  
Avrie Paxson, Jordan Broussard
- ST5 – *A Putnam Competition Problem Revisited*  
Joshua Fleitas, Hannah Chen, Caleb LeVair

## **Social Sciences 2: Social Influences (McCaleb Zone B)**

- SS4 – *Analyzing the Influence of Gender Stereotypes and Voting for Donald Trump in the 2020 Election*  
Molly Daughterity
- SS5 – *Cultural and Generational Stigma: Barriers to Mental Health Care in Hispanic Communities*  
Nevaeh Ortiz, Brit’ny Stein
- SS6 – *Marketing Strategies of Procter and Gamble and Red Bull: A Case Study*  
Tibby Brown

### **11:30 to 12:10: Poster Session 1 (Hunter Welcome Center Atrium)**

#### **Arts & Humanities**

- AH1 – *Liquigen Miracle: JangaFX Real-Time Rendering*  
Andria Moyer, Matthew Carlson
- AH3 – *The Value of English Studies*  
Ashlyn Anderson
- AH5 – *Man Creates Monster: An Analysis of Frankenstein and Moby Dick*  
June Skelly

#### **Social Sciences**

- SS1 – *School-wide Mental Health Assessments in K-12 Schools: A Systematic Review*  
Claudia Amato, Zoe Prescott, Claire Smothermon, Nevaeh Ortiz
- SS3 – *The Role That (SES) Plays in Influencing the Perceptions and Interventions of Developmental Disorders*  
Chelsea Osae-Asante, Kelly Washington

- SS5 – *Applying the Ten Dimensions of Family Stress Framework to the Experience of Immigrant Families*  
Nathan Wilson
- SS7 – *Alone in the Crowd: The Impact of Social Support on Youth Depression*  
Abby Liu
- SS9 – *Campus-Wide Well-Being Assessments in U.S. Higher Education: A Systematic Review*  
Victoria Blondeau, Jonathan Woodroof, Isabelle Jones, Emily George, Nathan Wilson, Kaden West

### **Science, Technology, Engineering, and Mathematics**

- ST1 – *Biological Effects of Azacitidine Targeting the Leukemia-associated Antigen Cathepsin G, Leader Sequence Peptide CG1 and HLA molecules*  
Aleko Karavias, Naomi Kurian
- ST3 – *Sanger Sequencing of Microsatellite Loci to Characterize Contributions of Non-tandem Indels to Allelic Diversity in *Mentzelia Pectinata**  
Hannah Anthony, Ana Rodriguez, Joshua Brokaw
- ST5 – *The Therma Project Energy Model*  
Aidyn Turk, Alyssa Schaub, Michael Leon, Ethan Delwood
- ST7 – *Dyess ATF Strike Cargo Pod*  
Thomas Lyons, Andrew Heck, Derrick Parker, Steven Infante
- ST9 – *Redesign of the Dyess Air Force Base Oil Cart*  
Abigail Driesner, Lucas Buoni, Merrick Peebles, John Stai, Brandon Belcher
- ST11 – *Hydra Vision*  
Othy Caroe, Tyler Grinn, Justis Miller
- ST13 – *Influence of Growth Hormones on Aberdeen Cross Weanlings*  
Faith Edge
- ST15 – *Impacts of higher protein concentrations on chick growth and weight*  
Abigail Gomez
- ST17 – *MoRocco – A Secure Exam Operating System for Academic Integrity*  
Rocco Guevara, Dr. Aravind Mohan
- ST19 – *Capturing Medical Isotopes Through Metal-Organic Frameworks and Electroplating*  
Colton Roady, Kylie Davis, Kim Pamplin, Esteban Rodriguez, Diego Zometa
- ST21 – *Optimization of Inert Gas Fusion in Fluoride Salts*  
Hunter Blakley, Estaban Rodrigue
- ST23 – *Jones Fracture*  
Hadley Dorries
- ST25 – *Prolonged Concussion Symptoms in a Collegiate Soccer Athlete Months After Initial Injury*  
Madison Steffek, Paolo Gorme
- ST27 – *Fluorescence Modulation Sensing Using Supported Lipid Bilayers (SLBs)*  
Kyuyeon Kim

### **12:15 to 1:00: Poster Session 2 (Hunter Welcome Center Atrium)**

### **Arts & Humanities**

- AH2 – *The Effects of Reading Fiction Literature on Adult Parenting*  
Mikhail Fortner
- AH4 – *Leadership, Gender, and Violence: Assessing How Gender of States' Governors Influences Violent Crime Outcomes*  
Jules Dent
- AH6 – *Cold War on Ice: Antarctica's Impact on Cold War Internationalism*  
Tyson Manis

## **Social Sciences**

- SS2 – *How to Detect Humans Underground: A Case Study of Hamas Tunnels in and Around Gaza*  
Cadence Smith
- SS4 – *The Visual Representation of the Oslo Accords: A Hollow Accords*  
Erick Aguilar
- SS6 – *A Systematic Review of Missiological Perception and Barrier Surveys*  
Shelby Richardson, Ashlyn Wright, Moraa Onchangwa
- SS8 – *Student Trading and Research Fund*  
Tibby Brown, Raylia Thompson

## **Science, Technology, Engineering, and Mathematics**

- ST2 – *Improved Genotyping for Zebrafish mTOR Protein Mutants to Study Ameliorating Effects on Congenital Heart Disease*  
Aliyah Arenas, Avery Jameson, Nadia Tuggle, Joshua Brokaw
- ST4 – *Investigating Antibiotic Resistant Genes*  
Mia Melara, Jennifer Hennigan, Caleta M. Willis
- ST6 – *Rwanda Drainage Study*  
Jonathan Lochrie, Zeke Whisenhunt, Ryan Longanbach, Isaac Arias
- ST8 – *Burner Management System for Wallboard Dryer*  
Jayden Smith, Makenzi Fatheree, Mandy Wilkins, Chidubem Lebechi, Jacob Booth, Alex D'Agostino
- ST10 – *Classifying Severe Nighttime Crashes in Abilene: A Machine-learning Approach*  
Zeke Whisenhunt, Ryan Kutayah, Matt Vechione
- ST12 – *Synchronization of Estrus Cycles in Goats Using a 14-day treatment of PGF2a*  
Luke Leach, Abigail Williams
- ST14 – *Optimizing Small-scale Greenhouse Development in Semi-arid Urban Environments*  
Sean Uy, Braeden Roberson, Joe Almanza
- ST16 - *AquaLogic: Simulated IoT Edge Systems for Diver Safety and Marine Observation*  
Phillip Benard, Aravind Mohan
- ST18 - *Gesture Recognition for Augmented Cultural/Religious Expression*  
Daniil Kochkonbaev
- ST20 - *Extraction of Medical Isotopes from Molten Salt*  
Colton Roady, Diego Zometa
- ST22 - *Improving the Synthesis of MOFs by Using GVL*  
Marianna Espeleta, Diego Zometa
- ST24 - *What is Thoracic Outlet Syndrome and How Does It Affect Overhand Athletes?*  
Kaylee Hawes
- ST26 - *Reactions of Osmium Carbonyl with Bromo-substituted Pyrazoles*  
Joshua Trujillo, Chris Scott, Dr. Gregory Powell, Dr. Cynthia Powell

**1:30 to 2:50**

## **Arts & Humanities 3: Christian Literature and History (AT&T Theater)**

- AH10 – *Understanding the Doctrine of Inspiration in Light of Major Variants in Codex Bezae and Church Practices*  
Isaac Newberry

- AH11 – *How Did He Get That Conclusion? An Analysis on Joachim de Fiore, His Understanding of the Millennium, and Its Influence*  
Olivia Gonzalez
- AH12 – *Criteria, Literature, and Community*  
Trayton Weeden
- AH13 – *Cartography in the High Middle Ages: An Exploration in Maritime Trade, Knowledge Exchange, and Society*  
Rowan Dooldeniya

**STEM 2: Research in Biological Science (McCaleb Room Zone A)**

- ST6 – *Long-term Side Effects of Taxane-based Chemotherapy*  
Collin McClellan
- ST7 – *Improved Genotyping for a Zebrafish  $\beta$ -Myosin Heavy Chain Mutant to Study Variations in Congenital Heart Disease*  
Avery Jameson, Nadia C. Tuggle, Aliyah M. Arenas, and Dr. Joshua M. Brokaw
- ST8 – *Development of New Microsatellite Loci to Study Gene Flow in the Annual Wildflower *Mentzelia Pectinata* (Loasaceae)*  
Ana Rodriguez, Hannah M. Anthony, Gisela E. Guerrero, and Joshua M. Brokaw
- ST9 – *Pedigree of a Rare Variant of the MYH7 Gene Associated with Cardiomyopathy*  
Danielle Galon, Pheben Abebe, Joshua Brokaw
- ST10 – *New Protocol for Genotyping Casper Zebrafish Mutants Using RT-PCR in a University Genetics Course*  
Pheben Abebe, Danielle Galon, Joshua Brokaw

**3:00 to 4:20**

**STEM 3: Research in Chemistry, Biochemistry, and Computer Science (McCaleb Zone A)**

- ST11 – *Exploring Sorcerer's Cave: A Possible New Source of Antibiotics from *Pseudomonas* Species SC1154*  
Amy Osborn, Faith Jackson, Kathleen Lee, Jennifer Huddleston
- ST12 – *Reactions of 1,2-benzisothiazol-3(2H)-one with Osmium Carbonyl*  
Griffin Sullivan, Cynthia Powell, Greg Powell
- ST13 – *Synthesis and Reactivity of a Coordinatively Unsaturated Organometallic Diosmium Complex*  
Keaton Raney, Jermiah Polk, Joshua Trujillo, Cynthia Powell, Gregory Powell
- ST14 – *International Dietary Guidelines: A Comparative Analysis for the United States, United Kingdom, India, Japan, Sweden, Liberia, and Democratic of the Republic of the Congo*  
Deograce Tshilumba Musue, Shelia Jones, Josh Rhodes

**4:30 to 6:00**

**Top Scholars (Alumni Conference Room)**

- AH16 – *Longnecker Scholars Program*  
Elise Grigsby
- SS7 – *Family Communication, Rumination, and Assertiveness in International Adoptees*  
Logan McSorley, Dr. Richard Beck
- ST16 – *Gene Flow Between "Races" of the Annual Wildflower *Mentzelia pectinata* (Loasaceae) Based on Multiple Microsatellite Loci*  
Gisela Guerrero, Ana Rodriguez, Hannah Anthony, Amy Osborn, Joshua Brokaw

ST17 – *How to HEARTlessly Beat Your Kids*

Phoebe Galan, Dr. Jordan Broussard

ST18 – *Green Synthesis of Metal-Organic Frameworks for Isotope Extraction and Purification*

Ashirafu Tuyishime, Diego Zometa

**A special thanks to...**

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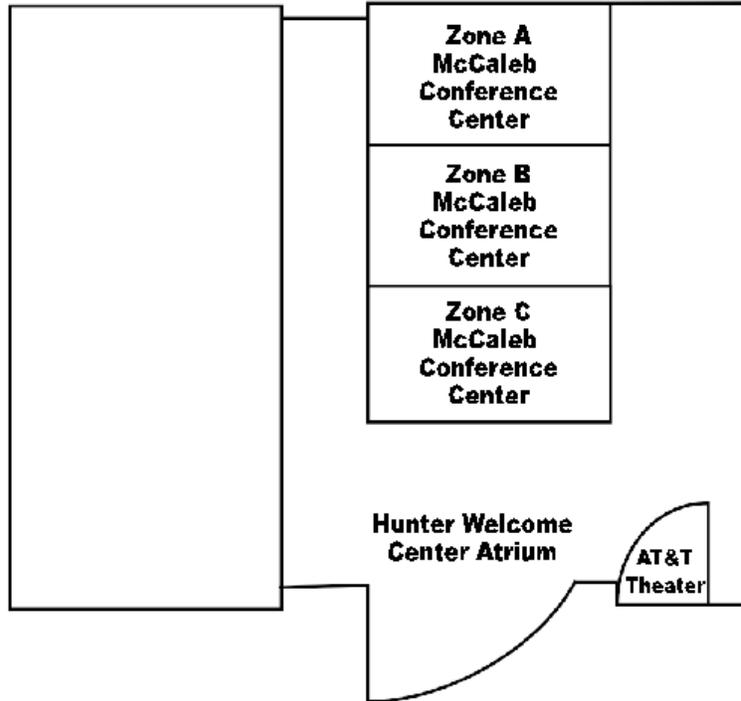
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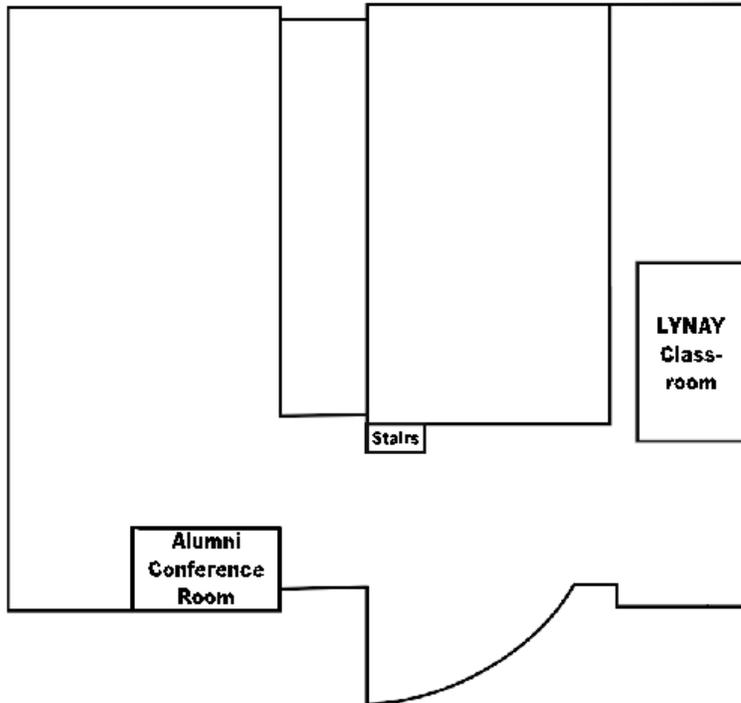
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### Hunter Welcome Center 1st Floor



### Hunter Welcome Center 2nd Floor



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