

**2021 ACU
UNDERGRADUATE RESEARCH
FESTIVAL**



**MARCH 30, 2021
OFFICIAL PROGRAM**

The ACU Undergraduate Research Festival
is brought to you by

The Office of Undergraduate Research.

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A Message from the Director:

Welcome to ACU's 13th annual Undergraduate Research Festival, presented for the first time in a hybrid online/in-person format. This conference celebrates some of the best of our students' work – work that requires intellectual curiosity, creativity, and critical thinking. Together we also honor the partnership between the student researchers and the faculty who mentor them. Many hours of hard work have gone into the preparation for this event, so many thanks to the Research Festival Planning Committee. And finally, whether you are presenting your research, judging the entries, or simply learning about others' research, we are so appreciative of your support for our Undergraduate Scholars. Enjoy the Festival!

Dr. Joshua Brokaw

Faculty Director of the ACU Office of Undergraduate Research

Faculty Sponsor of the ACU Undergraduate Scholars



**UNDERGRADUATE
SCHOLARS**

Synchronous Virtual Oral Presentation Sessions

9:40 to 11:10

Social Science 1

- SS16 – *The Problem of Low Youth Voter Participation in Texas: Causes and Consequences*
McKenzie McPherson
- SS17 – *The Gift of Time: The Practice of Sabbath by College Students*
Emily Padgett
- SS18 – *MAXimum Effort? An Analysis of Boeing's Crisis Response*
Sebestyen Szenttornyai
- SS19 – *The Influence of Social Media on the Self-Perception of African American Racial Bias and Stereotypes*
Aviel Weaver

Arts & Humanities 1

- AH04 – *Ways to Manage and Reduce Performance Anxiety for Voice Professionals – An Exploration of Somatic Approaches*
Antonio Adame
- AH06 – *The Harsh Reality of the 'Be Kind Lady': An Analysis of The Ellen Show Crisis*
Madelyn Cupit
- AH07 – *Eternal Sunshine of the Male Gaze*
Skye Gill

STEM 1

- ST24 – *Lean Manufacturing Practices at NEXT Lab Management*
Sergio Carranza
- ST25 – *Polarized Drell-Yan Process to Study Sea Quarks at Fermilab E1039*
Isla Casey
- ST26 – *Use of Alpha Benzoin Oxime to Harvest and Isolate Molybdenum-99 from Other Fission Fragments*
Mallorie Coltharp, Diego Zometa
- ST27 – *Learned Helplessness and Mental Health Issues Related to Distance Learning Due to COVID-19*
Adam Garcia, Garrett Powell, Davis Arnold, Luis Ibarra, Matthew Pietrucha, Michael Thorson, Abigail Verhelle, Nathan Wade, Samantha Webb, Adam Saxton
- ST36 – *ACU NEXT Lab Reactor Design Optimization*
Wyatt Witemeyer

Abilene High

- AHS1 – *The Name of the Game (Video Game Sports vs Real Life Sports)*
Jaumarian Burnett
- AHS2 – *Treating Trauma: Dissociative Amnesia and the Different Methods of Treatment*
Emma Horn
- AHS4 – *Search Algorithms and Social Media*
William Hampton
- AHS5 – *Cancel Culture: A Study of its Effects on Individuals and Public Opinion*
Andrew Milam, Vic McCracken

Asynchronous Virtual Poster Presentations 12:10 to 1:30

Arts and Humanities

- AH01 – *Juan A. Monroy: What Was Different in 1995 When He Wrote to Bill Stough?*
Clarissa Flores
- AH02 – *Middle East Analysis: The Series of Normalizations Among Arab Countries and Israel*
Mark Shi
- AH03 – *Did the Government of Israel Violate Citizens' Civil Liberties and their Basic Law by Tracking their Cellphone Devices?*
Sierra Shoaff

COVID-19

- C1 – *Molecular Basis of SARS-CoV-2 Treatments*
Allie Brandon, Rachel Browning, Olivia Sula
- C2 – *SARS-CoV-2 Vaccines*
Rachel Browning, Allie Brandon, Olivia Sula
- C3 – *Overview of SARS-CoV-2*
Alyse Dowell, Kirsten Gaffner, Lisette Rojero-Sandoval
- C4 – *B Cell Responses in SARS-CoV-2 Infections*
Lucas Tobar, Bao Catteau, Morgan Fortner

Science, Technology, Engineering, and Mathematics

- ST01 – *Alternative Energy Sources for Rural Areas with Little to No Infrastructure*
Daisy Abernathy
- ST02 – *Patterns of Antibiotic Resistance in Pseudomonas Cave Isolates*
Evan Babb, Sophia Wagle
- ST03 – *Radial Head Prosthetic in a Tennis Player: A Case Study*
Josselyn Castillo
- ST04 – *Comparing Molecular and Morphological Variation Among Enigmatic Populations of Mentzelia Section Trachyphytum (Loasaceae) from Western California, USA.*
Kylie Davis, Mariana Castillo, Tyler Sanchez, Katelynn Shupe
- ST05 – *Molecular Investigation of Biogeographic Origins Among Populations of Mentzelia dispersa (Loasaceae) from Western North America.*
Brianna Douglas, Kaylee Dahl, Katie Howe
- ST06 – *Furthering the Synthesis of Phorbasone A*
Alyse Dowell, Steven Carroll, Kotono Babaguchi

Science, Technology, Engineering, and Mathematics [Continued]

- ST07 – *The Design of a Molten Salt Filter Testing System*
Josh Dowell, Reuben Howe, Tim Head
- ST08 – *Construction of a Media Filter Testing System for Molten Salt*
Reuben Howe
- ST09 – *Results of the Annual Camera Trapping Survey of Abilene State Park*
Jonathan Jasper, Brianna Douglas, Chelsea Twohy, Simone Cothran
- ST10 – *Knowledge Spirals in Discord*
Jael Morel, Camila Rodrigues, Alissa Davis
- ST11 – *Design and Construction of the Molten Salt Storage Unit*
Chad Onstead, Joshua Beck
- ST12 – *Design of an Optical Access for Salt Spectroscopy*
Michael Ranger
- ST13 – *Detailed Design of the Main Tank for the Molten Salt Test System*
Johnathan Ross, Michael Ranger, Tom Baily, Tim Head
- ST14 – *Development and Function of the Fluoride Molten Salt Test Loop Gas Blanket System*
Bertha Sanchez, Keaton Brewster
- ST15 – *Connecting, Manipulating and Visualizing Nucleic Acids in a Wet-Lab Setting*
Tyler Sanchez, Jaden Roberts, Joshua Holt
- ST16 – *Molecular Comparisons Among Morphologically Cryptic Species in the *Mentzelia albicaulis* Complex (Loasaceae).*
Katelynn Shupe, Megan Howard, Shelbi Stephenson, Hongjian Chang
- ST17 – *Isolation of Bioactive Secondary Metabolites from Cave Bacteria*
Justin Tobar
- ST18 – *3D Printing Accelerates RandD at ACU's NEXT Lab*
McKenna Towell
- ST19 – *Flange Pressure Test Design for Molten Fluoride Salt*
Aline Tresnor Ineza, Samuel Lopez, Tom Bailey
- ST20 – *The Avian Species Composition and Population Densities Relative to the Mortality Rates of Bird-Window Collisions on the ACU Campus*
Chelsea Twohy, Grace Russell, Simone Cothran, Michael Griffith, Katelyn Zak, Bryanna Aguilar, Courtney Jacobs, Hayden Griffin, Hunter Meroney, Gerald Zuniga, Clarissa Flores, Katarina Moreno, Seth Crockett, Jacob Brown
- ST21 – *Implementation of Autodesk's Inventor and Vault in NEXT Lab's Research*
Aimee Diane Uwineza
- ST22 – *Analyzing Molten Salt Headspace Gas using GC-MS*
Tierra West
- ST23 – *Tongue Laceration: A Clinical Case Study*
Kelton Wylie

Social Sciences

- SS02 – *Water Issues in Mexico City Throughout Time*
Royce Clough
- SS03 – *Rates, Factors, and Prevention of Recidivism in the Big Country*
Courtney Hines
- SS04 – *Sluggish Trains and Incomplete Cable Cars: The Failure of Chinese Investment in Tanzania*
Erin Hodgson
- SS06 – *Disney's Quest for Success in its Racial Representation and Diversity in its Animated Human Feature Films*
Katie Pantoja
- SS07 – *Professional Collaboration as a Tool to Enhance Research Interest and Skills*
Faith Parsons, Gloria Atkinson, Hanna Brown, Hugh Castillo, Emily Flatt
- SS08 – *Theistic Humility and Belief in Science*
Gina Pham, Zach Valentine, Samuel Gomora, Gabby Tidwell, Alexis Miles, Katie Kilmer, Cooper Mitchell, Katrina Sie, Bailey Berry, Keziah Chacko, Allison Witherspoon, Jillian Ruiz, Shyanne Gamez, Emma Tidwell
- SS09 – *Comparing Israeli and Indian Nationalism to the Concept of Partition*
Jessica Rice
- SS10 – *How Long Until Lunch? Effects of Time of Day in Taylor County Sentencing*
Cody Sargeant
- SS11 – *The Criminal Justice System and Sexual Assault*
Kathryn Walker

Photography: Images of Aging

Strength

- Una Hija, Una Madre, Una Abuela*
Macy Carter
Jianna Castillo
- Zoom for the Weekend*
Thomas Chambers
- Alive Within*
Leslie Converse
- Barbecuing with the Hills*
Brianna Diaz
- Branding Season*
Taylor Everitt
- Eternal Warriors*
Gracie Jeffus
- Victory Scene*
Coby Johnson
- Pilot*
Sara Grace Parks

God's House is Always Open

- Alyssa Phillips
- Virtual Peace*
Becca Ritchie
- Mimi*
Kendyl Rogers
- Pop in the Shop*
Kendyl Rogers
- Chemistry is Fun!*
Selasi Sarfo
- Story-Like Sunlight*
Merrellann Sawyer
- A Close Call*
Ashley Stamps
- Successful Aging in Place*
Laurel ann Wood

Synchronous Virtual Oral Presentation Sessions

1:50 to 3:10

Social Science 2

- SS12 – *The Abraham Accords: A Look Into The Future Of The Middle East*
Beau Hancock
- SS13 – *In-Person to Online: A Look at Abilene Christian University's Situational Crisis Communication*
Lauren Little
- SS14 – *A Networks Approach to Community Well-Being: A Practical Framework to Promote Human Flourishing and Sustainability in Bounded Resource Communities*
Ricardo Lopez
- SS15 – *Fair Trade and Consumers*
Emily McDonald

Arts & Humanities 2

- AH09 – *From Monstrosity to Maternity: A Feminist Look at the Revolving Role of Maleficent in Fairy Tale Film Adaptation*
Emily King
- AH14 – *Renewing a Reputation: An Analysis of Yale's Discourse of Renewal Strategy*
Emilie Thompson

STEM 2

- ST28 – *Construction of an Inverted Microscope for Magnetic Tweezer Analysis and Other Microscopic Applications*
Gerry Lara & Grace Lu
- ST29 – *Software Development for Fluoride Molten Salt Test Loop Level Sensor Control*
Felix Mbikogbia
- ST30 – *FMSTL LOOP Assembly and MSTL BYPASS Design and Construction*
Yves Ngenzi & Adam Kish
- ST31 – *Atomic Absorption Spectroscopy using Molten Salt*
Cori Pedroncelli & Melissa Powell

Synchronous Virtual Oral Presentation Sessions

3:30 to 4:50

Social Science Research on COVID-19

- C5 – *College Dating During a Global Pandemic*
Breanna Box, Daniel Dossey, Drake Hernandez, Delaney McKeown
- C6 – *The Impact of COVID-19 on Career Opportunities in a University Population*
Anna Crawford & Catherine Nichols
- C7 – *University Student Response to Campus Policies During a Global Pandemic*
Breanna Matthews & Tessa Cisco
- C8 – *Post COVID-19 Adjustment Anxiety*
Peyton Himango & Natalie Dindorf

Arts & Humanities 3

- AH11 – *Totalitarianism and the Weaponization of Language in 1984*
Brian Patton
- AH12 – *An Androgynous God?: Mapping out Early Christian Views of God's Gender*
Cecily Powell
- AH13 – *The Perfect Performance Which Wasn't Enough: the USAG Sexual Assault Crisis Through the Lens of Image Restoration Theory*
Megan Scott
- AH15 – *Getting Into Law School is Not Enough: An Analysis of Bar Exam Preparation and Related Student Services for African American Students at Select Law Schools*
Rachel Williams

STEM 3

- ST32 – *Design and Implementation of the Salt Purification System for Hydrofluorination of FLiNaK Salt*
Luke Prins & Michael Arrasmith
- ST33 – *Novel Benzamide-Bridged Diosmium Complexes*
Stephanie Tran, Rebecca Atkins, Gregory Powell
- ST34 – *Development of Color Indicator for Molybdenum in Solution*
Sophia Wagle & Diego Zometa
- ST35 – *Comparing SPISEA Simulations of Globular Clusters to Observed Data*
Matthew Weeden

In-Person Oral Presentation Sessions
Hunter Welcome Center
6:00 to 8:00

Zone A: Social Science

- SS20 – *Should the Education System Believe in Second Chances?: The Relationship Between Redo Policies and Academic Success in Texas Schools*
Brookley Baker
- SS21 – *Self-Esteem, Loneliness, and Autonomy in College Students: Connection to Divorce*
Jaycee Coker
- SS22 – *Teacher Resistance to Curricular Control: A Literature Review Study*
Emily Colwell
- SS23 – *A New Municipal Strategy for Latin American Women Achieving Representation*
Kennedy Guerra
- SS24 – *A Company in Denial: An Analysis of Johnson and Johnson's Situational Crisis Communication Discourse*
Sahori Hernandez-Quñones

Zone B: Arts & Humanities

- AH16 – *Erin go Bragh: Irish Nationalism and the IRA in 20th Century Ireland*
Aiden Beck
- AH17 – *Black Cat, Yellow Cat: How Chinese Socialism Took on a Character of its Own*
Alexander Chamales
- AH18 – *Questions of Humanity: Orientalism in Blade Runner*
Emma Conatser
- AH19 – *Corrector of Colossians: GA 1831*
Hannah Garza
- AH20 – *Zoey's Extraordinary Playlist: Grief and Mourning on TV*
Mary Heather Johnson
- AH21 – *The Impact of Human Religious Practices in Fleabag Season Two*
Jackson Scott

Zone C: Science, Technology, Engineering, and Math

- ST37 – *Helium Bubbling for Molten Salt Filtration*
Keaton Brewster, Reuben Howe, Bertha Sanchez, Felix Mbikogbia, Timothy Kennedy
- ST38 – *Hematoma Found Within the Vastus Lateralis Muscle on a Female Soccer Player: Clinical Case Study*
Sydney Brown, Gwendolyn Ellis
- ST39 – *Novel Dihydride-Containing Diosmium Complexes Synthesized with 3,5-Dimethylpyrazole*
Sarah Dunn, Ashley Archambeau, Payne Rodriguez, Cynthia Powell
- ST40 – *Formation of a Pesticidal Coating Using Novel Capsaicin Derivative*
Leonardo Garcia
- ST41 – *The Quantification of the Thermal Degradation of Sodium Bifluoride and the Development of Kinetic Models for Use in Hydrofluorination*
Ronald Laehn & Dakotah Martinez
- ST42 – *Using Column Chromatography to Capture Molybdenum in Solution*
Sophia Wagle & Diego Zometa
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Jennifer Hennigan	Dan Morrison	

...the ACU Undergraduate Scholars Panel

Emily Branson	Brianna Garrett	Noah Pruitt
Alexander Chamales	Hannah Garza	Kaitlyn Santineau
Jaycee Coker	Sahori Hernandez-Quñones	Jackson Scott
Emma Conatser	Elizabeth Jennings	Sophia Wagle
Alyse Dowell	Mary Heather Johnson	
Leonardo Garcia	Ranj Lohony	

...the Undergraduate Research Festival Planning Committee

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...our many presentation judges from offices and disciplines across the university

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