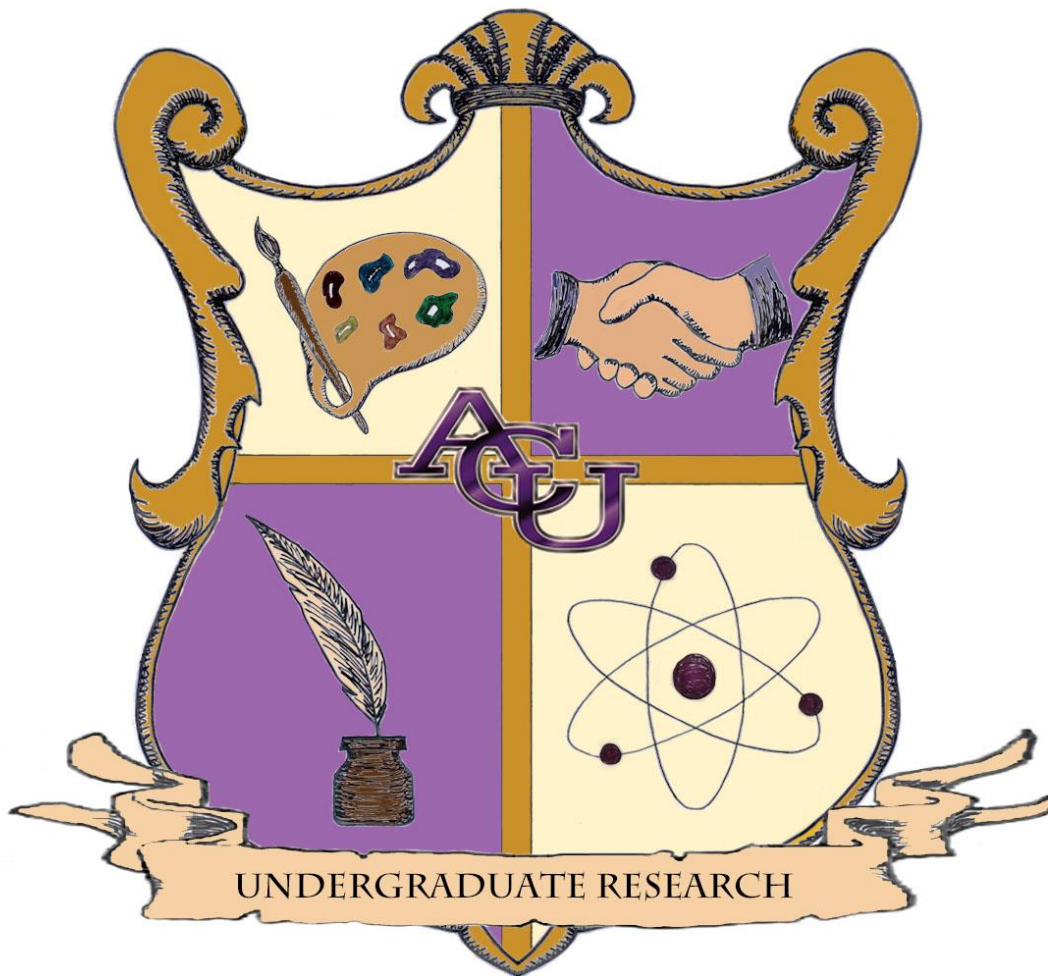


2017 ACU
Undergraduate Research Festival




April 4, 2017

The ACU Undergraduate Research Festival

is brought to you by

The Office of Undergraduate Research.

blogs.acu.edu/undergradresearch

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A Message from the Director:



Thank you so much for being a part of the 9th ACU Undergraduate Research Festival. It is so exciting to see the wide variety of research being done by undergraduates at ACU. Those of us who have been involved in planning the Research Festival are so impressed with and proud of the work that students have been doing – work that requires intellectual curiosity, creativity, and critical thinking. Whether you are here to present, mentor, judge entries, or learn about others' research, I am so grateful that you are part of this day.

The Research Festival would not take place without the many hours of hard work put in by Research Festival Planning Committee. They have my deepest appreciation. I would also like to thank the Honors College and Graduate School for co-sponsoring this event.

Enjoy the Festival!

Dr. Autumn Sutherlin
Director of the Office of Undergraduate Research

To view the festival program and abstracts online go to
blogs.acu.edu/researchfest/2017urfprogram/

or use QR code



Festival Schedule Overview

9:00 – 3:00 PM Registration

Hunter Welcome Center Hall of Honor

9:30 – 10:50 AM Oral Presentations

- A1. Issues in Education - McCaleb Room Zone A
- A2. Biochemistry and Physics - McCaleb Room Zone B
- A3. Particle Physics Research - Alumni Conference Room
- A4. History & Theatre - LYNAY Classroom

11:00 – 11:30 AM Chapel

McCaleb Room Zone B

11:30 – 1:00 Lunch

McCaleb Room Zone C

12:15 – 1:15 PM Poster Session

Atrium of the Hunter Welcome Center

1:30 – 2:50 PM Oral Presentations

- B1. Marriage & Family – McCaleb Room Zone A
- B2. Science Potpourri – McCaleb Room Zone B
- B3. Mental Health – Alumni Conference Room
- B4. Scripture & Theology – LYNAY Classroom
- B5. CS, IT, & Physics – AT&T Theatre

3:00 – 4:20 PM Oral Presentations

- C1. Religion, Morality, & Crime – McCaleb Room Zone A
- C2. Nursing, Nutrition, & Education – Alumni Conference Room
- C3. Issues in Social Science – AT&T Theater

5:30 – 6:30 Awards Dinner (Pre-registration required)

McCaleb Room Zone C

MORNING SESSIONS

Tuesday, April 4, 9:30 – 10:50 AM

Session A1: Issues in Education - McCaleb Room Zone A

The Characteristics of a successful AVID teacher

Ivana Munoz

Mentor: Dana Mayhall

Will It Stick? Understanding the Decision Making of Second and Third Year Teachers Regarding Reading Assessment and Instruction

Denae Shake

Mentor: Andrew Huddleston

Factors of Sex Education that Contribute to Less Risky Sexual Behavior

Bobbie-Jean West

Mentor: Stephen Baldrige

Language Modeling vs Enhanced Language Modeling

BriTanya Brown

Mentor: Brenda Bender

Community Factors to Reduce Risky Behaviors in LGBT Youth Following a Hate Crime

Regine Yaites

Mentor: Stephanie Hamm

Session A2: Biochemistry & Physics - McCaleb Room Zone B

Impact of Liposomes on Macrophage Differentiation and Cytokine Production

Rebecca Stark

Mentor: Ninh (Irene) La-Beck

Exploiting yeast genetics to discover new partners of the essential Spn1 protein

Austin Parsons & Tim Kang

Mentor: Sarah Lee

Sub-donating Genes of the Mevalonate Pathway from *Enterococcus faecalis* into pDUET

Elisabeth Danelski & Madison Harris

Mentor: Autumn Sutherland

Detection of Fusion Protein Synthase Protein Complex

Chandler Graf

Mentor: Autumn Sutherland

Construction and Testing of Advanced Particle Detectors

Cecily Towell

Mentor: Rusty Towell

Session A3: Particle Physics Research – Alumni Conference Room

Tracking Particles and Determining Magnetic Field Strength at the SeaQuest Experiment

Paul Carstens

Mentor: Michael Daugherty

Dark Photons Simulations at SeaQuest

Caleb Hicks

Mentor: Michael Daugherty

Track Reconstruction at SeaQuest

Reuben Byrd

Mentor: Michael Daugherty

Study of the trigger efficiency for SeaQuest Drell-Yan Dimuons

Zhaojia Xi

Mentor: Michael Daugherty

Fermilab SeaQuest(E906)'s Detector Tests to Prepare for a Search for Dark Photons

Joshua Martinez

Mentor: Donald Isenhower

Session A4: History & Theater – LYNAY Classroom

The Cry of the Cymry: Celtic Nationalism as a Response to Industrialisation and Class in 19th Century Wales

McKinley Terry

Mentor: William Carroll

To Wring Tears from the Stars: The Suicides of Emma Bovary and Hedda Gabler

Valerie Kocsis

Mentor: Mikee Delony

Matriarchal Remnants: Matrilineal Inheritance and Consanguineous Marriage from Ancient Egypt to the Ptolemaic Era

Savannah Weeks

Mentor: Ronald Morgan

The Medicine of the Dead: A Scholarly Examination of the History of Medieval and Early European Spiritual Medicine

Adam Lubbers

Mentor: Ronald Morgan

Music Technology Initiative

Geoffrey Driggers & Cole Spears

Mentor: Brandon Houghtalen

Tuesday, April 4, 11:00 – 11:30 AM

Chapel – McCaleb Room Zone B

Tuesday, April 5, 11:45 AM – 1:00 PM

Lunch – McCaleb Room Zone C

POSTER SESSION

Tuesday, April 4, 12:15 – 1:15 PM

Visual Analogies of a Hidden Immigrant

Allison Davis

Mentor: Robert Green

The Impact of a Free Water Protocol on Swallowing Patients'

Dietary Compliance

Meagan McBride

Mentor: Lynette Austin

Vicarious Theory

Aaron Pokluda

Mentor: Scott Self

Meta-Poster: A Quantitative Analysis of Successful Poster Presentations

Barrett Corey

Mentor: Ryan Jessup

Designing and Building of an External Cavity Diode Laser

Megan Cromis

Mentor: Larry Isenhower

Antibiotic Production of Microbes Isolated from Sorcerer's Cave, Texas

Cody Bly & Louis Sanchez

Mentor: Jennifer Huddleston

Determining genetic mechanisms of pesticide resistance in the hornfly, *Haemotobia irritans*, and the Two-Spotted Spider Mite,

Tetranychus urticae

Kathryn Mitchell & Abhilash Moolupuri

Mentor: Qiang Xu

Antibiotic Resistance and Biosynthetic Potential of Microbes

Isolated from Sorcerer's Cave, Texas

Jeffrey Wooliscroft

Mentor: Jennifer Huddleston

Computer Automation of an Optical Spectrometer

Jared Barker

Mentor: Darby Hewitt

Laboratory Study of Nitrification and Denitrification in the BioSand Filter

Clint Taylor

Mentor: Timothy Kennedy

Comparing Symptom and Toxicity Profiles Following Radiation Therapy for Cancers of the Skull Base: A Prospective Global Quality of Life Study Using the Anterior Skull Base Questionnaire (ASBQ) and the EQ-5D Health Questionnaire

Jeremy Aymard

Mentor: Clifton Fuller

The Cattle Crush

Tim Prince & Bryson Jennings

Mentor: Ed Brokaw

The Effect of Detailed Feedback Messages in Entry-Level Programming Courses

Kayla Holcomb & Alani Peters

Mentor: James Prather

Identification of Bacteria From a Wall in Sorcerer's Cave Based on 16S rRNA Gene

Samantha Studvick, Diana Desai, & Alyssa Wilder

Mentor: Joshua Brokaw

The Study of Gamma-ray Detection with a Plastic Scintillator

Sonia Cyuzuzo

Mentor: Tim Head

Development of the IRBP nuclear marker for phylogeny

reconstruction in *Thomasomys*

Paulina Sanchez, Katie Lawrence, Jacob Nelson, & Shelby Pelleran

Mentor: Joshua Brokaw

Exploring New Osmium Clusters

Kylie Wilson & John Swartout

Mentor: Cynthia Powell

Identification of Bacteria Isolated from Sorcerer's Cave, Texas

Olivia Dahl, Stephanie Sariles, Whitney Brantley, & Claire Shudde

Mentor: Diana Flanagan

Effectiveness of Chlorohexidine Gluconate Scrub and Povidone Iodine Scrub in Disinfecting Pre-Operative Surgical Sites When Spaying Female Canine and Feline Patients

Emily Geller

Mentor: Ed Brokaw

Visitation of Quail Feeders by Quail and Non-Target Species

Catherine Longest, Daisy Gomez, & Reece Wells

Mentor: Joshua Brokaw

Investigation of potential viral DNA and RNA genes in Abilene-area mosquitoes

Amberly Grothe & Meagan Benson

Mentor: Qiang Xu

Phylogeny of rodent genus *Thomasomys* (Rodentia: Cricetidae) based on the nuclear gene recombination activating gene 1

Marissa Horne & Cameron Ludwig

Mentor: Joshua Brokaw

Use of Olfactory Repellents to Control Encroachment of Coyotes on Protected Property

Tanner Sanderson & Neander Howard

Mentor: Ed Brokaw

Effect of the TNR Program on Genetic Diversity of the Feral Cat Population at Abilene Christian University

Kimery Hankins, Holly Richter, & Carley Johnson

Mentor: Ed Brokaw

Relation of home range size to utilization of supplemental water sources by wildlife.

Eric Dolezalik

Mentor: Joshua Brokaw

Effects of Pasture Types on Cattle Weight Gain

Taylor Oxford

Mentor: Ed Brokaw

AFTERNOON SESSIONS

Tuesday, April 4, 1:30 – 2:50 PM

Session B1: Marriage & Family - McCaleb Room Zone A

The Speech Pathologist's Role in the Treatment and Family Management of Selective Mutism

Andrea Archer

Mentor: Lynette Austin

The Effectiveness of Practices Used by Child Life Specialists for Families of Children with Chronic Illnesses

Annie Bailey

Mentor: Dale Bertram

When Does Helicopter Parenting Undermine Your Success?

Achievement Motivation and Parental Involvement

Elizabeth Banks, Ross Spears, Mari-Bree Lowe, & Alyssa Ruiz

Mentor: Cherisse Flanagan

Marriage Games: A Game Theory Exploration of Marital

Relationships

Barrett Corey & Kaleigh Borge

Mentor: Katie Wick

Connecting the University with Community: Identification of Aging Issues from an Intergenerational Perspective by Organizing an Intergenerational Town Hall Meeting

Emily Adams

Mentor: Charlie Pruet

Session B2: Science Potpourri – McCaleb Zone B

Small Mammals of Yacuri National Park, Loja Province, Ecuador

Maya Feller & Daisy Gomez

Mentor: Thomas Lee

The first molecular square made of eight osmium atoms

Diego Zometa, David Marolf, James Johnstone, Kristen Brehm, &

Henry Touchton

Mentor: Gregory Powell

Development of Polyurea Precursors

Joel Jackson

Mentor: Brad Rix

Synthesis and Polymerization of Capsaicin Derivatives

Michaela Laird & James Nix

Mentor: Brad Rix

Improvements in Multi-Gap Resistive Plate Chamber Construction for sPHENIX

Haley Stien

Mentor: Rusty Towell

Session B3. Mental Health - Alumni Conference Room

Is Depression Undermining Your Future? The Relationship of

Achievement Motivation and Depression

Carolyn Casada, Jesse Luna, Zannah Morgan, Victoria Spooner, &

Sierra Villanueva

Mentor: Cherisse Flanagan

Do Your Midnight Munchies Predict Success? The Relationship of

Achievement Motivation and Health Behaviors

Madeleine Hammond, Chelsea Kigh, Kendall Mahler, & Samantha

Studvick

Mentor: Cherisse Flanagan

Could Perfectionism be Pilfering Your Pocketbook? The

Relationship of Achievement Motivation and Perfectionism

Sierra Villanueva & Victoria Spooner

Mentor: Cherisse Flanagan

Exploration of the Journey: Factors that Contribute to Women's

Substance Abuse Recoveries

Nicolette Ford

Mentor: Amy Kalb

In the Spotlight: Are Depression and Acting linked?

Braden Clark

Mentor: Kari Hatfield

Session B4: Scripture & Theology - LYNAY Classroom

“The Tyrant in the Tiara”: Pope Julius II as the Quintessential
 “Anti-Christ” in the Eyes of the Erasmus of Rotterdam and Martin
 Luther

Jackson Hager
 Mentor: Tracy Shilcutt

1 Timothy 3:16: Scribes, Theology, and the Relative Pronoun
 Samone Smith & Brianna Rideout
 Mentor: Curt Niccum

Textual Criticism: *Nomina Sacra*

Zachary Casey
 Mentor: Curt Niccum

Prisoner of Christ: The Argument from Paul's Identity in
 Ephesians 3

Nathan Jowers
 Mentor: Cliff Barbarick

Session B5: CS, IT & Physics - AT&T Theater

Global Terrorism: Analyzing and Predicting Attacker Groups

Alicia Clark
 Mentor: Rob Byrd

Testing the Timing Resolution of Electronics for Time of Flight
 Detectors

Matthew Kimball
 Mentor: Rusty Towell

3D object recognition by using a Kinect and controlling a robot
 arm

Zhaojia Xi
 Mentor: Larry Isenhower

Computer Simulation of the Motion of Stars in Spiral Galaxies

Joshua Martinez
 Mentor: Larry Isenhower

Testing an Alternative Method to Distinguish Gravitational Wave
 Signals from Noise

Hannah Hamilton
 Mentor: Joshua Willis

Tuesday, April 4, 3:00 – 4:20 PM**Session C1: Religion, Morality, & Crime - McCaleb Room****Zone A**

What are the differences in perceptions of effective outreach
 between church members and their immediate neighbors?

Abbey Bildstein & Bryn Stonehouse
 Mentor: Suzie Macaluso

Implementing Testimony Videos at Calvary of Albuquerque

Haley Remenar
 Mentor: Doug Mendenhall

The Crime and the Criminal: Perceptions of Crime Seriousness

Amanda Stephens
 Mentor: Suzie Macaluso

The Good, The Bad and The Dirty: A Look Into Spanish Media

Emily Guajardo
 Mentor: Doug Mendenhall

**Session C2: Nursing, Nutrition, & Education- Alumni
 Conference Room**

A Chronological Analysis on the Ways in Which Advancements in
 Medical Technologies have Altered the Grieving Process

Grace McNair
 Mentor: Jim Nichols

Zapping Zika through Education

Averi Edwards, Kenzie Mascorro, Sarah Ritchie, & Victoria Pannill
 Mentor: Anita Broxson

Self-Efficacy and Moral Distress in Bachelor of Science Nursing
 Students

James Bolt, Melanie Collazos, & Kimberly Burt
 Mentor: Anita Broxson

Client Perception of the Efficacy of Herbalife Supplements

Monica Leos
 Mentor: Sheila Jones

An Analysis of Locations from which Students Access Course
 Content Using Mobile Devices

Preston Werner
 Mentor: Brent Reeves

Session C3: Issues in Social Science - AT&T Theater

A Qualitative assessment of Black and Hispanic Community

Collaboration

Taylor Crumpton
 Mentor: Stephanie Hamm

Attractiveness in Female Voices

Vanessa Gonzalez
 Mentor: Scott Self

Hot or Not: the Reality of Body Image Perceptions in the 21st

Century for Female College Students

Raychel Duncan
 Mentor: Amy Kalb

Chipotle Mexican Grill Public Relations Case Study

Laura Corral
 Mentor: Cheryl Bacon

Tuesday, April 4, 5:30 – 6:30 PM**Awards Dinner – McCaleb Room Zone C**

A special thanks to...

...the co-sponsors of the Undergraduate Research Festival

The Honors College
The Office of Graduate Programs

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