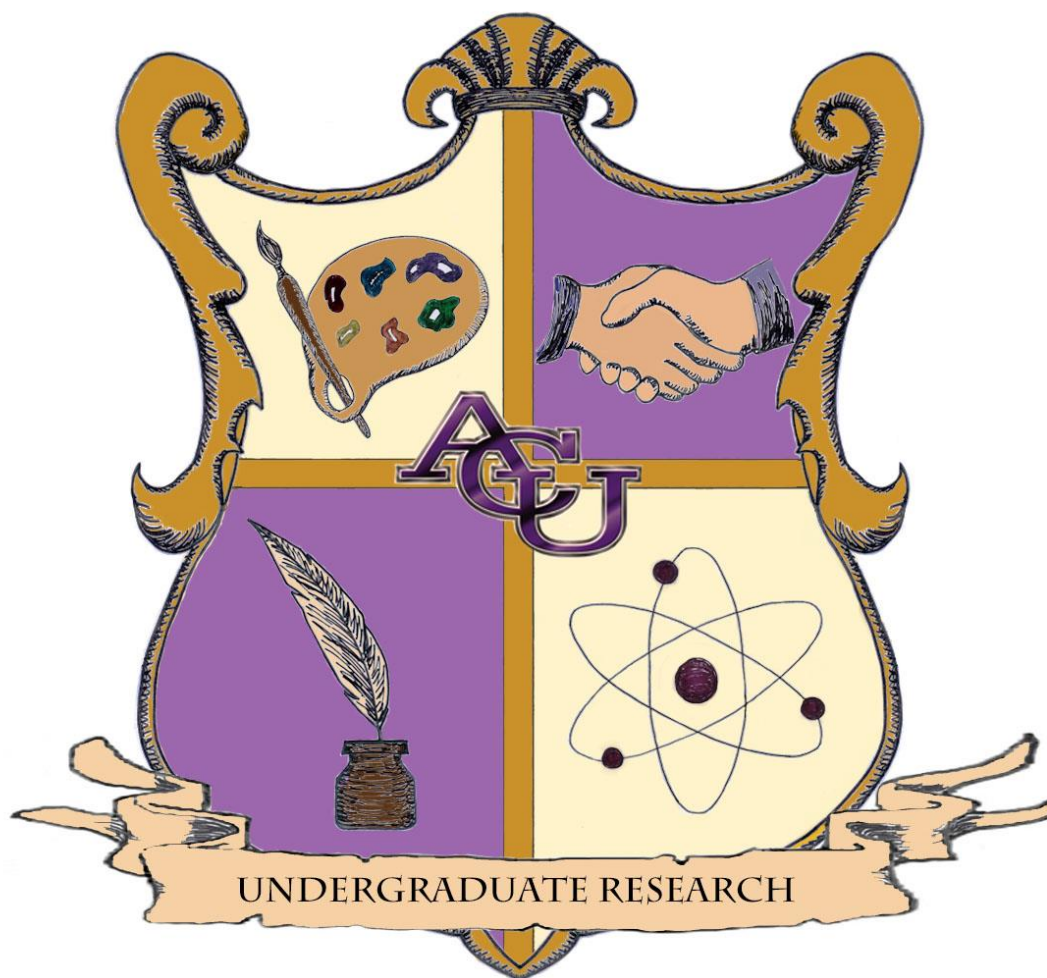


# 2015 ACU Undergraduate Research Festival




March 31, 2015

## **The ACU Undergraduate Research Festival**

is brought to you by

### **The Office of Undergraduate Research.**

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#### **A Message from the Director:**

Thank you so much for being a part of the 7<sup>th</sup> ACU Undergraduate Research Festival. It is so exciting to see the wide variety of research being done by undergraduates here 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. Thank you also to the Honors College and Graduate School for co-sponsoring this event.

Enjoy the Festival!

Dr. Autumn Sutherlin  
ACU Director of Undergraduate Research

## Festival Schedule Overview

### 8:00 – 3:00 PM Registration

Lobby of the Hunter Welcome Center

### 8:30 – 9:20 AM Oral Presentations

- A1. Ethics and Scripture - McCaleb Room Zone A
- A2. Culture and Crises - McCaleb Room Zone B
- A3. Health: Food, Aquaponics, and Smoking Cessation – Alumni Conference Room
- A4. Teaching and Learning - LYNAY Classroom
- A5. Health and Wellness – AT&T Theater
- A6. Cultural Concerns – McCaleb Room Zone C

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

- B1. Drama and Music - McCaleb Room Zone A
- B2. Biology Cluster: Aeromonas, Mammals, and More - McCaleb Room Zone B
- B3. SeaQuest and COMPASS – Alumni Conference Room
- B4. Perspectives in History and Literature – LYNAY Classroom
- B5. Law, Politics, and Peacemaking - AT&T Theater

### 11:00 – 11:45 AM Halbert-Walling Groundbreaking Ceremony

At the former site of Chambers Hall

### 11:45 – Lunch is served (Pre-registration required)

McCaleb Room Zone C

### 12:00 – 12:40 PM Poster Session I

Atrium of the Hunter Welcome Center

### 12:45 – 1:20 PM Poster Session II

Atrium of the Hunter Welcome Center

### 1:30 – 2:50 PM Oral Presentations

- C1. Culture and Rhetoric - McCaleb Room Zone A
- C2. “Time” for Physics: “Exciting” - McCaleb Room Zone B
- C3. Computers, Student Learning, and IT – Alumni Conference Room
- C4. STEM Assortment: Drugs, Energy, Fuel, and Rockets - LYNAY Classroom
- C5. Christianity and Scripture – AT&T Theater

### 3:00 – 4:20 PM Oral Presentations

- D1. Biochemistry Focus McCaleb Room Zone A
- D2. Math in Action – Alumni Conference Room
- D3. Sex and Gender – AT&T Theater

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

McCaleb Room Zone C

## SESSIONS

Tuesday, March 31, 8:30 – 9:20 AM

### Session A1: Ethics and Scriptures - McCaleb Room Zone A

*The Higher Ethics: Utilitarianism and Freedom in Three Dystopian Novels*

—James Churchill—Withdrawn

*The Origin and Impact of United States' Geo-Political Military Aid In The World.*

Coleton Spruill

*Transactional Reading and the Bible: What Does It Mean for Us?*

Ashley Towe and Katlin Sehres

### Session A2: Culture and Crises - McCaleb Room Zone B

*The Moore, Oklahoma tornado crisis*

Audrey Gonzalez

*Toyota Gas Pedal Recall*

Naomi Johnson

*Cultural Synthesis in Sir Gawain and the Green Knight*

McKinley Terry

### Session A3: Health: Food, Aquaponics, and Smoking Cessation – Alumni Conference Room

*Children's Fruit & Vegetable Consumption*

Priscilla Clayton

*Nurses' Role in Tobacco Counseling: Ending the Epidemic*

Dulce Mancine

*Design Considerations for West Texas Aquaponics Systems*

Francisco Teran

### Session A4: Teaching and Learning - LYNAY Classroom

*Effectiveness of Speech Therapy Utilizing Music for the Development of Specific Communication Skills in Children with Autism*

Christina Wise

*Choice is a tricky thing: Learning to choose in an uncertain world*

Allison Phillips

*Politics in Eurovision Song Contest?*

Richard Elmore

### Session A5: Health and Wellness – AT&T Theater

*A Comparative Analysis of Satisfaction Among Post Hospital Birth and Non-Hospital Birth Mothers*

Christina Brown

~~*Are Wellness Programs Beneficial for the Workplace?*~~

—John Daily—Withdrawn

*Controversy of Economic, Religious and Domestic Slum Life in Dharavi, India*

Kelsey Kotara

### Session A6: Cultural Concerns – McCaleb Room Zone C

*Cultural Awareness in Study Abroad*

Annie Bailey

*Tolerance in Toledo, Spain between Muslims, Christians, and Jews in 711-1031*

Kendra Oregon

*Conservation or Cultural Dominance?: Ecotourism in the Himalayas*

Brooks Mendenhall

**Tuesday, March 31, 9:30 – 10:50 AM**

**Session B1: Drama and Music - McCaleb Room Zone A**

*ACU Theatre Spring 2015 Season Dramaturgy*

Diego Gonzalez, Sarah Yarbrough, and Braden Clark

*Change You Fate: A Rhetorical Analysis of Disney's Pixar's Brave*

Allison White

*An Examination of Gender Roles and Suicide in Shakespeare's Plays*

Alyssa Johnson

*A Comparison and Analysis of "Come away, death" from Twelfth Night as set to music by Roger Quilter and Gerald Finzi*

Marc Gutierrez

**Session B2: Biology Cluster: Aeromonas, Mammals, and More - McCaleb Room Zone B**

*Inhibition of ER Ca<sup>2+</sup> release or the p38 SAPK inhibits UPR signaling and apoptosis activation during moderate ER stress*

Tina Johnson

*Isolating Aeromonas from Precipitation and the Atmosphere*

Kathryn Preston

*Determining the effect of clpA in the Natural Transformation ability of Aeromonas salmonicida*

Kristen Clemons

*Small Mammals of Guandera Biological Reserve, Carchi Province, Ecuador and Comparative Andean Small Mammal Ecology*

Rachel Ritchie

*Patterns of D-Loop Sequence Variation in Thomomys (RODENTIA: CRICETIDAE)*

John Iragena, Nathan Dougherty, and Amberly Grothe

**Session B3: SeaQuest and COMPASS – Alumni Conference Room**

*The monitoring of environmental conditions for SeaQuest*

Zhaojia Xi

*SeaQuest / E906 Shift Alarm System*

Noah Kitts

*Design of Drift Chamber 05 for the COMPASS II experiment*

James Mallon

*Building a new Drift Chamber for COMPASS*

Megan Cromis

*Wiring the new COMPASS Drift Chamber*

Lacey Medlock

**Session B4: Perspectives in History and Literature – LYNAY Classroom**

*The Views of Blood in Renaissance Europe*

Adam Lubbers

*Milky White Ink and the Black Cloven Hoof: Écriture féminine in Abdellah Taïa's Un mélancolie arabe*

Spence Horner

*Prophet, Poet, or Madman an evaluation of William Blake*

Daniel Edwards

*The Boxer Rebellion: A Holistic Approach*

David Wall

*The Sleeping Giant of Monotheism*

Richard Elmore

**Session B5: Law, Politics, and Peacemaking - AT&T Theater**

*Various Federal Laws and Their Effects on Identity Theft and Data Breaches in the United States*

Tyler Salter

*The Effect of Cultures on Management Styles*

Judith Morales

*The Solid South: Campaign Issue Strategies in the 2014 Southern Senate Races*

Caleb Orr

*The Weight of Identity in Peacemaking*

Nicole Ramos

**Tuesday, March 31, 11:00 – 11:45 AM**

**Halbert-Walling Research Center Groundbreaking**

At the former site of Chambers Hall

**Tuesday, March 31, 11:45 – 12:40 PM**

**Lunch: McCaleb Room Zone C (Pre-registration required)**

**Tuesday, March 31, 12:00 – 12:40 PM**

**Poster Session I: Hunter Welcome Center Atrium**

*The Power of "Charge": Lessons in Leadership at the Goodspeed*

Lauren Fertig

*Caught in the Crossfires: The Effect of the Israeli-Palestinian Conflict on the Nations' Children*

Bethany Richardson

*Social Media Jealousy*

Kylie Richter, Alexandra Gartley, BrieAnna Hawkins, and Brandon Clements

*This Avoidance is Stressing Me Out! How Avoidance Contributes to Test Anxiety in a College Population*

Hannah Anderson, Mackenzie Harrington, and Morgan Watten

*Child Life Specialist Impact on Family Stress Resilience: A Parent's Perspective*

Katie Bell

*Feelings of Shame: A Consideration of Abuse and Mental Illness*

Lindsay Palmer, Lauren Pratt, and Maci Smith

*Water Disputes Between Israel and its Islamic Neighbors*

Sarah Young and Caleb Laster

*Selfies: Evidence of Narcissism, Sociability or Insecurity?*

Savannah Hipes

*GMOs: Europe vs. North America*

Imani Morris, Hannah Carter, and Savannah Johnson

*Assimilation of Chin Burmese Refugees in the U.S.*

Deanna Romero, Rachel Williams, and Nicole Ramos

*The Correlation Between Education and Child Marriage in Bangladesh*

Kelsey Kotara, Valerie Kocsis, Brooke Crisp, Jill Baker, and Traci Bricka

*Requirement for the SWR1 complex and Nap1 chaperone after TBP association in *Saccharomyces cerevisiae**

Julia Taylor and Tim Kang

*Investigating the Intraspecific Genetic Variation of *Mentzelia hirsutissima* (Loasaceae)*

Abigail Rogers and Angela Adhikari

*An animal biodiversity survey in Runnels County, a preliminary study*

Darby Thornton, Leslie Morrell, and Anthony Kocher

*Reconstructing the Paleoniche of *Prosopis glandulosa* (Honey Mesquite)*

Mike Keenan

*Pre-Prandial Vinegar Ingestion Improves Two-Hour Glucose Control in Older, Type II Diabetics More Than Post-Prandial Walking*

Sarah Taylor

*Wire Tension Measurements and Analysis for the New COMPASS Drift Chamber*

Vicente Rojas Aguirre

*Inspection of anode and field wires for the COMPASS drift chamber, DC5, with Environmental Scanning Electron Microscope*

Sonia Cyuzuzo

*Time-Clamped, RPE-Matched Treadmill Activity and Interactive Video Game Dancing Differ in Step Count But Not Heart Rate Response*

Cara Loveland

*Phylogenetic Species Analyses In *Thomasomys* (Rodentia : Cricetidae)*

Bryan Lim Yew Tian, Ian Gunn, Denise Naude, and Joseph Ayunde

*The Role of the *tapY1* Gene and Natural Transformation in *Aeromonas**

Christina Lee

**Tuesday, March 31, 12:45 – 1:20 PM**

**Poster Session II: Hunter Welcome Center Atrium**

*Biopsychosocial factors impacting positivity and resilience in individuals undergoing cancer treatment*

Kaitlin Pegoda

*Influence of Religious Upbringing on Views of Women in Leadership*

Cara Buenz

*Patterns of Conflict and Disaffiliation in Churches Among Traditionalists and Egalitarians*

Megan Brackenbury, Matthew Hoard, and Allison Lamberth

*Physiological Response to “Wicked” Problems Under High or Low Need for Closure*

Taylor Munden, Daniel Edwards, Caleb Carr, Jesse J. Luna, Nathan W. Daniels, and Zachary Shakelford

*Dark Humor: The Dark Triad and Humor Styles*

Andrew Vun and Selina Thornton

*Don't Feed the Trolls: Correlating the Dark Triad and Internet Trolling*

Sarah Kirby and Kyle Levenick

*Do You Like Me?: Affirmation Sensitivity on Social Media*

Mackenzie Harrington and Jesse Luna

*Finding Food: Venezuela's Severe Shortages*

Chandler Gum, Katy Escott, and Meagan Songer

*Impact of Mobile Technology on Student Attitudes, Engagement, and Learning*

Victoria Sun

~~*Human Identity: From Story to Science—Withdrawn*~~

~~Catherine Blakemore, Hannah Anderson, and Trevor Thompson~~

*Experiencing Professional Development Through Lesson Study*

Jaclyn Barker

*The Role of *RecA* in the Natural Transformation of *Aeromonas salmonicida**

Jacob Woods and Grace McNair

*Phylogenetic Relationships in *Mentzelia* section *Bicuspidaria* (Loasaceae)*

Tabitha Lewis, William Morales, and Samuel Nix

*The effect of organic fertilizers in urban raised bed gardens*

Reece Wells, Kevin Watson, and Anna Curby

*The Need for Reporting Metabolic Sampling Interval in Publication: An Example Using Maximal VO<sub>2</sub> Values and Running Economy*

Chase Harbach, Sarah Taylor, and Logan Smith

*The Impact of Simulated Altitude on Selected Elements of Running Performance*

Logan Smith and Heather Johnston

*The Effects of Remaining Hydrocarbons on Ecological Succession and Vegetation Following Bioremediation of a Crude Oil Spill*

Nathan Neill

*Quantifying Wolbachia and Spiroplasma Infection Rates in Monarch and Queen Butterflies*

Lydia Brown and Jamie Thompson

*An Analysis of Genetic Relationships Between North American and South American Populations of Tadarida brasiliensis*

Kimberly Burt and Michael Ramirez

*Determination of Environmental Impact of Urbanization in Abilene Based on Changes of Soil Conditions and Plant Types*

Jaime Gordon, Alex Buckel, and Dayna Roe

**Tuesday, March 31, 1:30 – 2:50 PM**

**Session C1: Culture and Rhetoric - McCaleb Room Zone A**

*Do We Value Commitment? A Rhetorical Analysis of New Girl*

Bailey Cate

*The Power of the Pant Suit: A Rhetorical Analysis of Hillary Clinton's Campaign Dress*

Kalyn Prince

*Earth Speaks: Environmentalism and the Music of John Luther Adams*

Austin Lemmons

*The Building Blocks of Society: An Analysis of Messages in The Lego Movie*

Abby Ayers

*What's Black and White and Read Online?*

Madeline Orr and Marissa Jones

**Session C2: "Time" for Physics: "Exciting" - McCaleb Room Zone B**

*Improved Excited-State Interaction Potentials for Alkali-Rare Gas Pairs and Their Application to Alkali Laser System Development*

Christopher Campbell

*Measuring the number of protons in a particle accelerator pulse using light*

Anthony Brown

*Building Detectors to Study a New Phase of Matter*

Cecily Towell

*Improved Timing Instruments for Particle Identification*

Hannah Hamilton

*Laser Transport System for Calibration of the NIFFTE Time Projection Chamber*

Aric Tate

**Session C3: Computers, Student Learning, and IT – Alumni Conference Room**

*Security for the Internet of Things*

Alicia Clark

*Securing an Organization: Prioritized Steps*

Alani Peters

*Improving Automated Feedback for Programming Courses*

Roger Gee

*An Innovative Technique for Measuring Concept Mastery*

Kayla Holcomb and Nevan Simone

**Session C4: STEM Assortment: Drugs, Energy, Fuel, and Rockets - LYNAY Classroom**

*Distributed Drug Discovery: Synthesis of Unnatural Amino Acids as Potential Antimalarial Drugs*

Amanda Dugan



*Energy Harvesting via Piezoelectric Generators for Smart Devices*

Kyle Bowling

*Comparison of Two Biologically Derived Disaccharides for Use in Sugar-KNO<sub>3</sub> Rocket Fuel*

Daniel Whitefield

*Computational Optimization of Model Rocket Flight and Experimental Analysis*

Christopher Campbell

### **Session C5: Christianity and Scripture – AT&T Theater**

*John Calvin and the Ecclesiastical Government in Geneva*

Parker Pollard

*Paul's Ministry in Thessalonica*

Dominique Rideout

*Esau, Edom, and Christian Identity*

Ethan Laster

*The Gentile Mission Revealed in Acts 2*

Joseph Prince

*An Intertextual Study of Acts 20:17-38 and the Septuagint*

Garrett Lane

**Tuesday, March 31, 3:00 – 4:20 PM**

### **Session D1: Biochemistry Focus - McCaleb Room Zone A**

*New Osmium Carbonyl Clusters with Dicarboxylate Ligands*

Soo Hun Yoon

*Searching for an interaction between *E. faecalis*' Fusion and Synthase proteins, of the mevalonate pathway, through the use of FRET*

Ana Arango

*Microbial Diversity and Antibiotic Production in Sorcerers Cave*

David Sanderson

*Novel role of the yeast *Spn1* protein in DNA Damage Repair*

Rachael Carstens

*Formulation Predictivity: A Design of Experiments*

Barret Davidson, Drew Dossett, and Grayson Hurst

### **Session D2: Math in Action - Alumni Conference Room**

*Pinochle Families: An Application of Combinations of Multisets with Finite Multiplicities*

Jordan Miller

*How to Solve "Lights Out!"*

Christian Lovins

*Operations With Rational Numbers and Algebra Readiness*

Jaclyn Barker

*The Effect of Non-Normaily Comparing Confidence Intervals On Two Populations*

Cindy Mazariegos

*Are High School Proofs Childproof? A Lesson Study on Mathematical Proof*

Janessa Beach

### **Session D4: Sex and Gender - AT&T Theater**

*Mother Ganges Wept: Rape Culture and Sexual Violence in India*

Maggie McAlister

*Women and Power in the Church, Family, and Work Setting*

Elizabeth Watters

*Women's Rights in Iran's Legislative Documents: A Critical Analysis of the Constitution, Civil, and Penal Code*

Joyce Schuster

*A Demographic Case Study and Comparative Analysis of Sexual Violence and Texas Bordertowns*  
Savannah Hostetter

*Young adults' use of texting shorthand on Facebook*  
Hailey Hendricks

**Tuesday, March 31, 5:30 – 6:30 PM**

**Awards Ceremony and Dinner in the McCaleb Conference Room Zone C (Pre-registration required)**

**A special thanks to...**

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

The Honors College and The Graduate School

**...the Director of Undergraduate Research**

Autumn Sutherlin

**...the Student Worker for the Office of Undergraduate Research**

Evan Bridges

**...all of our judges:**

Jeff Arrington	Cherisse Flanagan	Christopher Hutson	Kim Pamplin	Joe Stephenson
Melissa Atkinson	Allison Garrett	Mac Ice	Raymond Pettit	Rachel Team
Dale Bertram	Rendi Hahn	Donald Isenhower	Cynthia Powell	Rusty Towell
Ed Brokaw	Becky Hammack	Ryan Jessup	Greg Powell	Jeanine Varner
Clint Buck	Darby Hewitt	Rich Jinkerson	Sheila Ritchie	Beatriz Walker
Dennis Cavitt	Brandon	Tim Kennedy	Nil Santana	John Weaver
Dena Counts	Houghtalen	Sarah Lee	Phil Schubert	Wendi Wolfram
Ken Cukrowski	Lori Houghtalen	Susan Lewis	Lynette Sharp	Kelly Young
Kristina Davis	Rachael Hubbard	Tamara Long	Penya	
Suanna Davis	Andrew	Suzie Macaluso	Jessica Smith	
John Ehrke	Huddleston	Doug Mendenhall	Raymond Smith	
Chris Flanders	Rebecca Hunter	Ron Morgan	Greg Straughn	

**...the University Undergraduate Research Council**

Matthew Garver	Rebecca Hunter	Jennifer Shewmaker	Jeanine Varner
Kari Hatfield	Ryan Jessup	Trevor Thompson	

**...the Student Panel on Undergraduate Research**

Lydia Brown	Caroline Gafford	Nigel Gwini	Allison Philips	Alikay Wood
Megan Cromis	Marc Gutierrez	Kaitlyn Pegoda	Caitlyn Spain	Josie Zack

**...the Undergraduate Research Festival Planning Committee**

Stephen Baldrige	Darby Hewitt	Sarah Lee
Josh Brokaw	Rebecca Hunter	Lauren Lemley
Brian Burton	Andrew Huddleston	Suzie Macaluso
Mark Cullum	Jennifer Huddleston	Mark McCallon
Matthew Garver	Ryan Jessup	Joe Stephenson

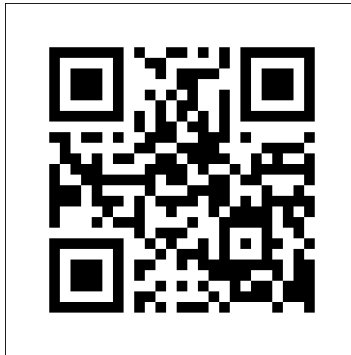
Josh Willis

To view the complete program online go to <http://blogs.acu.edu/researchfest/2015program/>



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