

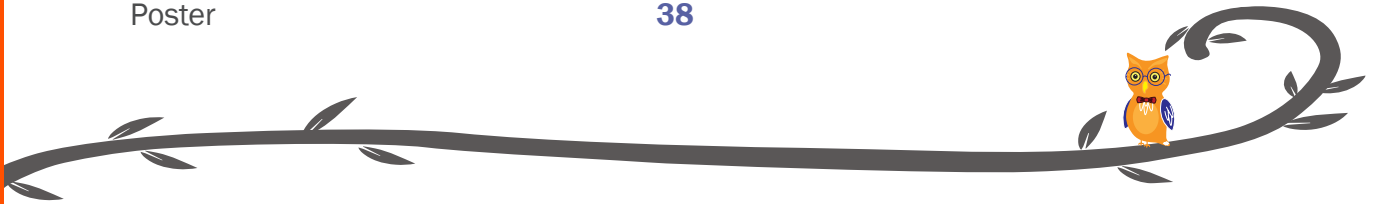
THE EIGHTH ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

Conference Program
April 25, 2015



**Hosted by the Elliott T. Bowers
Honors College Ambassadors**

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8:00-8:45	Registration
8:45-8:55	Welcome and Opening Remarks Room C070
9:00-10:15	Session A, Oral-Media Presentations
10:30-11:45	Session B, Oral-Media Presentations
12:00-1:00	Lunch with Speaker Dr. Tami Cook, Director of E.U.R.E.C.A. LSC Ballroom
1:00-2:30	Poster Session LSC Ballroom
2:45-4:00	Session C, Oral-Media Presentations
4:15-4:30	Closing Ceremony Room C070

**ALL ORAL-MEDIA SESSIONS WILL BE HELD IN THE CHSS BUILDING
THE POSTER SESSION WILL BE HELD IN THE LSC BALLROOM**



**The Undergraduate Research Symposium
Is Sponsored By:**

Elliott T. Bowers Honors College
College of Fine Arts and Mass
Communication
College of Health Sciences
College of Humanities and Social Sciences
College of Sciences
E.U.R.E.C.A. Center

The URS especially thanks Dr. Hiranya Nath
for his generous Assam Scholarship



Faculty Moderators

Mrs. Kay Angrove	Dr. Madhusudan Choudhary	Dr. Patrick Lewis	Mr. Jeff Roberts
Dr. Tracy Bilsing	Dr. Tami Cook	Ms. Lauren McLean	Dr. Joni Seeling
Dr. Maria Botero Jaramillo	Dr. William Fleming	Ms. Barbara Miles	Dr. Stacy Ulbig
Dr. Sibyl Bucheli	Dr. S. West Gurley	Dr. Carroll Nardone	Dr. Gene Young
Dr. Charles Carlson	Mr. John Jordan	Dr. Todd Primm	Ms. Sunny Yung
Dr. Paul Child	Dr. Kumar Santosh	Dr. Bernadette Pruitt	Dr. Pamela Zelbst

Graduate Student Moderators

Samantha Alper	Corey Green
Chelcy Brumlow	Hannah Johnson
Faith Byrd	Berra Koskulu
Douja Chamseddine	Damilola Omotajo
Dawn Fisher	Lauren Smith

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Honors Council

Kimberly Bell	English
Frank Fair	Philosophy
William Hyman	Health & Kinesiology
Patrick Lewis	Biological Sciences
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Holly Miller	Criminal Justice
Valerie Muehsam	Business
Janet Mullings	Criminal Justice
Sheryl Murphy-Manley	Music
Stacy Ulbig	Political Science
Pamela Zelbst	Management
Sybil Bucheli	Biological Sciences

A Message from Our Faculty Advisor


Welcome to the Eighth Annual Undergraduate Research Symposium, hosted by the Elliott T. Bowers Honors College Ambassadors! National studies have shown that undergraduates who participate in research are better communicators and more effective leaders. A vital part of conducting research is to share new-found knowledge with a larger intellectual community, and presenting at a conference like the URS is one of the ways in which such a goal can be achieved. The URS is a testament both to the exceptional level of research conducted by SHSU undergraduates and to the close relationships between faculty and students that are forged or reinforced by interacting in a professional environment.

The URS Honors Ambassador Co-chairs Heather  Waitena, Michael Semmlinger, and Sarah Kavanagh have worked especially hard to ensure the continued success of the URS: over the course of the past academic year, they have organized and directed URS committees and have held several URS informational sessions; they have visited with college deans, department chairs, and student organizations to promote the URS; and they have selected new merchandise, planned meals, organized the poster session, and sent out invitations to the event. They have also worked with Melanie Adams on the program, website, t-shirt design, and registration pages. Indeed, a special thanks goes to Melanie for her dedication to the URS over the past three years.

But these active, highly professional students are not the only ones who have dedicated themselves to furthering what is now a nation-wide effort to promote undergraduate research. Others have been just as vigorous in their support, including faculty advisors, who have helped students with their research; family and friends, who have come to show their support; faculty and graduate student volunteers, who have devoted their Saturday to giving presenters feedback; staff members and students, who have been working off the clock to ensure that everyone is fed, given gift bags, directed to the right rooms, and checked in properly; and the Honors College, College Deans, and Center for Enhancing Undergraduate Research Experiences and Creative Activities (E.U.R.E.C.A.), who have paid for this entire event because they believe in promoting undergraduate research and in supporting the URS. We recognize and deeply appreciate their kind, open-handed, and active support. Finally, we especially thank Dr. Tami Cook, Director of the E.U.R.E.C.A. Center and Professor of Biology, for her enthusiastic willingness to serve as our luncheon speaker, and to Dr. Hiranya Nath, Professor of Economics, for his very generous Annual Assam Scholarship Award. Today is a celebration of our students' involvement in research (and thus, commitment to their future careers) and to SHSU's dedication to undergraduate research.



Dr. Kimberly Bell

*Faculty Advisor, Co-Chairs and URS Faculty Committee Chair
Associate Director, Elliott T. Bowers Honors College* 

A Message from Our Co-Chairs

Welcome to the 8th annual Undergraduate Research Symposium! We have worked closely with the Honors College, our fellow Honors Ambassadors, multiple faculty members, and various volunteers to create this one-of-a-kind research event especially for you. Our goal has been to open doors for undergraduates to not only get involved in research, but to also showcase their work and share ideas with their peers. The Undergraduate Research Symposium offers constructive feedback for every presenter, as well as free food and giveaways! We

hope that after attending this conference you will leave feeling more prepared to present at other conferences and will be inspired to continue to push the boundaries of what is known through your research.

This year's symposium is looking to be one of the most enlightening and engaging yet! We would like to thank everyone who has helped to plan and prepare for this event, and we would especially like to thank all of you for attending. Without you, none of this would be possible, so thank you and enjoy this year's presentations!



Heather Waitena
URS Co-Chair



Michael Semmlinger
URS Co-Chair



Sarah Kavanagh
URS Co-Chair

URS History and Mission Statement

In 2008, the Honors Student Ambassadors began the Undergraduate Research Symposium (URS). The goal was two-fold: to share research with fellow students and to gain experience in preparation for future conferences. Today, the URS continues to provide a forum where all SHSU undergraduate students can present their research to others in a professional environment, while giving students the opportunity to gain expertise in their field and receiving feedback from other scholars and members of the academic community. The URS offers three \$500 awards: The Assam Scholarship for Honors Research Award, The Honors College Award for Best Overall Oral-Media Presentation, and the Honors College Award for Best Overall Poster. The URS is supported by the faculty and staff of the Elliott T. Bowers Honors College.



About the Honors College

The Honors College at Sam Houston State University is for highly motivated and academically talented students. Within the Honors College, the university's best students are provided special course offerings, leading to an unusually broad educational experience; they are offered limited enrollment classes, closer contact with outstanding faculty, and expanded campus privileges, including advanced registration, residence halls with quiet hours, and the Honors Computer Lab and Study Lounge.



The Undergraduate Research Symposium

Faculty Committee:

Dr. Kimberly Bell
Dr. Lydia Fox
Mr. John Jordan
Dr. Patrick Lewis
Dr. Pamela Zelbst
Dr. Maria Holmes

Gene Young, Ph.D.
Kimberly Bell, Ph.D.
Maria A. Holmes, Ed.D.
Patrick Lewis, Ph.D.
Connie Rodriguez
Melanie Adams

Sarah Renfro
Shealynn Vogan
Megan Roddie
Jessica Martinez


Honors Faculty and Staff

Dean
Associate Director
Assistant Director, Ambassador Advisor
Assistant Director
Administrative Assistant
Undergraduate Student Assistant,
URS Marketing Coordinator
Undergraduate Student Assistant
Undergraduate Student Assistant
Undergraduate Student Assistant
Undergraduate Student Assistant

Honors College Ambassadors

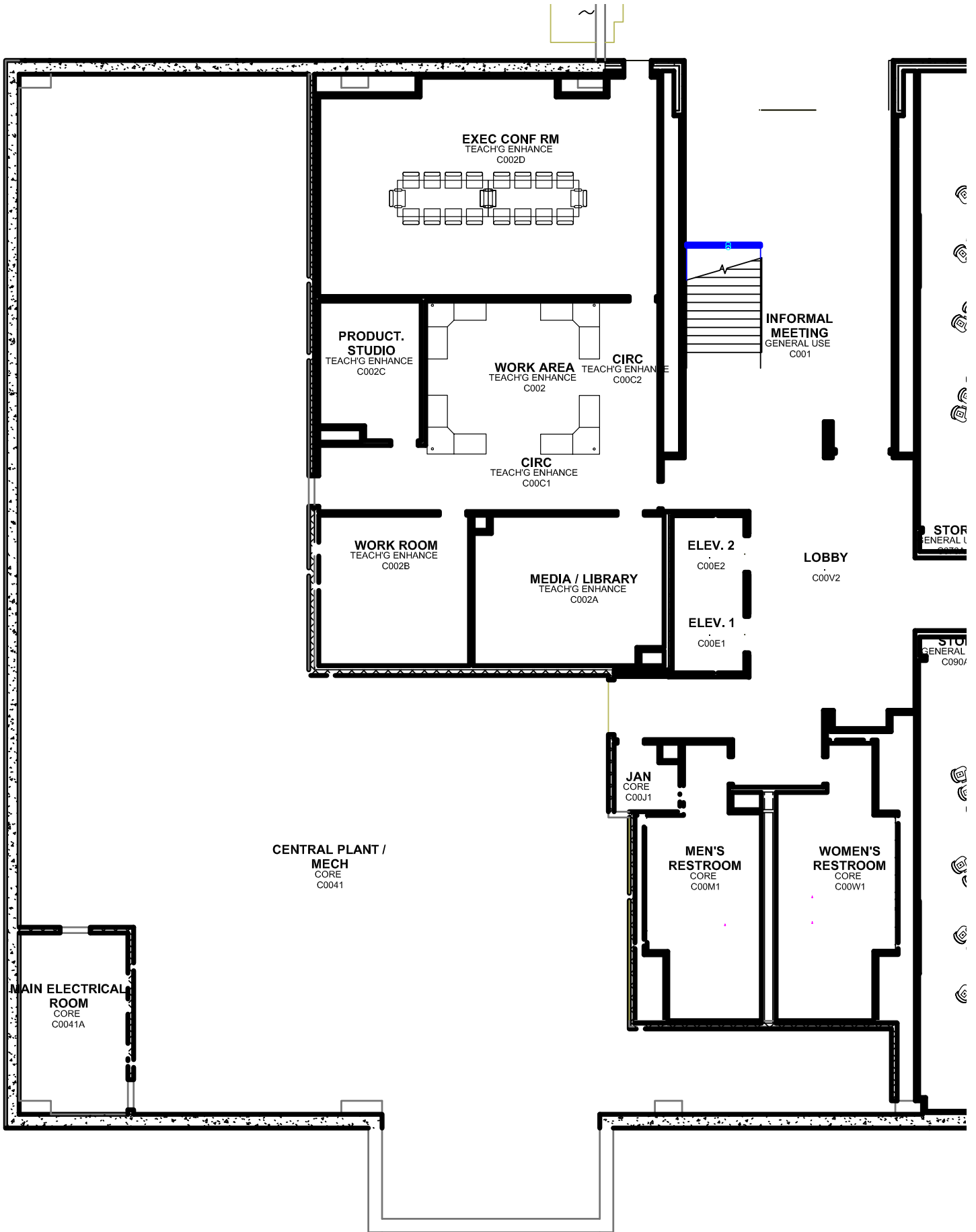
Tara Cobler
Spencer Copeland
Jessica Cordero
Alondra Garza
Mujtaba Ghene

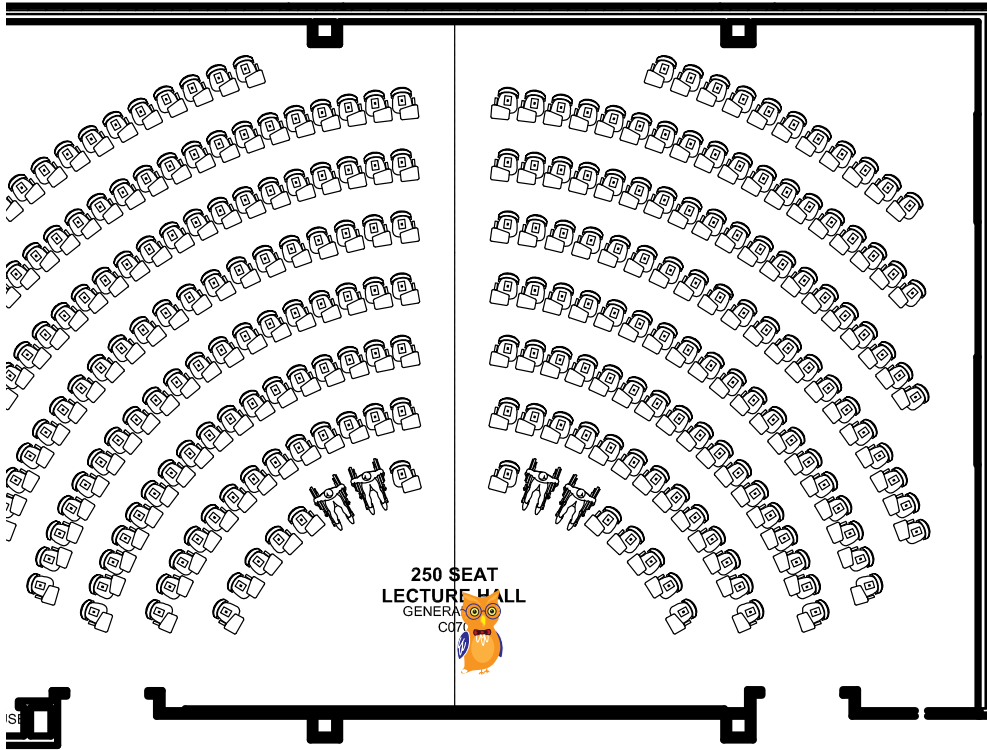
Kortney Hanson
Katherine Hernandez
Sarah Kavanagh
Megan Lamberth
Sarah Landsman

Jessica Martinez
Christian Morris
Michael Semmlinger
Lea Sonby
Summer Styles 

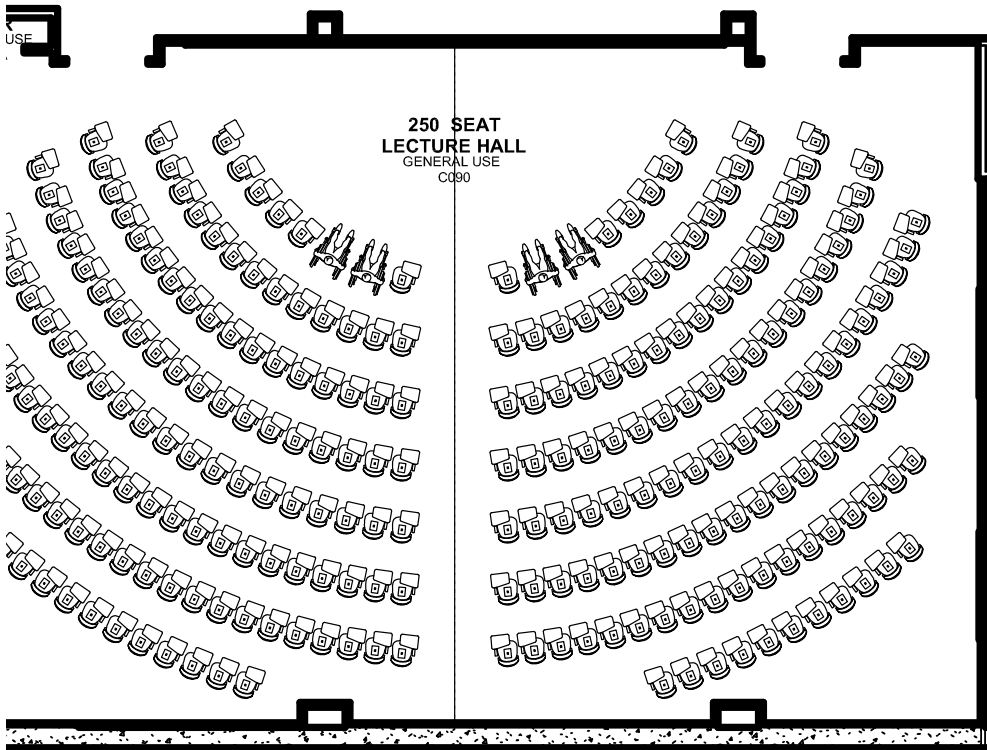
Shealynn Vogan
Heather Woitena
Rebecca Wood

CHSS Concourse Floor

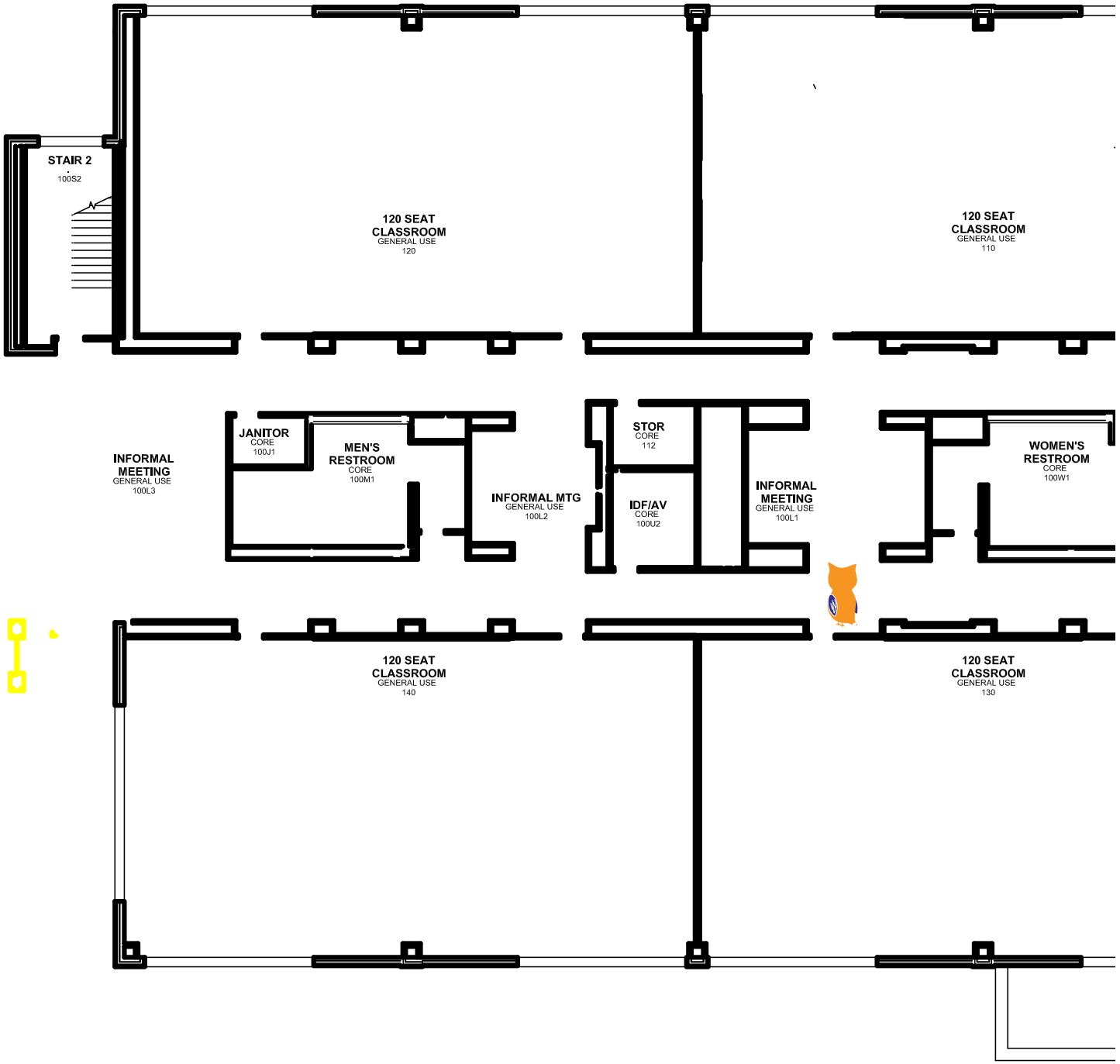




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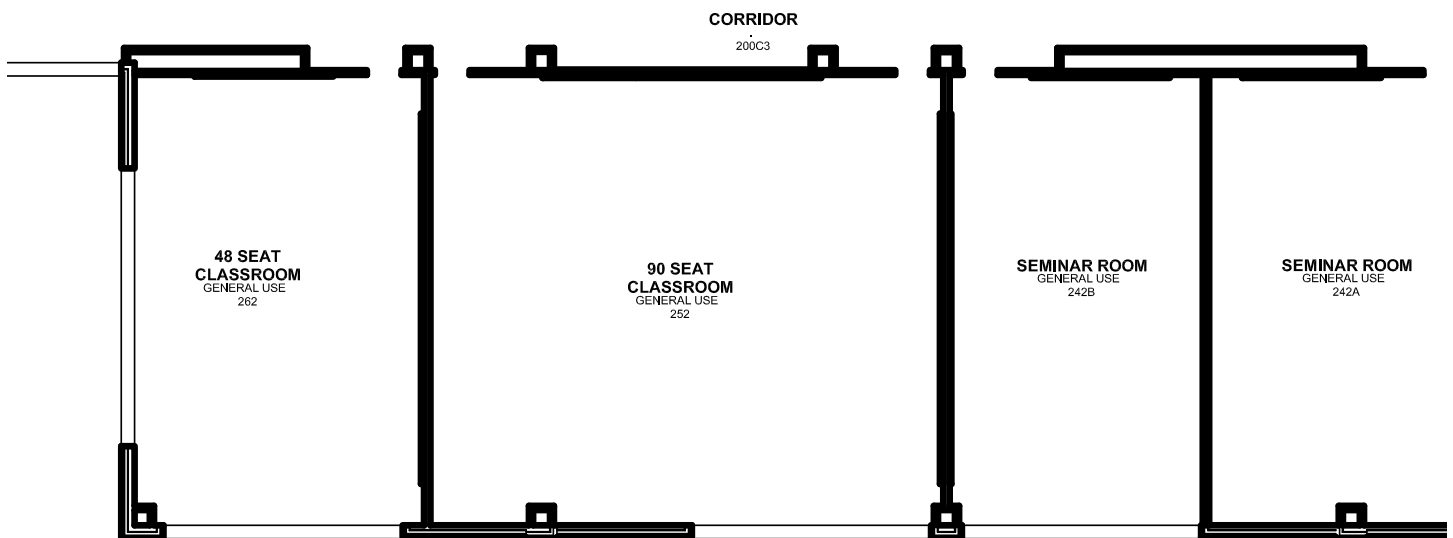
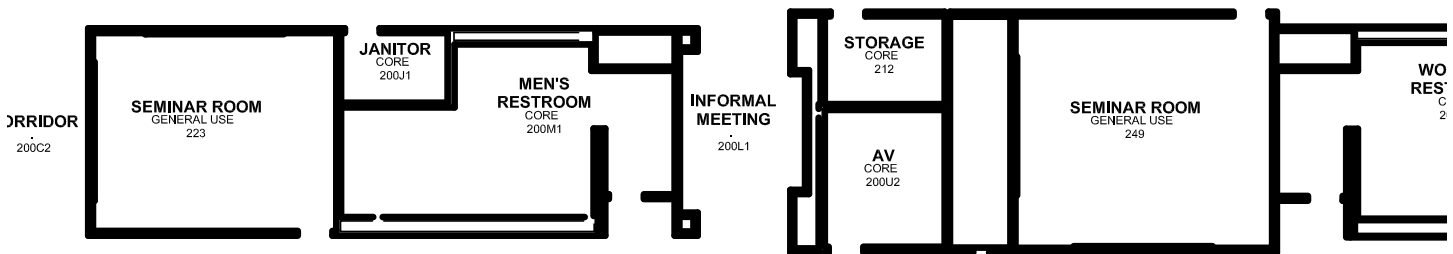
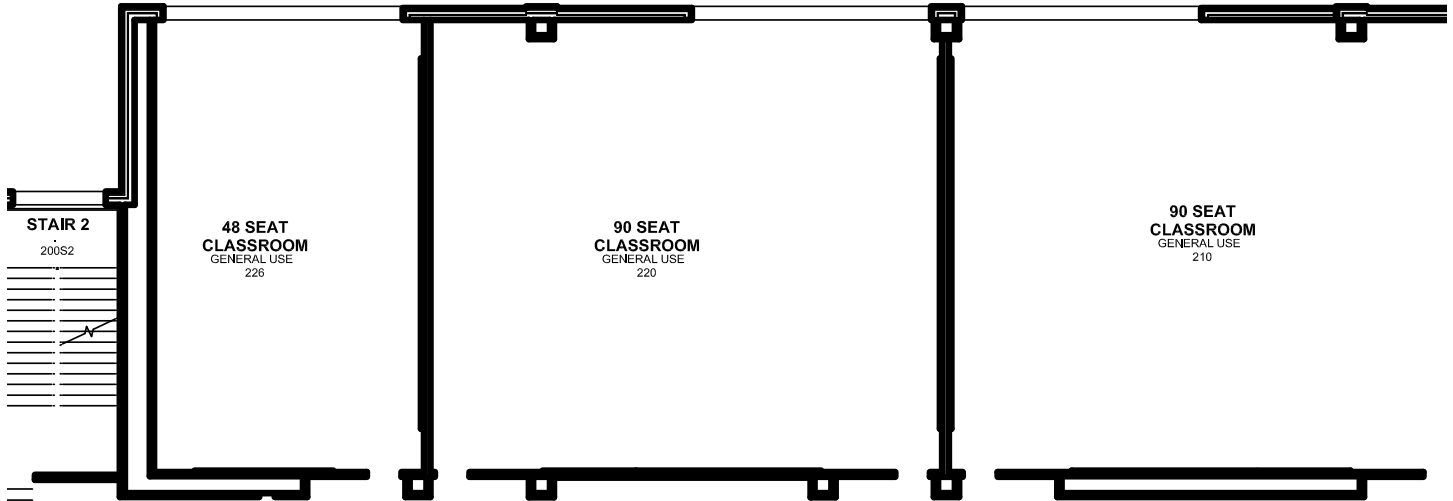


CHSS First Floor

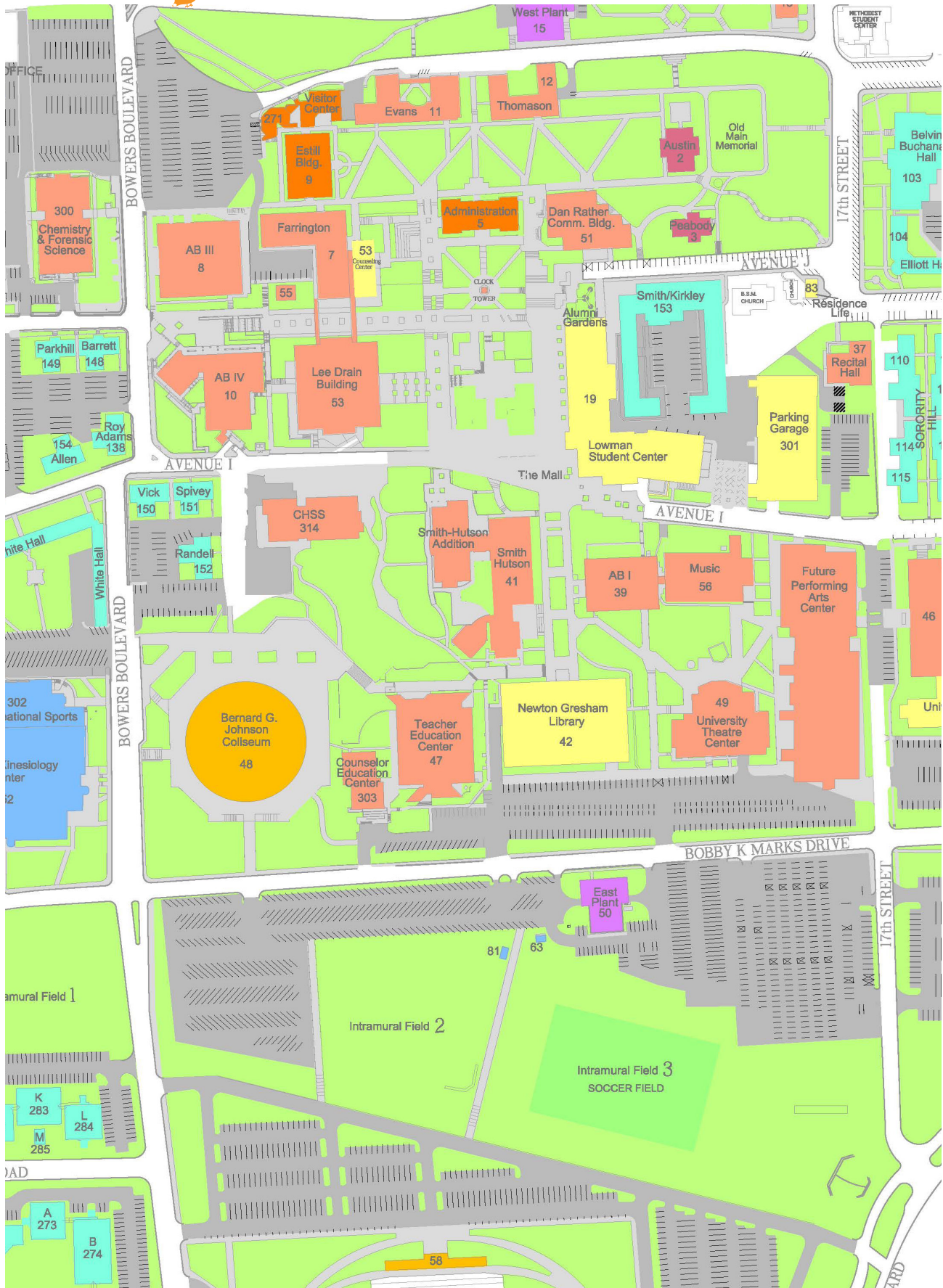




CHSS Second Floor







A ROOM **Geology and Animal Sciences**
1 262 Faculty Moderator: Dr. Sunny Yung

Energy Use and Its Effects

Gabrielle Ransom—pg. 34

Faculty Advisor: Dr. Jonathan Sumrall

Behavioral Responses of Livestock Exposed to Unmanned Aerial Systems

Philip Urso—pg. 37

Co-researchers: Aaron Tipton and Travis Hites

Faculty Advisor: Dr. Marcy Beverly

The Influence of Plasma Leptin Concentrations on Predicting Post-Partum Anestrus in Mares

Callie Knight—pg. 32

Faculty Advisor: Dr. Jessica Leatherwood

A ROOM **Biology**
2 210 Faculty Moderator: Dr. Sybil Bucheli

Molecular Analysis of recA Mutant in Rhodobacter sphaeroides

Michelle Harrel—pg. 30

Student Co-researchers: Veronica Rodriguez, Amber Neal,
and Hannah Johnson

Co-researcher and Faculty Advisor: Dr. Madhusudan Choudhary

Genetic and Molecular Characterization of the Chromosomal Origin of Replication in Rhodobacter sphaeroides

Dustin Davis—pg. 28

Co-researcher: Berra Koskulu

Faculty Advisor: Dr. Madhusudan Choudhary

Dissecting the Roles of B56a and B56e in Wnt Signaling

Stacy Batres—pg. 26

Faculty Advisor: Dr. Joni Seeling

A ROOM **Business**
3 232 Faculty Moderator: Dr. Pamela Zelbst

Design, Construction, and Applications of 3D Printers

Cody Davis—pg. 28

Faculty Advisor: Dr. Pamela Zelbst

Inventory Management System using RFID

Sarah Kavanagh—pg. 32

Faculty Advisor: Dr. Pamela Zelbst



A ROOM **Multidisciplinary Approaches to Cultural Concerns, I**
4 242A Faculty Moderator: Dr. S. West Gurley

Safety Planning among College Students at Risk for Intimate Partner Violence

Gloria Sanchez—pg. 35

Co-researcher and Faculty Advisor: Dr. Lisa Muftic

Nutrition Knowledge and Factors Leading to Weight Gain in College

Katherine Hernandez—pg. 30

Co-researcher and Faculty Advisor: Dr. Valencia Browning-Keen

Dynamic Risk Assessment and Female Sexual Offenders

Sophie Nelson—pg. 33

Faculty Advisor: Dr. Holly Miller, Assoc. Dean of Criminal Justice

A ROOM **Psychology and Education**
5 242B Faculty Moderator: Dr. Paul Child

Resilience and Family Functioning: How Families Cope with Mental Illness

Samantha Reed—addendum

Co-researcher and Faculty Advisor: Dr. Judy Nelson

College Students' Perspectives on Children and Youth with Emotional Behavior Disorders in Special Education

Alfred Loera—addendum

Co-researcher and Faculty Advisor: Dr. Phil Swicegood

Neurocircuit and the Improvement of the Treatment of Mental Illness

Iman McDonald—addendum

Faculty Advisor: Dr. Christopher Wilson

A ROOM **Cutting-Edge Research in Games and Knots**
6 206 Faculty Moderator: Mr. Jeff Roberts

The Production Process in Creating Pro-Social Mobile Games

Luis Gaitan—pg. 29 and **Melissa Ashworth**—pg. 26

Co-researcher and Faculty Advisor: Dr. Hannah Gerber

Optimizing the Video Game Multi-Jump: Player Strategy, AI, and Level Design

Abagayle Serreyn—pg. 36

Faculty Advisor: Dr. Martin Malandro

Pseudoknot Graph Invariants

Sarah Renfro—pg. 35

Co-researcher: Ryan Coopergard

Faculty Advisor: Dr. Jeff Boerner

B ROOM **Biology and Forensic Anthropology**
1 210 Faculty Moderator: Madhusudan Choudhary

Programmed Cell Death is Distinct from Necrosis in Clamydomonas

Matthew Breuer—pg. 26

Student Co-researcher: Allyson Keathley

Co-researcher and Faculty Advisor: Dr. Anne Gaillard

Multi-Disciplinary Analysis of Cremated Human Remains

Michelle Harrel—pg. 30, **Chris Perrie**—pg. 34, **Jen Elings**—pg. 28, and
Erica Workman—pg. 37

Faculty Advisor: Dr. Joan Bytheway

Evolution and Diversification of the Pantropical Clade of Orobanchaceae

David Hammack—pg. 29

Faculty Advisor: Dr. Christopher Randle

B ROOM **Criminal Justice**
2 220 Faculty Moderator: Dr. Stacy Ulbig

Second-Generation Immigrants' Assimilation in the United States

Jessica Ryes—pg. 35

Faculty Advisor: Dr. Yan Zhang

Los Zetas Cartel and Their Presence in the United States

Luis Morales—pg. 33

Co-researcher: Dr. Nathan Jones

Faculty Advisor: Dr. Lydia Fox, Director, McNair Program

Through Fear and Intimidation: The Nature and Strategies of Modern Terrorism

Maria Perlas—pg. 34

Faculty Advisor: Dr. Andrew Sanders

B ROOM **History**
3 232 Faculty Moderator: Dr. Paul Child

The Origin of Black Gangs

Brandyn Humphries—pg. 31

Faculty Advisor: Ms. Katherine Gaskamp

The Story of Hillis Hadjo: The Man Who Defied a Republic!

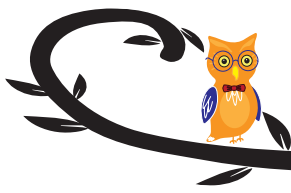
Patrick Slifer—pg. 36

Faculty Advisor: Ms. Katherine Gaskamp

The Franco-Prussian War

Brian Jacobs—pg. 31

Faculty Advisor: Dr. Zachary Doleshal



Session B: 10:30-11:45

B ROOM Literary and Musical Greats **4 242A** Faculty Moderator: Ms. Barbara Miles

Two Pricks Not Acquainted: A Study of Swearing and Sexual Language from Geoffrey Chaucer to William Shakespeare

Kristina Lewis—pg. 32 *EXPLICIT LANGUAGE ADDRESSED
Faculty Advisor: Dr. Audrey Murfin

Thetis: Goddess and Mother in Homer's 8th-century Epic, The Iliad

Angela Shackelford—pg. 36
Faculty Advisor: Dr. Tracy Bilsing

Of Earth and Heaven: The Piano Music of 20th-Century Spain

Kara Reed—pg. 34
Faculty Advisor: Dr. Josu de Solaun Soto

B ROOM Business and Statistics **5 262** Faculty Moderator: Dr. Santosh Kumar

Adapting Micro Financing Programs to Break the Poverty Trap: The Indian Experience

Madison Becker—pg. 26
Faculty Advisor: Dr. Santosh Kumar

The Cost of American Seafood

Timur Slipyi—pg. 36
Co-researcher: Jeff Paschall
Faculty Advisor: Dr. Tommy Robertson

Statistics Content in Elementary Textbooks

Lindsay Hixon—pg. 30
Co-researchers: Alisha Dunkle, Nicole Yoder, Megan Brown, Zach Silbernack
Faculty Advisor: Dr. Dustin Jones

B ROOM Psychology **6 242B** Faculty Moderator: Dr. Maria Botero Jaramillo

Eliminating the Own-Race Bias: The Effect of Collaboration

Tara Cobler—pg. 27 and **Courtney Spiegel**—pg. 36
Co-researcher and Faculty Advisor: Dr. Jeffrey Anastasi

The Relationship between Psychopathy and Desirable Responding

Rebecca Cheiffetz—pg. 27
Co-researchers: Charlotte Pennington and Dr. Adam Schmidt
Faculty Advisor: Dr. Adam Schmidt

The Facial Action Coding System and Non-Verbal Communication

Anthony McCurdy—pg. 32
Faculty Advisors: Dr. Ryan Randa and Dr. Maria Granic White

B ROOM Physics **7 226** Faculty Moderator: Dr. William Fleming

Perspectives on Science Teacher Professional Development: A study of the ASSET Experience

Traves Hites—pg. 30, **Lewis Cale**—pg. 27, and **Katrina Reeves**—pg. 34
Co-researcher and Faculty Advisor: Dr. Scott Miller



Session C: 2:45-4:00

C ROOM **Bearkats Read to Succeed Scholarship Recipient Projects**
1 232 Faculty Moderator and Advisor: Mrs. Kay Angrove

Utopia

Tyler Josefsen-Lanham–pg. 32

Which One?

Nora Calderon–pg. 27

Beacon

Kristopher Croy–pg. 28

CALEKO: A Ready Player One Fan Fiction

Caleb Crosby–pg. 28

C ROOM **Physics**
2 206 Faculty Moderator: Mr. John Jordan

Quantitative Study of Na⁺ and/or Cl⁻ doped LiFePO₄ as a Cathode Material for Li-Ion Batteries

Michael Semmlinger–pg. 35

Co-researcher and Faculty Advisor: Dr. Hui Fang

Optimization of Collider Data Selection Cuts

Jesse Cantu–pg. 27 and Trent Voth–pg. 37

Faculty Advisor: Dr. Joel Walker

C ROOM **Biology**
3 210 Faculty Moderator: Dr. Todd Primm

The Medicinal Effect of Plant Extracts on *Xenopus laevis* Embryos

Elijah Hodges–pg. 31

Faculty Advisor: Dr. Joni Seeling

Correlation between Host Nitrogen Access and GC Content in Parasitic Plants

Kenneth Nobleza–pg. 33

Co-researcher: Justin Williams

Co-researcher and Faculty Advisor: Dr. Christopher Randle

C ROOM **History Panel: From Slavery to Freedom**
4 262 Faculty Moderator and Advisor: Dr. Bernadette Pruitt

Robert Gould Shaw and the Free Black Men of the 54th Massachusetts

Alexis Lenington–pg. 32

A Look into African Culture

Hayley Jefferson–pg. 31

The Road to Freedom: The Fugitive Slave Act of 1850 and its Effects on African-Americans

Jonnathan Portillo–pg. 34

From Physical Slavery to Economic Slavery

Jatwan Gorman–pg. 29



Session C: 2:45-4:00

C ROOM Multidisciplinary Approaches to Cultural Concerns, II
5 242A Faculty Moderator: Ms. Lauren McLean

“CelebGate” and its Implications for Privacy Online

Robert Davidson—pg. 28

Co-researcher: Trey Cawley

Faculty Advisor: Mr. Andrew Bennett, Director, Center for Excellence in Digital Forensics

An Exploration of the Government’s Public Approval Generated by the Television Drama Scandal

Ashlee Symanck—pg. 36

Faculty Advisor: Dr. Carroll Nardone

Exploiting Medical Software

Robert McDown—pg. 31 and **Luis Rios**—pg. 35

Faculty Advisor: Mr. Andrew Bennett, Director, Center for Excellence in Digital Forensics

C ROOM Philosophy and Sociology
6 242B Faculty Moderator: Dr. Charles Carlson

Buried Alive

Jon Beadle—pg. 26

Faculty Advisor: Dr. S. West Gurley

Religion as Liberating Art: An Aesthetically-Centered Existential Philosophy of Religion

Trenton Hale—pg. 29

Faculty Advisor: Dr. Charles Carlson

Limitations of Utilitarianism

Luke van Dyke—pg. 37

Faculty Advisor: Dr. Maria Botero Jaramillo

The Relevance of Cultural Relativism

Allison Parry—pg. 33

Faculty Advisor: Dr. Maria Botero Jaramillo

C ROOM Criminal Justice
7 220 Faculty Moderator: Ms. Barbara Miles

Introduction of Shoot/Don’t Shoot training in America (Texas)

Tong Tong—pg. 37

How to Carry Out Involuntary Commitment: A Comparison between China and the United States

Jiamin Han—pg. 29

What We can Learn from Police Handling of Child Abduction in America

Qian Hong—pg. 31

Poster Session
1:00-2:30
LSC Ballroom

Poster titles are listed
alphabetically by
presenters'
last names

How Student Organization Involvement Affects Academic Performance at SHSU

Samantha Aldrich

Faculty Advisor: Ms. Angie Taylor

An Analysis of the Social Rhetoric Used by the Bloomsbury Group and the Algonquin Round Table in Radio and Print

Amanda Beller

Faculty Advisor: Dr. Brian Blackburne

Post-mortem Interval Determination in Southeast Texas

Mackayla Bernard and Sarah Steele

Faculty Advisor: Dr. Joan Bytheway

Antibiotic Selection of Resistance in a Model Microbiome

Dayna Bishoff

Co-researchers: John Pinard and Jeanette Carlson

Faculty Advisor and Co-researcher: Dr. Todd Primm

Epistasis analysis of B56 α & B56 γ isoforms within the non-canonical Wnt/PCP Pathway in *Xenopus laevis*

Cody Brannan

Faculty Advisor and Co-researcher: Dr. Joni Seeling

Play in the Classroom

Lauren Brown, Kristi Korenek, and Amber Matt

Co-researchers: Brittany Green and Megan Campbell

Faculty Advisor: Dr. Elizabeth Lasley

The Myth of Larry Gopnik: Analyzing Absurdism In A Serious Man

Nathaniel Buffington

Faculty Advisor: Dr. Darci Hill

The Definition of a Criminal throughout the Twentieth Century

Janice Burke

Faculty Advisor: Ms. Katherine Gaskamp

Significant Microbiome Alteration from a Broad-Spectrum Antibiotic Induces Host Effects in a Vertebrate Fish Model

Jeanette Carlson

Co-researchers: Chelcy Brumlow, Embriette Hyde, and Joseph Petrosino

Faculty Advisor and Co-researcher: Dr. Todd Primm

Compound Interest: Bioassay-guided Isolation of Antimicrobial Phytochemicals

Zechariah Carroll

Faculty Advisor: Dr. Madhusudan Choudhary

Humanized Gnotobiotic Model of *Gambusia affinis*, and Inoculation with Human Microbiome in Human-Body-Like Conditions

Oscar Chavez

Co-researcher: Jeanette Carlson

Faculty Advisor and Co-researcher: Dr. Todd Primm

A Comparison of Chinese and American Police Authority and Challenges

Hailun Chen

Faculty Advisor: Dr. Steven Cuvelier

Environmental Insights from Rock Magnetic Data off the Iberian Margin

Jason Cooper

Faculty Advisor: Dr. Gary Acton



Volatile Organic Compounds from DeComposing Bodies During Seasonal Changes in East Texas

Kelsey Cooper

Faculty Advisor: Dr. Donovan Haines

Effects of Plasticizers on Cytokines

Kallie Davis

Faculty Advisor and Co-researcher: Dr. James Harper

Play in Early Childhood Education

Ally Fry, Selena Hernandez, Joni Iglehart, and Amber Solar

Faculty Advisor: Dr. Elizabeth Lasley

Primary Classroom Learning Experiences

Katie Gardner, Paige Nelligan, and Jessika Sleiman

Co-researchers: Jaclyn Johnson and Maria Mendoza

Faculty Advisor: Dr. Elizabeth Lasley

Social Physique Anxiety: Feeling States, Calorie Restriction, and Exercise in College Students

Jessica Graham

Co-researchers: Dr. Craig Henderson, Scholar Colburn, and John Manning

Faculty Advisor and Co-researcher: Ms. Stephanie Spies-Upton

A Preliminary Study of Seasonal Effect on Bacterial Communities During Human Cadaver DeComposition in Southeast Texas

Matthew Greenwood and Christine Woelfel-Monsivais

Co-researchers: Lauren Smith, Daniel Haarmann, Joseph Petrosino, and Dr. Sibyl R. Bucheli

Faculty Advisor and Co-researcher: Dr. Aaron Lynne

Molecular Assessment of Hybridization between *Baptisia arachnifera* and *Baptisia leContei*

Kayla Hankins

Co-researcher: Dean John Pascarella

Faculty Advisor and Co-researcher: Dr. Christopher Randle

Characterization of Novel Plant Extracts for Bioactive Properties

Kortney Hanson and Alison Stephens

Faculty Advisor and Co-researcher: Dr. Anne Gaillard

An Introduction to Law Enforcement Discretion in the United States

Ziyang He

Titus Andronicus: Violent Rhetoric

Shannon Heironimus

Faculty Advisor: Dr. Brian Blackburne

Description of the Cranial Jaw Musculature of *Lemur catta* Using Contrast-Enhanced Micro-CT

Nicholas Holovacs

Co-researcher: Juan Daza

Faculty Advisor and Co-researcher: Dr. Monte Thies

An Economic Comparison of Shallow Subsurface Drip, Deep Subsurface Drip, and Center Pivot Irrigation Systems in South Georgia for a Repeated Five-Year Crop Rotation

Tyler Kelch and Claudia Martinez

Co-researchers: Dr. Shyam Nair, and Dr. Ronald Sorensen

Faculty Advisor and Co-researcher: Dr. Foy Mills

Sampling Method Influence on Bee Biodiversity Survey at Sam Houston State University's Center for Biological Field Studies

Juan Ledezma

The American Legal System and the Use of Guns by Police
Ning Lin

A Preliminary Study of Shifting Skin Bacterial Communities During Human Cadaver DeComposition in Southeast Texas

Zachary Lueck and Dalton Plummer

Co-researchers: Lauren Smith, Daniel Haarmann, Joseph Petrosino, and Dr. Sibyl Bucheli
Faculty Advisor and Co-researcher: Dr. Aaron Lynne

Fingerprint Replication Utilizing Latent Fingerprints for Conducting Forensic Analysis on Mobile Devices with Biometric Security

Robert McDown and Joshua Sablatura

Co-researcher: Dr. Jorn Yu
Faculty Advisor and Co-researcher: Dr. Lei Chen

Canonical Epistasis of B56 \hat{I} in *Xenopus laevis*

Amanda Means

Faculty Advisor: Dr. Joni Seeling

The Effects of PP2A Regulatory Subunits on Embryonic Development of *Xenopus laevis*

Grayson Means

Faculty Advisor: Dr. Joni Seeling

Isolation and Characterization of Gold (III) Resistant Mutant of *Rhodobacter sphaeroides*

Amber Neal

Co-researchers: Hannah Johnson and Hyuk Cho
Faculty Advisor and Co-researcher: Dr. Madhusudan Choudhary

Digital Forensics and Prefetch Files

Dylan Novak

Faculty Advisor: Dr. Narasimha Shashidhar

Cartosemiotics: How Maps Influence Culture and Power

Paige Odegard

Faculty Advisor: Dr. Carroll Nardone

Queen Elizabeth: Power and Leadership under the Virgin Queen

Genevieve Osborn

Faculty Advisor: Dr. Lila Rakoczy

A Preliminary Study of Shifting Skin Bacterial Communities During Human Cadaver DeComposition in Southeast Texas

Laura Paez and Jacquelyn Vasquez

Co-researchers: Daniel Haarmann, Joseph Petrosino, and Dr. Sibyl Bucheli
Faculty Advisor and Co-researcher: Dr. Aaron Lynne

Elements of Implementing Safety Culture

Jorge Picos, Chance Andries, Roclan Drain, and Dustin Utz

Faculty Advisor: Dr. Terry Waugh

Resistance Selection in the Microbiome by Various Antibiotic Treatment Regimens

John Pinard

Co-researcher: Jeanette Carlson
Faculty Advisor and Co-researcher: Dr. Todd Primm

The Art of Self-Expression

Taylor Ramsey

A Hedonic Analysis of Auction Prices for Beef Herd Bulls

Seth Skurja

Co-researchers: Dr. Samantha Cunningham, and Dr. Kevin BaCon
Faculty Advisor and Co-researcher: Dr. Jason Franken

The Rhetoric of Clickbait Links

Megan Speck

Faculty Advisor: Dr. Brian Blackburne

Measuring Resilience in Children of Incarcerated Parents

Patrick Stanford-Galloway

Co-researcher: Dana Formon

Faculty Advisor and Co-Researcher: Dr. Adam Schmidt

A Rhetorical Analysis of the Perception of Time in "The Garden of Forking Paths"

Ashlee Symank

Faculty Advisors: Dr. Audrey Murfin and Dr. Brian Blackburne

The Effects of Dietary Conjugated Linoleic Acids on Swine

Philip Urso

Co-researcher: Ginger Van

Faculty Advisor: Dr. Mark Anderson

Analysis of Atlantoaxial Complex of the Gekkota Families

Nicole Vaughn

Co-researchers: Dr. Monte Thies, and Dr. Aaron Bauer

Faculty Advisor and Co-researcher: Dr. Juan Daza

Effect of Aging on the Loin of the Scimitar Horned Oryx

Ashleigh Wagner

Faculty Advisor: Dr. Mark Anderson

Policing Domestic Violence in United States and China

Jiamin Wei

Faculty Advisor: Dr. Raymond Teske

The Perfect Combination of See Alarm Rate and Rapid Response Mechanisms in the HPD Patrol System

Yupeng Xu

Facial ReCognition and the Influence of University Status and Affiliation

Briahna Yuodsnuak

Co-researcher: Jessica Lee

Faculty Advisor and Co-researcher: Dr. Jeff Anastasi

The New Zero Tolerance

Chengjie Zheng

Police Vehicles: Personal Use in America and China

Kanxin Zheng

**Poster Session
Faculty and Graduate
Student Moderators:**

Ms. Samantha Alper

Dr. Maria Botero

Ms. Chelcy Brumlow

Dr. Sibyl Bucheli

Ms. Douja Chamseddine

Dr. Paul Child

Dr. Madhusudan Choudhary

Dr. Tami Cook

Ms. Dawn Fisher

Mr. Corey Green

Dr. Maria Holmes

Ms. Hannah Johnson

Mr. John Jordan

Ms. Berra Koskulu

Dr. Patrick Lewis

Ms. Lauren McLean

Ms. Barbara Miles

Mr. Clinton Morrison

Ms. Damilola Omotajo

Mr. Jeff Roberts

Dr. Joni Seeling

Ms. Lauren Smith

Ms. Lauren Sommer

Dr. Gene Young



Oral-Media Abstracts

Ashworth, Melissa–A6
with Luis Gaitan

The Production Process in Creating Pro-Social Mobile Games

This research focuses on the production process for a mobile game that teaches youth about recycling in developing nations. Using a touch interface, the player sorts raining trash into proper receptacles—whether trash or recycling—and thereby earns points by correctly sorting the items. Key facts and recycling tidbits are presented to players as they level up. The data that shaped our game development is drawn from focus groups and play-testing with kids ages 6-13.

Batres, Stacy–A2

Dissecting the Roles of B56a and B56e in Wnt Signaling

The Wnt pathway plays a crucial role in cell growth, and mutations can lead to cancerous cells. Protein phosphatase 2A (PP2A) functions as a regulatory protein in the Wnt pathway and contains a regulatory B subunit. There are subfamilies of B subunits, but we study the B56 gene family. To examine this, we constructed XIB56 α and XIB56 ϵ chimeras. When the RNA is microinjected into *Xenopus* embryos, its tadpole form reveals the identity of the isoform. We expect that anterior truncation will signify the expression of the XIB56 α variant while the lack of dorsal specific gene expression and formation of a primary body axis region will signify the expression of the XIB56 variant. Identifying the regions required for isoform specificity of the B56 genes will allow PP2A to be a potential target for cancer treatment by inhibiting Wnt, either by over activating B56 α or by inactivating B56 ϵ .

Beadle, Jon–C6

Buried Alive

The whole classroom hung in silence. The professor had just asked students to raise their hands if they were afraid of dying. Slowly, hands began to lift as every student admitted to their fear of death. Why is it that we, as a culture, are so afraid of dying? And how does the prospect of death inform our lives? With extremists giving themselves over to death for afterlife privileges and students declaring “YOLO” on their social media sites, society as a whole seems to be scurrying to make it count. The question is: Do we really?

Becker, Madison–B5

Adapting Micro Financing Programs to Break the Poverty Trap: The Indian Experience

Many economists agree that micro financing may be the key to breaking the poverty-trap in under-developed countries. The goal of micro financing is to provide poor “agents” with easy access to basic financial services, such as loans. Ideally, if this money is wisely invested, wealth is generated. Unfortunately, because people do not always invest responsibly, micro financing often becomes complicated and stops working at an optimal level. Hand-in-Hand, a research initiative for women in Tamil Nadu, India, is focusing on this very issue. The goal of Hand-in-Hand is not only to give out micro loans, but also to educate poor women on how to invest their loans wisely. In this presentation, we will look closely at how the Hand-in-Hand project in India is adapting its research to help poor women maximize their financial potential.

Breuer, Matthew–B1

Programmed Cell Death is Distinct from Necrosis in *Chlamydomonas*

Programmed cell death (PCD) is a form of cell death that is activated by a genetic program. We hypothesize that in *Chlamydomonas*, PCD has evolved as a mechanism for kin selection—an evolutionary strategy in which the fitness of a genetically related population is favored above all else, even at the cost of the individual’s life. To test this hypothesis, our laboratory is focusing on the following: 1. further differentiation between PCD and necrosis; 2. independently verifying the contrasting effects of PCD and necrosis on surviving organisms; and 3. quantifying the amount of PCD in an axenic culture compared to that of a mixed culture. The main focus of this presentation will be on the first and second goals. Preliminary results indicate that *Chlamydomonas* releases beneficial compounds during PCD and detrimental compounds during necrosis.

Calderon, Nora–C1

Which One?

As the correlation between people and technology has been steadily growing, online identity is an increasing concern for many people. Teenagers all over the world invest their time in online gaming characters but do not put forth effort into improving themselves. They ignore the needs of their body so they can focus on improving the armor their online character. They shut out the real world for a world that is made out of pixels: for them, though, it is the only world that is worth living in.

Cantu, Jesse–C2 with Trent Voth

Optimization of Collider Data Selection Cuts

Multiple experiments, such as the Large Hadron Collider, collect data on collisions or events which can be used to verify or discredit a proposed particle physics model. One important step in analyzing the data is to sift out the background, data resulting from a known process that leaves a similar signature to the proposed model, from the signal, the desired data. This project aims to utilize software that will recommend the selection criteria used to analyze the data that yields the greatest ratio of signal to background.

Cheiffetz, Rebecca–B6

The Relationship between Psychopathy and Desirable Responding

This study investigates the relationship between a trait measure of psychopathy and a measure of social desirability in an undergraduate sample. The purpose of this study is to determine if individuals high in psychopathic traits purposefully respond in a socially desirable manner (i.e., potentially enhance their ability to manipulate an assessment situation). The Triarchic Psychopathy Measure (TRI-PM) contains three major factors: Boldness, Meanness, and Disinhibition. The Balanced Inventory of Desirable Responding (BIDR) contains two major factors: Self-Deceptive Enhancement and Impression Management. These are used to assess if respondents are responding truthfully or are misrepresenting themselves to manage their self-presentation. Data analysis is ongoing.

Cobler, Tara–B6 with Courtney Spiegel

Eliminating the Own-Race Bias: The Effect of Collaboration

The Own-Race Bias (ORB) refers to the phenomenon whereby individuals more accurately recognize own-race faces compared to other-race faces. Based on research in social categorization and reducing intergroup bias, the current study evaluated the possibility that collaborative tasks may reduce the ORB. To test this, participants were paired with an individual of another race and assigned to work collaboratively, competitively, or independently on a puzzle. It was investigated whether individuals who engaged in the collaborative task would demonstrate integration of their partner into their in-group by showing a reduced/eliminated ORB relative to the individuals in the other conditions.

Crosby, Caleb–C1

CALEKO: A Ready Player One Fan Fiction

CALEKO was an idea brewing in my mind from the moment I started reading Ernest Cline's Ready Player One. I wondered what I would do in the world of the OASIS, and how I would make a life and a name for myself. The idea to place my story after the events of the book came later on, but I felt placing it at a point where I could have more literary freedom seemed appropriate. Just like in Ready Player One, the themes, subjects, and background of CALEKO are heavily based on my own childhood experiences, fascinations, and hobbies. I wanted to make a simple yet fun story about life in a post-egghunt OASIS.

Croy, Kristopher–C1

Beacon

I created this artwork to express how much I enjoyed reading Ernest Kline's Ready Player One and to display what I considered an important theme in the book – love. The scene I chose to recreate is at the end of the book, when Wade and Samantha embrace and kiss for the first time in real life. In my opinion, this scene and their love represent an everlasting and enduring peace that lives on in a world where death, robbery, and mayhem are common. It is a beacon of light in an otherwise dark and miserable world.

Davidson, Robert–C5

“CelebGate” and its Implications for Privacy Online

The 2014 release of private celebrity photos on Reddit, otherwise known as “CelebGate,” is potentially a watershed moment in terms of privacy online. This research will show the most likely ways that the photos were gathered from private cellphones, place the event in a historical context, and analyze the implications for online security of users. Future avenues for research, examining the social engineering aspects of digital security and user education are also examined.

Davis, Cody–A3

Design, Construction, and Applications of 3D Printers

Like most pervasive technologies, 3D printing has the potential to disrupt science and business for the better. However, many members of the public are unaware of the mechanics that empower this technology and thus, are unfamiliar with both its limitations and its possibilities. This presentation aims to rectify that lack of understanding through an engaging explanation of the general design and applications of 3D printers, condensing technical jargon into a practical, accessible introduction.

Davis, Dustin–A2

Genetic and Molecular Characterization of the Chromosomal Origin of Replication in *Rhodobacter sphaeroides*

Rhodobacter sphaeroides contains two chromosomes: chromosome I (CI) and chromosome II (CII). Despite the fact that the genome of *R. sphaeroides* is fully sequenced, the true origin of replication in each chromosome is still not known. The goal of this research was to identify the origin of replication in both chromosomes of *R. sphaeroides* using a combined bioinformatic, genetic, and molecular approach. The results of the experiment helped us gain a better understanding about which origin of replication site in each chromosome and facilitated the study of bacterial chromosomal replication and segregation during the bacterial cell cycle.

Elings, Jen–B1

with Michelle Harrel, Chris Perrie, and Erica Workman

Multi-Disciplinary Analysis of Cremated Human Remains

Burned and cremated remains pose many problems, both forensically and anthropologically. Such remains are less dense and many of the bones are brittle and crumble under the slightest touch. In this study, we have taken a multi-disciplinary approach to analyze a set of cremated remains. Bones that were relatively intact allowed for DNA extraction to see if any biological material remained after exposure to high heats for an extended period of time; the cremation process should destroy most (ideally, all) organic material. One abnormality on the cremated remains utilized is an orange substance that is splashed on the bones inconsistently. This anomaly opens the door for a chemical analysis to be performed, which is difficult due to how brittle the bones are. We have analyzed and compared bone densities, successfully isolated DNA from several bones and some remaining soft tissue, and have narrowed down the origin of the orange powder.



Gaitan, Luis–A6

with Melissa Ashworth

The Production Process in Creating Pro-Social Mobile Games

This research focuses on the production process for a mobile game that teaches youth about recycling in developing nations. Using a touch interface, the player sorts raining trash into proper receptacles—whether trash or recycling—and thereby earns points by correctly sorting the items. Key facts and recycling tidbits are presented to players as they level up. The data that shaped our game development is drawn from focus groups and play-testing with kids ages 6-13.

Gorman, Jatwan–C4

From Physical Slavery to Economic Slavery

This paper examines the ways in which Whites maintained “the natural order” through their ownership of businesses, land, institutions, etc., while former slaves and their descendants lost their footing in the period that followed Reconstruction. Racists sought the complete subjugation of African Americans, culturally, politically, socially, and especially economically. As Reconstruction changed into racial segregation, Black advancements declined and gave way to poverty, violence, illiteracy, and the construct of inferiority. Even while a century of protest lifted the veil of Black docility through the crowning Modern Civil Rights Movement, some argue that Black economic powerlessness nevertheless remains intact.

Hale, Trenton–C6

Religion as Liberating Art: An Aesthetically-Centered Existential Philosophy of Religion

With an eye toward the emerging connections being drawn between profound aesthetic experience, religious experience, and participation, this presentation seeks to demonstrate how a conceptual emphasis on aesthetic experience as foundational to religious practice and belief helps to construct a pluralistic and existentialist approach to religiosity as opposed to a closed and obligation-driven approach. This presentation proposes a liberating view of religion that understands an individual's utilization of religious language or practice in terms of artistic interpretation of, and relationship with, existence, and not in terms of obligatory doctrine or truth statements.

Hammack, David–B1

Evolution and Diversification of the Pantropical Clade of Orobanchaceae

The family Orobanchaceae includes all parasitic members of the order Lamiales. The majority of species diversity resides in a few well-characterized genera of temperate regions. However, tropical genera comprise the majority of ecological diversity including trees, shrubs, and herbs, the full range of host dependence from facultative hemiparasites to highly reduced holoparasites, and a wide range of floral morphologies and pollinator syndromes. In this study, DNA sequence data from five loci were used to infer phylogenetic relationships among ~150 spp. of 31 tropical genera occurring in both the New World and Old World tropics of sub-Saharan Africa and southeast Asia. Of these, 13 genera have never been included in any phylogenetic study. The resulting phylogenetic tree provides a framework for interpreting the evolution of floral traits as well as variation in host range and dependency, and will allow the testing of hypotheses concerning biogeography and taxonomic boundaries.

Han, Jiamin–C7

How to Carry Out Involuntary Commitment: A Comparison between China and the United States

Involuntary commitment, the acting of putting a person in a mental institution or psychiatric ward without his or her consent, is very important for the safety of the individual and for the protection of society. China and the United States have both established this system; however, the systems in the two countries are different in many ways. This presentation will compare these two systems to show how their differences are significant; in recognizing these differences, both systems can develop. .

Harrel, Michelle–A2

Molecular Analysis of recA Mutant in Rhodobacter sphaeroides

RecA is a protein, encoded by the recA gene, which mediates the regulation of the SOS response, a DNA-damage repair system in prokaryotes. This protein also mediates homologous recombination - the exchange of regions of identical gene sequences as a method to repair damaged/broken strands of DNA. This study employs the construction of an in-frame deletion (Δ recA) and comparisons of the extent of DNA damage and repair under UV-induced conditions. We have successfully constructed and confirmed the Δ recA strain of *R. sphaeroides*. Results revealed that as UV exposure increased, the survival rates of wild type and mutant strains differentially decreased with the mutant strain being more affected than the wild type strain. However, both wild type and mutant strains did not grow beyond 75 mJ of UV exposure. Further analyses will be performed.

Harrel, Michelle–B1

with Chris Perrie, Jen Elings, and Erica Workman

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Hernandez, Katherine–A4

Nutrition Knowledge and Factors Leading to Weight Gain in College

The objective of this study was to record students' eating habits and knowledge of nutrition and weight gain, as well as to identify factors that may lead to weight gain in college students. Data was gathered through an anonymous online survey that consisted of varied questions about gender, major, food frequency, branding, knowledge of MyPlate, sport drinks, and supplements. One hundred thirty-four students participated in the survey, and it was determined that time management, convenience, and pricing were critical factors when it came to students' food choices.

Hites, Travis–B7

with Lewis Cale and Katrina Reeves

Perspectives on Science Teacher Professional Development: A study of the ASSET Experience

The NASA-sponsored, SHSU-led Astronomy Summer School of East Texas (ASSET) is dedicated to improving secondary school science teachers' attitudes toward and proficiency in astronomy. To assess its effectiveness, participants were interviewed periodically, providing their perspectives and insights. Content mastery was assessed through pre- and post-content surveys, which were also administered to their students in an effort to determine the extent to which teacher gains transferred into student gains. We will present the major implications of our observations of the ASSET experience on professional development, teacher enhancement of content knowledge, and the extent to which it impacted student content mastery.

Hixon, Lindsay–B5

Statistics Content in Elementary Textbooks

What is the nature and extent of statistical content in U.S. elementary math textbooks? Last summer, the Sam REU Math Education project investigated this by examining five textbook series and sorting statistics questions into four phases: 1. Formulate a Question, 2. Collect Data, 3. Analyze Data, and 4. Interpret Results. Our analysis determined the location of the statistics questions, the distribution of the phases, and the types of displays, such as bar graphs, that appeared in each textbook. Our results suggest that textbooks do not place equal emphasis on the different phases of the statistical process, which may have further implications.

Hodges, Elijah–C3

The Medicinal Effect of Plant Extracts on *Xenopus laevis* Embryos

The effects of different plant extracts have proven effective in fighting ailments, such as cancer, with current alkaloid forms like vincristine, vinblastine, cisplatin, and camptothecin. Plant extracts can be used on *Xenopus laevis* embryos in order to test for potential medicinal properties as well as to learn more about the inner workings of the cells of *Xenopus laevis*. Our experiment will start with the well-known alkaloids listed above. These extracts have been observed to inhibit mitosis (vincristine and vinblastine), crosslinking of DNA (cisplatin), and inhibiting a DNA enzyme, topoisomerase I, which serves to disentangle DNA during mitosis (camptothecin). We will treat individual *Xenopus laevis* embryos and view the phenotypic results for each compound. We will then determine the effect of several untested extracted alkaloids purified from several plants species in the same way and note their effects on embryonic development. Our goal is to identify medicinal compounds in new plant species that have properties similar to those of vincristine, vinblastine, cisplatin, and camptothecin.

Hong, Qian–C7

What We can Learn from Police Handling of Child Abduction in America

Child abduction is an international problem that receives great attention. In China, millions of children go missing every year, but the recovery rate is very low. The Chinese police and government are passive when parents call to report missing children. In contrast, when a child goes missing or is abducted in America, law enforcement agencies have a valuable resource for their response to the abduction. This is the Amber Alert. When a child goes missing, an Amber Alert is issued immediately by the police through the media to the whole community notifying every one of the child's abduction. As a result, not only law enforcement, but also the media, the general public, and other government and private organizations become involved in searching for the abducted child. The Amber Alert and other systems available to the American police with the goal of finding missing children began in 1980s and has changed the situation to a great degree. The quick find mechanism is what Chinese police should learn.

Humphries, Brandyn–B3

The Origin of Black Gangs

Black gangs in twenty-first century America receive negative attention; however, they used to be a system for blacks to have protection from white supremacy. Utilizing the documentary, *Bastards of the Party*, this presentation will magnify a small piece to this big puzzle. This documentary focuses on the Bloods' and Crips' gangs in California and explains how they came into existence. A man called "Bones" was the creator of this documentary. He is an inactive gang member from the Athens Park Blood gang in Los Angeles. He asked two of the hardest questions that this generation alone could not even answer; namely, "how did the Bloods and the Crips get started," and "how did the African-American community change because of it?"

Jacobs, Brian–B3

The Franco-Prussian War

The Franco-Prussian War was a turning point in the history of Europe as the Prussian-led North German Confederation emerged victorious from the war and established the newly formed German Empire as the dominant power in continental Europe. The French defeat in the Franco-Prussian War of 1870-1871 was the result of a war that was, at the time, deemed too close to call between what appeared to be two equally matched military powers. In truth, the French defeat in the war was an outcome that was decided years before the first shots were fired. This outcome occurred due in large part to Napoleon III's failures in matters of domestic and foreign affairs, the failures of French military forces in the areas of organization, mobilization, logistics, and discipline, and the failure of the infrastructure of France itself, specifically its railways, in that it was not able to handle the demands placed on it throughout the war.

Jefferson, Hayley–C4

A Look into African Culture

Song was one of the most effective communication techniques used by slaves to transmit important messages to other slaves and abolitionists. Music is known for its ability to soothe the soul, bring awareness, promote happiness to those in need, and it allows people to express freely their creative capabilities. African slaves experienced all ranges of emotion, and they used song to make it to the promise land. This research paper will delve into the lives of slaves and a number of ways they used their environment to survive.

Josefsen-Lanham, Tyler–C1

Utopia

The most effect way to describe survival within a dystopian society is to maintain a utopian mindset. Just as the protagonist Wade, in Ernest Cline's novel, *Ready Player One*, was able to escape reality via a virtual reality called the OASIS, an individual stranded in dystopian turmoil can escape his or her actual life by creating a conceptual "OASIS."

Kavanagh, Sarah–A3

Inventory Management System using RFID

RFID or Radio Frequency Identification is becoming increasingly popular in the field of business to keep track of large amounts of property. RFID tags are placed in individual items and strategically placed antennas are used to detect them and record their locations. Many large companies, including Wal-Mart, are beginning to use RFID technology to process and maintain their inventories more easily and effectively. This presentation will focus on the design and development of a slightly smaller inventory management system that may be used in the private sector, such as an athletic department trying to keep track of sports equipment.

Knight, Callie–A1

The Influence of Plasma Leptin Concentrations on Predicting Post-Partum Anestrus in Mares

Cyclicity and anestrus have long plagued equine breeding facilities. Preliminary research on the hormone leptin has shown to have an effect on ovulation. However, the season and body condition of the mare has also shown to have a direct impact on ovulation. The objective of this research is to determine if there is a direct link between leptin levels and cyclicity utilizing nutritional status indicators, body conditions, and seasonality.

Lenington, Alexis–C4

Robert Gould Shaw and the Free Black Men of the 54th Massachusetts

The Fifty-fourth Massachusetts Volunteer Infantry formed in 1863. This unit would go on to set examples of courage for other such units. The Fifty-fourth stood their ground on the issue of unequal pay, proved the bravery and fighting prowess of black soldiers, and in some cases, provided war correspondence for newspapers in Massachusetts. Before the end of the war, the literacy, competency, and mettle of black soldiers was well evidenced by this infantry unit. The Fifty-fourth opened the door for black men to serve in land units, although black men were previously allowed to serve in naval units.

Lewis, Cale–B7

with Travis Hites and Katrina Reeves

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Lewis, Kristina–B4



Pricks Not Acquainted: A Study of Swearing and Sexual Language from Geoffrey Chaucer to William Shakespeare

*EXPLICIT LANGUAGE IS ADDRESSED IN THIS PRESENTATION

This paper examines the perception and progression of swear words and sexual language from Geoffrey Chaucer's fourteenth-century Canterbury Tales to William Shakespeare's plays and sonnets. In the Middle Ages, the swear words found in Chaucer's works were widely accepted, as it was believed that the true form of swearing was speaking out against God. Following Queen Elizabeth's excommunication in 1570, however, swearing evolved into its current form: curse words. Shakespeare's cursing in his plays and sonnets was subtle, as it was not universally accepted to curse. This examination illustrates changing ideas of swearing in particular and the evolution of the English language in general by examining two of the most important English poets.

McCurdy, Anthony–B6

The Facial Action Coding System and Non-Verbal Communication

This presentation will explore the different aspects and methodologies of the facial action coding system developed by Dr. Paul Ekman of USC; it will also theorize the different applications FACS could have for federal, state, and local governments on the one hand, and for the private sector on the other. I will give a live example of how reading facial micro-expressions and understanding non-verbal communication can give a person an edge in any type of negotiation.

McDown, Robert–C5

with Luis Rios

Exploiting Medical Software

Medical software provides the ability to monitor a patient's vital signs, store confidential patient records, and administer lifesaving functions. Reliance on software that provides such support and confidentiality requires strong, integrated security technology. Our research has led to the discovery of security flaws yielding administrative login credentials to medical software and the corresponding website, unencrypted patient record databases, and an unsecured server containing license keys and other confidential information. This paper describes our steps in uncovering these security flaws and exposes potential concerns for device security throughout the medical industry.



Morales, Luis–B2

Los Zetas Cartel and Their Presence in the United States

Los Zetas is considered to be the most sadistic, ruthless, and technologically advanced drug cartel in existence. More than 100,000 Mexican citizens have been killed as a result of the drug wars, and Los Zetas is often blamed for the bulk of those murders. Los Zetas has generated fear and has even breached Mexico's National Security. As a result, American law enforcement is now asking, "is Los Zetas attempting to expand its drug empire in the United States?"

Nelson, Sophie–A4

Dynamic Risk Assessment and Female Sexual Offenders

There has been little research conducted on whether predictive tests for male sexual offenders hold a similar measure of accuracy for female sexual offenders. The current study was designed to examine the utility of risk measures with female sexual offenders. It included a sample of 241 female sexual offenders who were assessed with the Level of Service Inventory - Revised (LSI-R; Andrews and Bonta, 1994) and the Psychopathy Checklist - Revised (PCL-R; Hare, 1991) upon their release from the Texas prison system. Results indicated that none of the women re-offended with a sexual offense, but approximately 20% recidivated with a violent or general offense. Overall scores of the risk measures were not significant predictors of recidivism for the sample. However, individual scales or factors were significant predictors of general and violent recidivism for this sample of female sexual offenders.

Nobleza, Kenneth–C3

Correlation between Host Nitrogen Access and GC Content in Parasitic Plants

Parasitic plants obtain water and nutrients from other living plants. The haustorial connection that allows parasites to draw directly from their hosts also transfer certain properties from the affected plants to the parasites. It is possible that parasitic plants' reliance on their hosts can confer nutrient limitations that consequently affect the parasite. In this study, we investigate whether the guanine-cytosine content (GC content) in parasitic plants are correlated with its preferred host's ability to obtain nitrogen since GC pairs require more nitrogen than adenine-thymine pairs (AT pairs). Certain parasitic plants prefer to parasitize legumes, autotrophic plants that have adapted a symbiotic relationship with nitrogen-fixing bacteria. Comparing the GC content of parasitic plant species that display preference for legumes to other closely related parasitic plant species that do not parasitize legumes will allow us to assess whether such a correlation exist.

Parry, Allison–C6

The Relevance of Cultural Relativism

Cultural relativism is often seen as unneeded in the field of moral reasoning; however, it is one of the pillars of sociology. Although these two subjects view cultural relativism in completely different ways, they both have an effect on one another. By using cultural relativism in sociology, we are provided evidence to support our moral claims. In this presentation, I will attempt to show how the use of cultural relativism can be beneficial to moral arguments. I will use college-campus rape culture to demonstrate this idea, and then expand further to suggest that if we used cultural relativism for all cultures, not just college campus rape culture, that one objective set of morals would be held by all members of the world and equality could be reached.

Perlas, Maria–B1

Through Fear and Intimidation: The Nature and Strategies of Modern Terrorism

The modern concept of terrorism is continuously changing and adapting in accordance with the present sociopolitical climate. Both old and new terrorist organizations exhibit versatility in conducting acts of violence, mainly targeting noncombatants and civilians. Using a diverse spectrum of tactics, from psychological manipulation to physical attacks, modern terrorism is driven by the aim of achieving political ends through the use of fear, brutality, and intimidation. This research examines the modern concept of terrorism, its multifaceted attributes, strategic logics, the crises it brings on the global stage, and its future prospects in an ever-changing international community.

Perrie, Chris–B1
with Michelle Harrel, Jen Elings, and Erica Workman

Multi-Disciplinary Analysis of Cremated Human Remains

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Portillo, Jonnathan–C4

The Road to Freedom: The Fugitive Slave Act of 1850 and its Effects on African-Americans

The Fugitive Slave Act of 1850 was one of the most pivotal causes of the American Civil War. The point of this presentation is to understand the meaning of the law and who was affected by the law. It also examines how life was for slaves and runaways before the law came into effect and for those who escaped to places like Mexico, where the law had no effect. This presentation discusses the important legislation and its impact on the “impending crisis” of the 1850s.

Ransom, Gabrielle–A1

Energy Use and Its Effects

The purpose of this research is to analyze the abundance of rare-earth elements in specific regions of China and study the geologic processes involved in the formation of these elements. This research will compare deposits in China to worldwide rare-earth element deposits. In addition, this research will examine and analyze common practices in mining rare-earth elements. By understanding the role that rare-earth elements play in the global economy, this research will analyze the impact that obtaining these metals could have.

Reed, Kara–B4

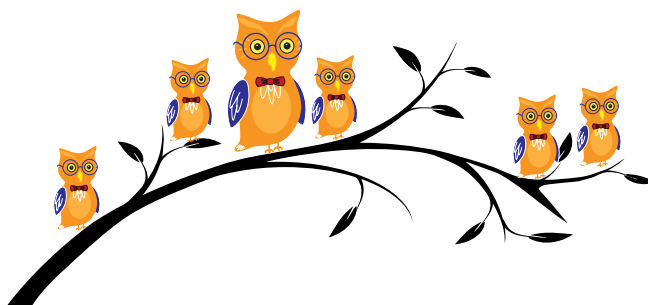
Of Earth and Heaven: The Piano Music of 20th-Century Spain

The greater part of the 19th century was, in general, a slow and somewhat stagnant time for Spain’s musical culture, particularly for its piano music; however, in the latter part of the century, Spanish piano music began to experience a renaissance, which quickly catapulted it into international standing. This research examines the causes of this resurgence, the composers behind it, and two cultural factors that helped to create a unique niche for Spain in the art music realm; namely, folk music idioms and medieval and Renaissance chant and polyphony.

Reeves, Katrina–B7
with Lewis Cale and Travis Hites

Perspectives on Science Teacher Professional Development: A study of the ASSET Experience

The NASA-sponsored, SHSU-led Astronomy Summer School of East Texas (ASSET) is dedicated to improving secondary school science teachers’ attitudes towards and proficiency in astronomy. To assess its effectiveness, participants were interviewed periodically, providing their perspectives and insights. Content mastery was assessed through pre/post-content surveys, which were also administered to their students in an effort to determine the extent to which teacher gains transferred into student gains. We will present the major implications of our observations of the ASSET experience on professional development, teacher enhancement of content knowledge, and the extent to which it impacted student content mastery.



Renfro, Sarah–A6

Pseudoknot Graph Invariants

A knot is an embedding of a circle in 3-dimensional Euclidean space, but the study of knots is primarily on 2-dimensional representations, called knot diagrams. Two knot diagrams are equivalent only if they are related by a finite sequence of Reidemeister moves. That is, a knot can have multiple knot diagrams, but for any two diagrams of the same knot, there is a sequence of Reidemeister moves to deform one into the other. The central goal of knot theory is to determine when two knot diagrams are of the same knot. We considered a generalized case of knot diagrams, called pseudoknot diagrams. Pseudoknot diagrams, or pseudodiagrams, are knot diagrams where, at a crossing, the over and under strands may be undetermined. Crossings where the over strand is unknown are called precrossings. Two pseudoknot diagrams are defined to be equivalent only if they are related by a finite sequence of Reidemeister and pseudo-Reidemeister moves. The Reidemeister moves are inherited from classical knot diagrams, and the pseudo-Reidemeister moves are defined to preserve the nature of precrossings. Similar to classical knots, equivalent pseudoknot diagrams are said to be diagrams of the same pseudoknot. The goal of our research was to determine when two pseudoknot diagrams were diagrams of different pseudoknots by developing pseudoknot invariants. Here, I will introduce a graph theory-inspired invariant for pseudoknots to answer the following question posed by Henrich et al. Does the pseudoflype preserve pseudoknot type?

Rios, Luis–C5 with Robert McDown

Exploiting Medical Software

Medical software provides the ability to monitor a patient's vital signs, store confidential patient records, and administer lifesaving functions. Reliance on software that provides such support and confidentiality requires strong, integrated security technology. Our research has led to the discovery of security flaws yielding administrative login credentials to medical software and the corresponding website, unencrypted patient record databases, and an unsecured server containing license keys and other confidential information. This paper describes our steps in uncovering these security flaws and exposes potential concerns for device security throughout the medical industry.

Ryes, Jessica–B2

Second-Generation Immigrants' Assimilation in the United States

The United States is often called a melting pot because of the different cultures and ethnicities that live here. We have millions of people from different countries coming into the United States every day, most of whom will go on to have children in this country. In this research I looked at second-generation immigrants and their way of living. I tried to see whether they became more accustomed to the "American" culture or if they were more apt to keep the traditions of their parents' culture.

Sanchez, Gloria–A4

Safety Planning among College Students at Risk for Intimate Partner Violence

Intimate partner violence (IPV) is an epic social problem. The prevalence of IPV on college campuses is higher than in the general population, yet not much is known about the strategies college students use to protect themselves from this type of victimization. Therefore, this research will look at safety planning among college students at risk for IPV. The purpose of this study is to explore the steps taken by college students to stay safe and reduce their risk of IPV victimization.

Semmlinger, Michael–C2

Quantitative Study of Na⁺ and/or Cl⁻ doped LiFePO₄ as a Cathode Material for Li-Ion Batteries

Due to the growing need for high-performance batteries, much research has been conducted in order to find new cathode materials for lithium ion batteries. One promising material is lithium iron phosphate. Ion-doping has been proposed as a method of improving the electrochemical properties of lithium iron phosphate, especially the low electronic conductivity. This research project attempts a quantitative study of Na⁺ and Cl⁻ doped, and Na⁺/Cl⁻ co-doped samples using different doping amounts.



Serreyn, Abagayle–A6

Optimizing the Video Game Multi-Jump: Player Strategy, AI, and Level Design

In many video games, characters have the ability to jump multiple times without touching the ground between jumps. This is defined as a multi-jump. The jump paths can be modeled with specific functions we call jump functions. The question is: If we are given a collection of jump functions and a target platform, is there a way to select the optimal time to jump on each jump function that guarantees we reach the target platform? This research is attempting to develop real-time player strategies, find game-design applications for games featuring multi-jumping, and develop optimal artificial intelligence multi-jumping for the first time.

Shackelford, Angela–B4

Thetis: Goddess and Mother in Homer's 8th-century Epic, The Iliad

In Homer's great epic, The Iliad, the gods play a crucial role by assisting the Greeks and Trojans during the ten-year long Trojan War. Thetis, the mother of Homer's protagonist Akhilleus, plays a particularly crucial but often overlooked part: she is able to interfere and control the course of much of the story by using manipulation and calling in favors that the gods—including Zeus himself—owe to her for past actions. In an epic dominated by powerful gods (and better known gods) like Athena, Hera, and Apollo, Thetis is shown to be a surprising asset to the hero of the story. Homer uses the relationship between mother and child to highlight the important roles mothers play not only in the lives of their children, but also in the outcome of crucial events in history.

Slifer, Patrick–B3

The Story of Hillis Hadjo: The Man Who Defied a Republic!

This presentation examines the life of Hillis Hadjo and details his accomplishments. In it, I will show the sophistication of Native American peoples and remind the audience of the value of Native American culture.

Slipyi, Timur–B5

The Cost of American Seafood

The paper examines the origin and the relationship of various economic and political agents of seafood in America. The findings of the research fall within three categories: environmental, health and politicoethical, which are designated as "costs" to consumption of seafood in United States.

Spiegel, Courtney–B6 with Tara Cobler

Eliminating the Own-Race Bias: The Effect of Collaboration

The Own-Race Bias (ORB) refers to the phenomenon whereby individuals more accurately recognize own-race faces compared to other-race faces. Based on research in social categorization and reducing intergroup bias, the current study evaluated the possibility that collaborative tasks may reduce the ORB. To test this, participants were paired with an individual of another race and assigned to work collaboratively, competitively, or independently on a puzzle. It was investigated whether individuals who engaged in the collaborative task would demonstrate integration of their partner into their in-group by showing a reduced/eliminated ORB relative to the individuals in the other conditions.

Symank, Ashlee–C5

An Exploration of the Government's Public Approval Generated by the Television Drama Scandal

I will be analyzing the television drama Scandal using Noam Chomsky's theory that the media manufactures public approval or disapproval. I will specifically focus on how the show manufactures public approval for the federal government by allowing the viewers to vicariously experience scandals in the political sphere that make reality seem less appalling. After bearing witness to these fictional scandals, the public's negative response is cushioned and their approval of the government rises because they have seen that reality has the possibility to be much more shocking.

Tong, Tong–C7

Introduction of Shoot/Don't Shoot training in America (Texas)

Due to the increasingly harsh law enforcement policies in the USA and the increasing demands from American society regarding the proper use of police force, shoot/ don't shoot training has become an crucial part of the American police education system. With the help of the simulation training system, police officers are able to obtain a right consciousness of crisis and crisis management means. Presently, this kind of system, not only on practical training but also on theoretical research, has progressed very well in America.

Urso, Phillip–A1

Behavioral Responses of Livestock Exposed to Unmanned Arial Systems

Unmanned Arial Systems (UAS) have gained popularity in agriculture. This study utilized an UAS to determine the flight zone of different livestock species, including cattle, goats, and horses. With each group, the UAS hovered at 75 feet and then descended in 5-foot intervals. Cattle with calves, weaned heifers, and outdoor horses allowed the system to hover 25 feet before moving, while cattle without calves huddled closer around their calves. Goats allowed the system to hover 15 feet before moving. Indoor horses were frightened at 25 feet. Understanding behavioral responses will help producers utilize UAS for animal observations in natural environments.

Van Dyke, Luke–C6

Limitations of Utilitarianism

Utilitarianism has much strength as a moral theory. It is unbiased and most effective when applied to large groups of people; however, it will always pose a problem for the individual, who must suffer for the benefit of the masses. Since utilitarianism lacks impartiality towards everyone's needs, can it work as a moral theory? This presentation seeks to answer this question by analyzing utilitarianism and the limits it has as a moral theory. I will examine a series of theoretical situations to show how it is possible to incorporate the strengths of utilitarianism without compromising integrity or enforcing suffering.

Voth, Trent–C2

with Jesse Cantu

Optimization of Collider Data Selection Cuts

Multiple experiments, such as the Large Hadron Collider, collect data on collisions or events which can be used to verify or discredit a proposed particle physics model. One important step in analyzing the data is to sift out the background, data resulting from a known process that leaves a similar signature to the proposed model, from the signal, the desired data. This project aims to utilize software that will recommend the selection criteria used to analyze the data that yields the greatest ratio of signal to background.

Workman, Erica–B1

with Michelle Harrel, Chris Perrie, and Jen Elings

Multi-Disciplinary Analysis of Cremated Human Remains

Burned and cremated remains pose many problems both forensically and anthropologically. These remains are less dense and many of the bones are brittle and crumble under the slightest touch. In this study, we have taken a multi-disciplinary approach to analyze a set of cremated remains. Bones that were relatively intact allowed for DNA extraction to see if any biological material remained after exposure to high heats for an extended period of time; the cremation process should destroy most (ideally, all) organic material. One abnormality on the cremated remains utilized is an orange substance that is splashed on the bones inconsistently. This anomaly opens the door for a chemical analysis to be performed, which is difficult due to how brittle the bones are. We have analyzed and compared bone densities, successfully isolated DNA from several bones and some remaining soft tissue, and have narrowed down the origin of the orange powder.

Poster Abstracts



Aldrich, Samantha

How Student Organization Involvement Affects Academic Performance at SHSU

SHSU has a student body population that is quickly approaching 20,000 students, and a significant number of those students engage in the over 250 student organizations already established on campus. By examining the data collected, we can see the demographics of all the students that have reported their involvement to the department of Leadership Initiatives through OrgLINK, and we can determine how student-organization involvement has affected academic performance as measured by GPA.

Andries, Chance

with Jorge Picos, Roclan Drain, and Dustin Utz

Elements of Implementing Safety Culture

Research has shown that industrial companies are exhibiting a growing interest in worker safety and are striving to create safe working environments. This development has led us to conduct research examining three key elements that create a safety culture: manager commitment, employee involvement, and policies and procedures. There is an increasing concern in the industrial field regarding safety culture; companies are looking for ways to increase safety, minimize risk, and improve worker involvement while increasing profitability. Our research emphasizes the importance of creating a safe environment and provides methods for developing a culture of safety.

Beller, Amanda

An Analysis of the Social Rhetoric Used by the Bloomsbury Group and the Algonquin Round Table in Radio and Print

The Bloomsbury Group and The Algonquin Round Table were two groups of intellectuals who met in early twentieth-century Britain and America. Members published newspaper articles and participated in radio talks, employing strong social rhetoric to share their controversial views on politics, literature, art, and economics. The New Yorker and BBC radio interviews provide the most evidence of their persuasive rhetoric and were tools through which they guided society toward modernist thinking. Due to their skill in rhetoric, individuals from these groups were catalysts for changes in thought in their fields in an increasingly urban and industrial society.

Bernard, Mackayla

with Sarah Steele

Post-mortem Interval Determination in Southeast Texas

The rate of decomposition for a human body is influenced by the environment in which it is found. The decomposition of a human body can help forensic anthropologists estimate a post-mortem interval (PMI) or time since death (TSD). Quantitative and qualitative analyses help forensic anthropologists estimate an accurate PMI. This study compares empirically tested quantitative and qualitative methods for determining PMI and seeks to determine which method of analyses applies best in the Southeast region of Texas.

Bishoff, Dayna

Antibiotic Selection of Resistance in a Model Microbiome

Antibiotic resistance is a serious medical threat. Antibiotics have a broad range of effects on a host microbiome. The microbiome is the normal community of microbes in and on an animal, essential for health. A systematic study comparing how multiple antibiotics affect the microbiome community may reveal novel methods to prevent antibiotic resistance. Exposure to the broad spectrum rifampicin for one week results in the majority of bacteria becoming resistant to rifampicin and other antibiotics. Current work involves two drugs for comparison. Tetracycline is broad spectrum and clarithromycin is narrow, with the same target (the ribosome). Each day of the one-week treatment fish will have the microbiome extracted to test for the bacterial resistance and for community composition. The expected outcomes are to better understand the emergence of resistance in a complex community and to compare how different antibiotics affect the microbiome.

Brannan, Cody

Epistasis analysis of B56 α & B56 γ isoforms within the non-canonical Wnt/PCP Pathway in *Xenopus laevis*

The Wnt pathway, a key regulator of tumorigenesis and embryo development, divides into three branches: the canonical (β -catenin), Wnt/CA2+ pathway, and non-canonical PCP pathway. The Wnt/PCP pathway regulates cell movements (convergent extension, or CE). Protein phosphatase 2A (PP2A), which consists of regulatory-B, structural-A, and catalytic-C subunits, plays roles in Wnt signaling through the regulatory subunits, specifically B56. Whole embryo data suggests that two isoforms, B56 α and B56 γ , regulate Wnt/PCP, as reducing their expression results in embryos with observable CE phenotypes. Examining when these B56 isoforms play a role in CE via epistasis will aid in understanding their roles in Wnt/PCP.

Brown, Lauren

with Kristi Korenek, and Amber Matt

Play in the Classroom

We conducted a grounded theory comparative analysis research study on the importance of play in the classroom. The purpose of our study was to compare developmentally appropriate practices which include play in early childhood classrooms today. The foundation for our comparison was based on the five guidelines for effective teaching—community, development and learning, planning and curriculum, assessment, and relationships. Ten early childhood education teachers and ten undergraduate students were interviewed. Our research indicates that the majority of teachers we interviewed promote various forms of play in their classrooms.

Buffington, Nathaniel

The Myth of Larry Gopnik: Analyzing Absurdism In A Serious Man

Discussions about Joel and Ethan Coen's film *A Serious Man* primarily focus on the similarities between the film and the biblical story "The Book of Job." While there are many parallels between the works, there are several topics that could be explored where the texts diverge. The most noticeable of these incongruities is the absence of God in the film. This has been interpreted as Nihilism by some critics, but I will argue that it is closer to Absurdism. I intend to show how the interlocking narratives in the film create a mosaic that reveals a coherent philosophical world-view that acknowledges instability and ambiguity as the only constants.

Burke, Janice

The Definition of a Criminal throughout the Twentieth Century

This poster evaluates how the definition of a criminal evolved throughout the twentieth century particularly in regards to civil rights activists, and the treatment and charges of such "criminals." The time line begins with "The Call" by Oswald Garrison Villard, and then transitions into charges against activists including Dr. Martin Luther King Jr. before and during the civil rights movement. It closes with the War on Drugs and influential pieces of literature at the end of the century.

Carlson, Jeanette

Significant Microbiome Alteration from a Broad-Spectrum Antibiotic Induces Host Effects in a Vertebrate Fish Model

To demonstrate effects of a disrupted microbiome following a broad-spectrum antibiotic exposure, we use a model vertebrate fish *Gambusia affinis* to portray host outcomes. Our previous work utilizing our well-established system provides evidence that fish exposed to the antibiotic rifampicin for 3 days exhibit pre-exposure culturable numbers, but the community composition for the skin and gut microbiomes were significantly altered. In this study, comparative results show that the antibiotic-exposed fish exhibit less weight gain over time compared to controls when fed a standardized diet, increased susceptibility to infection using the pathogen *Edwardsiella ictaluri*, and inhibited osmotic regulation. No significant differences between treated and untreated fish were observed when fish were challenged with water containing high polymicrobial counts or the toxin nitrate. This study provides preliminary data suggesting antibiotic-disturbed skin and gut microbiomes affect negative outcomes to the host *G. affinis*.

Carroll, Zechariah

Compound Interest: Bioassay-guided Isolation of Antimicrobial Phytochemicals

Antibiotics have been a mainstay of modern medicine since their inception. Administration of these drugs has been widespread and uncoordinated, fostering conditions that have facilitated the spread of drug-resistant bacteria. For the past four decades, the pharmaceutical industry's research has been dedicated to synthetic and in-silico methods of drug discovery in lieu of traditional, natural-product screenings. This pilot study is part of an interdisciplinary project, led by a coalition of student and faculty researchers seeking to evaluate systematically a selection of medicinal plants. The extracts of two medicinal plants were tested for antibacterial and resistance-modifying properties. The standard assays presented here represent a cost-effective screening method, and future works will expand to encompass a larger sampling of species. It is well within the public's interest to investigate the largely untapped pharmaceutical potential of phytochemicals.

Chavez, Oscar

Humanized Gnotobiotic Model of *Gambusia affinis*, and Inoculation with Human Microbiome in Human-Body-Like Conditions

The majority of modern biomedical research uses model organisms. In the areas of microbiology and immunology, gnotobiotic (where the microbiome composition of the host is known and controlled) models have been particularly useful, given the enormous complexity of the natural biota. We have established the fish *Gambusia affinis* as a vertebrate model of mucosal microbiomes. It was accidentally discovered that the normal gut microbiome of *G. affinis* is severely depleted after a 4-5 day starvation period. This experiment consists of the inoculation of starved fish with mixtures to generate gnotobiotic organisms. Current work is focused on applying the gnotobiotic system to generate a humanized animal. Human feces are used as the inoculum, followed by fish incubation at 37 degrees. This system can be used to explore the persistence of donor communities following fecal microbiome transfer, a therapy being currently applied to treat irritable bowel diseases in patients.

Chen, Hailun

A Comparison of Chinese and American Police Authority and Challenges

Police authority refers to the power that is granted by specific laws and acknowledged by the general public. Chinese and American police have different authorities regarding these issues. This paper will first discuss the challenges of police authority respectively: American police authority is embroiled in the controversy of justice enforcement due to police-minority conflicts; the Chinese police force needs to strengthen its authority and recognize the serious issues of crime in China. To achieve this, the Chinese police force should develop legal legislation, relocate its position in its relationship with citizens, and increase its professionalism. On the contrary, the American police force is considering ways to limit the abuse of police authority through strengthening the supervision from the police chiefs, training in the control of abuse in the academy, and community policing. Through comparison, both parties can be enlightened.

Cooper, Jason

Environmental Insights from Rock Magnetic Data off the Iberian Margin

This presentation will investigate correlations between rock magnetic data from an Integrated Ocean Drilling Program (IODP) drill site off the Portugal Margin and global climate change. Magnetic data include magnetic susceptibility, which is a measure of how magnetized a material gets when put in a magnetic field, and Anhyseretic Remanent Magnetization (ARM), which is a measure of the concentration of magnetic minerals. Variations in susceptibility correlate with cold and warm intervals, called Heinrich and Dansgaard-Oeschger events, respectively. ARM and susceptibility ratios are a proxy for grain size, which show the past variations in the strength of paleo-currents from the Mediterranean.

Cooper, Kelsey

Volatile Organic Compounds from Decomposing Bodies During Seasonal Changes in East Texas

During the progression of seasonal changes in East Texas forests, cadavers decompose at different rates and release a variety of different volatile organic compounds (VOCs). These volatiles were identified in order to create a time line that could be used in forensic measures to estimate the time of death for deceased persons. Varying ambient temperatures allow for different volatiles to be released from the cadaver based on each compound's boiling point. Seasonal analysis depicted variations in the compounds being released by the cadavers during different seasons. The development of this method provides forensic investigators another tool for time-of-death identification.

Davis, Kallie

Effects of Plasticizers on Cytokines

Cytokines are secreted by a variety of cell types and are mediators of inflammation. Their production and secretion is induced in response to specific microbial pathogen-associated molecular patterns (PAMP) and some are considered essential for fighting off bacterial infections, especially those possessing lipopolysaccharide (LPS). Prior work has shown that gingival fibroblasts treated with LPS showed a marked increase in IL-6 levels and may be important for inflammatory periodontal disease. The results of a pilot study indicated this is true for primary dermal fibroblasts derived from rodents as well. Meanwhile, bisphenol A (BPA) and dibutyl phthalate (DPB) are listed endocrine disrupters. Each of these pollutants has shown modulation of IL-6 production from various tissues under basal conditions; although their effects on inflammation have gone unexplored. To address this issue we used human diploid pulmonary fibroblasts cells to investigate the impact of BPA and DPB on LPS-induced IL-6 along with TNF- α release.

Drain, Roelan

with Jorge Picos, Chance Andries, and Dustin Utz

Elements of Implementing Safety Culture

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Fry, Ally

with Selena Hernandez, Joni Iglehart, and Amber Solar

Play in Early Childhood Education



We conducted a qualitative study, comparing developmentally appropriate practices for early childhood teachers in schools today. We interviewed seven K, 1st, 2nd, and 3rd grade teachers and eight undergraduate students. The foundation for this comparison was the five guidelines for teaching: community, development and learning, planning, curriculum, assessment, and relationships. Our research findings indicate that early childhood teachers do not promote play in the classrooms compared to developmentally appropriate practices.

Gardner, Katie

with Paige Nelligan and Jessika Sleiman

Primary Classroom Learning Experiences

The purpose of this qualitative study was to compare developmentally appropriate practices in early childhood with how practicing K, 1st, 2nd, or 3rd grade teachers construct their classrooms for optimum learning experiences. Various aspects of creating the optimal classroom were examined. Ten undergraduate students and ten teachers were interviewed. Our research shows that nine out of the ten teachers interviewed used a variety of tactics to promote student learning, whereas eight out of ten students recall their teachers using these methods.

Graham, Jessica

Social Physique Anxiety: Feeling States, Calorie Restriction, and Exercise in College Students

This study primarily investigates a positive relationship between Social Physique Anxiety (SPA), feeling states, compulsive exercise, and calorie restriction. SPA is measured by the degree to which a person becomes anxious when they feel someone is observing their physique (Szabo, 2008). Some individuals with certain personalities are more likely to cope differently in regard to their personality traits. This study takes SPA from an addiction perspective. An Actical device was used in order to record physical activity and was attached using wristbands. Participants also completed several self-report questionnaires, and used a daily online calorie intake tracker.

Greenwood, Matthew
with Christine Woelfel-Monsivais

A Preliminary Study of Seasonal Effect on Bacterial Communities During Human Cadaver Decomposition in Southeast Texas

A cadaver passes through several stages of tissue change as it decomposes. Early stages of decomposition are marked by discoloration of the flesh and the onset and cessation of bacterially-induced bloat. During putrefaction, bacteria undergo anaerobic respiration and produce gases as by-products that inflate the cadaver and eventually forcing fluids out. While bacteria are credited as a driving force of decomposition, little is known about bacterial succession during decomposition. Understanding the bacterial basis of decomposition may help explain the variation of decomposition seen between cadavers. To investigate the effect of seasonality of the community structure during decomposition, six human cadavers were placed outdoors to decompose under natural conditions at the Southeast Texas Applied Forensic Science (STAFS) facility at the Center for Biological Field Studies (CBSF), SHSU during winter, spring and summer months. Initial results suggest season has an effect on the microbial communities during decomposition. Ultimately, bacterial data such as these can be refined to develop a model of microbial succession that can be used to estimate the time since death.

Hankins, Kayla

Molecular Assessment of Hybridization between *Baptisia arachnifera* and *Baptisia lecontei*

Interspecific hybridization has been hypothesized between populations of the southern Georgia native, *Baptisia lecontei* and the ex situ population of the non-native, endangered species, *Baptisia arachnifera*, housed at the Lake Louise Biological Field Station at Valdosta State University. Morphological evidence in support of the hypothesis for the hybrid origin of the novel plant species is strong, and thus, in this study, we seek to develop molecular methods to assess the hypothesis of hybridization directly by 1) developing genetic markers suitable for distinguishing the putative parental species of the proposed hybrids and 2) use these markers to test the hypothesis of hybridization.

Hanson, Kortney
with Alison Stephens

Characterization of Novel Plant Extracts for Bioactive Properties

Many chemotherapeutic reagents and other pharmaceutical drugs have been identified from the extracts of various plant species. Several species of the Apocynaceae family have sourced compounds that have provided a great benefit to the medical community; however, there are many species within this family that have not yet been studied for bioactive or medicinal properties. In this project, crude plant extracts from species in the Apocynaceae family were tested. The extraction and bioactive property testing procedures were verified using extracts from previously characterized species, followed by testing extracts from novel species. Extractions from various parts of previously uncharacterized Apocynaceae plants were performed, and the extracts were tested on tumors induced by *Agrobacterium tumefaciens* infection for antitumor and antimetabolic capabilities.

He, Ziyang

An Introduction to Law Enforcement Discretion in the United States

Hollywood movies have created a wide variety of images of US police officers. There is the image of the mighty, tall, strong, and fully equipped officer, but there is also the image of the warm-hearted, humorous, and friendly one. Previously, I thought this was the result of the films' particular design; however, after I joined an American police force for a four-day internship, I found that these two characteristics, that vary considerably, actually reflected the body of the American police force so well. What impressed me the most is that the police officer with whom I went on patrol play different roles so well when facing different cases. It is key that they deal with every case properly. From this experience, I have gained a deeper understanding of American police officers, which also led me to draw connections with United States police enforcement discretion.

Heironimus, Shannon

Shakespeare's Titus Andronicus: Violent Rhetoric

The rhetoric of William Shakespeare's early tragedy *Titus Andronicus* is overshadowed by its gore and over-the-top violence: the words are drowned in the blood. The language of the play does not simply display violent language but violent rhetorical devices. I will make a distinction in the relationship between verbal versus physical violence in Shakespeare's prototype of tragedy.

Hernandez, Selena
with Ally Fry, Joni Iglehart, and Amber Solar

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Holovacs, Nicholas

Description of the Cranial Jaw Musculature of Lemur catta Using Contrast-Enhanced Micro-CT

Characterizing jaw function and bite force has long depended upon gross dissection and acid digestion of muscle fibers to determine muscle fiber orientation and length. However, these methods provide limited data regarding fiber orientation within muscle bundles and oversimplifies muscle action and jaw strength. They also do not account for muscle fibers pinnately connected to a tendon that generating greater force. We examined the jaw musculature in a ring-tailed lemur (*Lemur catta*) using contrast-enhanced micro-CT technology. The head was stained in 25% Lugol's iodine, CT scanned at the UT-Austin Digital Morphology Lab, and a 3-dimensional model is being built using the software Amira. Data will be used to develop a complete model of the skull, soft tissue elements, including the jaw musculature and nervous tissues, and a determination will be made regarding the utility of this technology in characterizing jaw muscle fiber length and orientation in relation to bite force.

Iglehart, Joni
with Ally Fry, Selena Hernandez, and Amber Solar

Play in Early Childhood Education

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Keathley, Allyson

Is the Amount of Programmed Cell Death Affected by Genetic Diversity in Populations of Chlamydomonas?

Chlamydomonas is a single-celled alga that is commonly used for experiments. Programmed cell death (PCD) is the controlled death of a cell, possibly allowing for the death of cells to benefit the cells around it. It is not known whether genetic relatedness of a cell culture influences a cell's probability of undergoing PCD. We hypothesize that higher rates of PCD will occur in genetically identical populations compared to mixed populations. To test this, two species of *Chlamydomonas* were subjected to heat stress. Evans Blue was used to detect dead cells. Preliminary data shows that *C. eugametos* exhibits a lower rate of PCD in a mixed culture compared to an axenic culture, supporting our hypothesis. To test whether PCD releases substances that benefit kin, supernatant from heat stressed cultures was removed and added to living cells. The absorbance of the solutions was taken daily and preliminary data has shown some interesting results.

Kelch, Tyler
with Claudia Martinez

An Economic Comparison of Shallow Subsurface Drip, Deep Subsurface Drip, and Center Pivot Irrigation Systems in South Georgia for a Repeated Five-Year Crop Rotation

Efficient irrigation systems are important for conserving water resources and ensuring profitability. Three irrigation systems on South Georgia farms were compared over a 15-year planning horizon – shallow subsurface drip irrigation (SSDI), deep subsurface drip irrigation (DSDI), and center pivot irrigation (CPI). Over the 15-year period a comparative investment analysis was conducted. The revenue stream for the 5-year rotation was calculated using a 15, 10, 5-year moving average of cotton, corn, and peanut prices collected from USDA-NASS and each commodity's expected yield from historical data and expert opinion. All costs of operations were assumed to be constant except for the irrigation conveyance system, and annual irrigation repairs and maintenance. Results indicated that though returns were slightly lower for SSDI compared to CPI, the present value (PV) of the returns above irrigation system costs was greatest for SSDI regardless of capital expenditure scenario. Therefore, farmers may consider SSDI when updating irrigation systems.



Korenek, Kristi

with Lauren Brown and Amber Matt

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We conducted a grounded theory comparative analysis research study on the importance of play in the classroom. The purpose of our study was to compare developmentally appropriate practices which include play in early childhood classrooms today. The foundation for our comparison was based on the five guidelines for effective teaching—community, development and learning, planning and curriculum, assessment, and relationships. Ten early childhood education teachers and ten undergraduate students were interviewed. Our research indicates that the majority of teachers we interviewed promote various forms of play in their classrooms.

Ledesma, Juan

Sampling Method Influence on Bee Biodiversity Survey at Sam Houston State University's Center for Biological Field Studies

Pan trapping and sweep netting are two standardized methods used for sampling the bee community. We compared the effectiveness of pan trap and net samples using simultaneous sampling at biweekly intervals throughout the fall season at 6 different sites at the Center for Biological Field Studies. Pan traps on average obtained significantly larger samples than sweep nets, while also capturing a greater number of species. Most species obtained either show up in one sample method or the other, showing pan trapping and sweep netting are complimentary to each other and should be used concurrently to obtain a more comprehensive survey.

Lin, Ning

The American Legal System and the Use of Guns by Police

Child abduction is an international problem that receives great attention. In China, there are millions of children who go missing every year but the recovery rate is very low. The Chinese police and government are passive when parents call to report that their children are missing. However, when a child is abducted in America, law enforcement has a valuable resource for its response to the abduction. This is the Amber Alert. The Amber Alert is issued immediately by the police through the media to the whole community, notifying everyone of the child abduction. Not only will law enforcement, but also the media, general public, and other government and private organizations will be involved in searching for the abducted child. The Amber Alert and other systems available to the American police with the goal of finding missing children began in 1980s and changed the situation to a great degree. The quick-find mechanism is what Chinese police should learn.

Lueck, Zachary

with Dalton Plummer

A Preliminary Study of Shifting Skin Bacterial Communities During Human Cadaver Decomposition in Southeast Texas

Bacteria are credited as a driving force of decomposition, a continuous and dynamic process. However, little is known about bacterial succession during decomposition. To understand the bacterial basis of decomposition, six human cadavers were placed outdoors to decompose under natural conditions at the Southeast Texas Applied Forensic Science (STAFS) facility. Fecal and oral samples were taken throughout the stages of decomposition. The data was analyzed through 16S rRNA gene amplification, Illumina sequencing, and QIIME. Initial results suggest different microbial communities before and after purge, which may explain the variation of decomposition seen between cadavers.

McDown, Robert

with Joshua Sablatura

Fingerprint Replication Utilizing Latent Fingerprints for Conducting Forensic Analysis on Mobile Devices with Biometric Security

This presentation will provide attendees with a greater understanding of biometric security, specifically fingerprint recognition, in-personal digital devices, a technical understanding of the devices' specific operations, and means for circumventing the devices' biometric security to conduct a digital forensics investigation. The goal of this project is to develop techniques to visualize a latent print from the surface of a mobile device to be used to create a mold that can reconstruct the user's print. This reconstructed fingerprint can then be used to login to the device.

Martinez, Claudia
with Tyler Kelch

An Economic Comparison of Shallow Subsurface Drip, Deep Subsurface Drip, and Center Pivot Irrigation Systems in South Georgia for a Repeated Five-Year Crop Rotation

Efficient irrigation systems are important for conserving water resources and ensuring profitability. Three irrigation systems on South Georgia farms were compared over a 15-year planning horizon – shallow subsurface drip irrigation (SSDI), deep subsurface drip irrigation (DSDI), and center pivot irrigation (CPI). Over the 15-year period a comparative investment analysis was conducted. The revenue stream for the 5-year rotation was calculated using a 15, 10, 5-year moving average of cotton, corn, and peanut prices collected from USDA-NASS and each commodity's expected yield from historical data and expert opinion. All costs of operations were assumed to be constant except for the irrigation conveyance system, and annual irrigation repairs and maintenance. Results indicated that though returns were slightly lower for SSDI compared to CPI, the present value (PV) of the returns above irrigation system costs was greatest for SSDI regardless of capital expenditure scenario. Therefore, farmers may consider SSDI when updating irrigation systems.

Matt, Amber
with Lauren Brown and Kristi Korenek

Play in the Classroom

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Means, Amanda

Canonical Epistasis of B56 \hat{I} in *Xenopus laevis*

Wnt cell signaling is important in the regulation of embryonic development in vertebrates and is found to be deregulated in many colon cancers. The function of a key protein in this pathway, the tumor suppressor Protein Phosphatase 2A, varies depending on the identity of its regulatory B subunit. The purpose of this study is to examine one of these B subunits, B56 γ , with respect to its epistasis in canonical Wnt signaling. Research on the role of different B56 subunits in the Wnt pathway will help broaden understanding of vertebrate development and possibly provide a target for treatment of colon cancer.

Means, Grayson

The Effects of PP2A Regulatory Subunits on Embryonic Development of *Xenopus laevis*

Wnt signaling pathways are crucial both in vertebrate embryonic development and in the progression of cancer. The purpose of this study is to develop our understanding of the Convergent Extension portion of the Wnt cell signaling pathway. Protein Phosphatase 2A is a heterotrimeric protein, and a known regulator of the Canonical Wnt signaling pathway. In this study, the function of B56 α and B56 δ/γ (two distinct isoforms of the regulatory subunit of PP2A) was examined in vivo using the embryos of *Xenopus laevis*. This study will aid our understanding of both vertebrate development and the progression of cancer.

Neal, Amber 

Isolation and Characterization of Gold (III) Resistant Mutant of *Rhodobacter sphaeroides*

Rhodobacter sphaeroides belongs to α -3 subdivision of the Proteobacteria that is metabolically capable to tolerate high levels of toxic metals. These pollutions pose a problem to human health and require bioremediation from our streams, lakes, and soils. Metal tolerance in bacteria is mediated through spontaneous mutations of mutants in a bacterial culture. Strains of *R. sphaeroides* were selected on minimal medium with varying concentrations of AuCl₃ in both aerobic and photosynthetic conditions. Growth curves were performed, and strains under aerobic and photosynthetic growth conditions were analyzed for reduction of gold in membrane and cytosolic fractions of cells using ICF-Analysis. Gene homologs of genes involving metal tolerance in *Pseudomonas putida* were identified in the genome of *R. sphaeroides*; which include sensor kinases and membrane bound transporters. It is suspected that a number of these genes might have altered expression patterns under selective growth condition.

Nelligan, Paige
with Katie Gardner and Jessika Sleiman

Primary Classroom Learning Experiences

The purpose of this qualitative study was to compare developmentally appropriate practices in early childhood with how practicing K, 1st, 2nd, or 3rd grade teachers construct their classrooms for optimum learning experiences. Various aspects of creating the optimal classroom were examined. Ten undergraduate students and ten teachers were interviewed. Our research shows that nine out of the ten teachers interviewed used a variety of tactics to promote student learning, whereas eight out of ten students recall their teachers using these methods.

Novak, Dylan

Digital Forensics and Prefetch Files

Prefetch files, like any other file in a file system, can be viewed from a digital forensic perspective to further a forensic investigation. Using the right tools and techniques available to a digital forensic examiner, we hope to contribute more to the digital forensics field by investigating the potential of prefetch files and what they have to offer from a forensic analysis perspective. Windows's prefetch files are used to decrease the startup times of applications and are formatted in a manner to instruct application processes to load data and necessary libraries into memory that it needs before it is actually demanded. In other words, prefetch files help avoid a hard fault, thereby minimizing startup times. These files reside in the prefetch folder under the Windows installation directory of a system. In this research, we investigate the structure and provide suggestions on how to parse these files.

Odegard, Paige

Cartosemiotics: How Maps Influence Culture and Power

This poster depicts how maps employ social dimensions, which can be read through a rhetorical evolution of cartosemiotics. Maps have evolved from documents that subjectively establish religion and exhibit culture to seemingly objective navigational tools used as an aid for direction. Ancient and present-day cartographers are rhetoricians who strive to distinguish and assign power by implementing cartographic strategies and prioritizing major rhetorical aspects; for instance, early cartographers deemed pathos a key appeal in designing maps and present-day mapmakers focus on logos, yet similarly both are concerned with meeting audience need.

Osborn, Genevieve

Queen Elizabeth: Power and Leadership under the Virgin Queen

The Elizabethan age (1558-1603) marks a golden age in British history, full of accomplishments under the last Tudor monarch. Under Queen Elizabeth I, the arts flourished, Protestants were not openly persecuted by the crown for practicing their religion, and the Royal Navy was no longer neglected. Elizabeth was able to implement her own solutions, despite religious struggles that plagued the monarchs that preceded her, due to her methodical approach to the problems she addressed. Queen Elizabeth employed rhetoric, image, and her womanhood to display power as an effective leader.

Paez, Laura
with Jacquelyn Vasquez

A Preliminary Study of Shifting Skin Bacterial Communities During Human Cadaver Decomposition in Southeast Texas

Bacteria are credited as a driving force of decomposition, a continuous and dynamic process; however, little is known about bacterial succession during decomposition. To understand the bacterial basis of decomposition, six human cadavers were placed outdoors to decompose under natural conditions at the Southeast Texas Applied Forensic Science (STAFS) facility. The right cheek, right bicep, and torso were the skin sites sampled throughout the stages of decomposition. The data was analyzed through 16S rRNA gene amplification, Illumina sequencing, and QIIME. Initial results suggest different microbial communities before and after purge, which may explain the variation of decomposition seen between cadavers.

Picos, Jorge
with Chance Andries, Roclan Drain, and Dustin Utz

Elements of Implementing Safety Culture

Research has shown that industrial companies are exhibiting a growing interest in worker safety and are striving to create safe working environments. This development has led us to conduct research examining three key elements that create a safety culture: manager commitment, employee involvement, and policies and procedures. There is an increasing concern in the industrial field regarding safety culture; companies are looking for ways to increase safety, minimize risk, and improve worker involvement while increasing profitability. Our research emphasizes the importance of creating a safe environment and provides methods for developing a culture of safety.

Pinard, John

Resistance Selection in the Microbiome by Various Antibiotic Treatment Regimens

Antibiotic resistance is an ongoing battle for medicine, and seriously challenges our ability to control infections. Resistance in pathogens is well studied, but how organisms of the normal microbiome relate is unclear. Antibiotic therapy can cause side effects such as diarrhea and enterocolitis by depletion of the microbiome. Mucosal surfaces in humans, including lung, gut, and oral, have the highest counts of bacteria and also the most intimate interactions with the immune system. Previous data has shown that after three days of exposure to the broad-spectrum antibiotic rifampicin, the bacterial skin community composition is strongly altered and assumed over ninety-percent resistance. We hypothesize that altering the treatment regimen will affect resistance rates. This project seeks to optimize antibiotic treatment by including how it affects the normal microbiome.

Plummer, Dalton
with Zachary Lueck

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Ramsey, Taylor

The Art of Self-Expression

This poster presentation will be about my artistic process, which might be considered slightly obsessive at times. In this phase of my life and art, my foundations is primarily on body study and self-reflection. I always—and only—paint nude African women with a black background, as I find black to be simultaneously the most empowering and defining color. From this point, I strive to develop a concept or subject of which my art will portray, in this case, the relationship between humans and animals. To further show my process, I will explain how the painting displayed in this presentation is actually painted over a different, earlier project.

Sablatura, Joshua
with Robert McDown

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Skurja, Seth

A Hedonic Analysis of Auction Prices for Beef Herd Bulls

Cattle producers today need to take advantage of every opportunity to increase their herds' overall productivity. An in-depth study of prospective herd sire EPDs and phenotypical traits is essential to successful cattle management. Past studies show EPDs to have limited influences on herd bull price; instead, producers rely mainly on phenotypical characteristics when choosing bulls. This study takes another look at factors that influence bull prices, using new data from Illinois auctions, to assess whether previous findings hold true in the current research context or if new trends are apparent.

Sleiman, Jessika

with Katie Gardner and Paige Nelligan

Primary Classroom Learning Experiences

The purpose of this qualitative study was to compare developmentally appropriate practices in early childhood with how practicing K, 1st, 2nd, or 3rd grade teachers construct their classrooms for optimum learning experiences. Various aspects of creating the optimal classroom were examined. Ten undergraduate students and ten teachers were interviewed. Our research shows that nine out of the ten teachers interviewed used a variety of tactics to promote student learning, whereas eight out of ten students recall their teachers using these methods.

Solar, Amber

with Ally Fry, Selena Hernandez, and Joni Iglehart

Play in Early Childhood Education

We conducted a qualitative study, comparing developmentally appropriate practices for early childhood teachers in schools today. We interviewed seven K, 1st, 2nd, and 3rd grade teachers and eight undergraduate students. The foundation for this comparison was the five guidelines for teaching: community, development and learning, planning, curriculum, assessment, and relationships. Our research findings indicate that early childhood teachers do not promote play in the classrooms compared to developmentally appropriate practices.

Speck, Megan

The Rhetoric of Clickbait Links

This is a study of the rhetoric found in Internet clickbait links through an examination of the website BuzzFeed.com. In particular, the study examined how BuzzFeed uses ethos, pathos and logos to draw in enough visitors to become one of the top hundred visited websites on the Internet. Seventy five percent of traffic to BuzzFeed is generated through links posted and shared by users on various social media sites like Facebook, Twitter and Pinterest. Those links must stand out enough among countless other elements attempting to do the same and be enticing enough to draw the attention of viewers.

Stanford-Galloway, Patrick

Measuring Resilience in Children of Incarcerated Parents

Children and adolescents who have an incarcerated parent are at a significantly increased risk for a variety of negative psychosocial outcomes. Nonetheless, research on the factors promoting resilience in this group is lacking. This current project outlines the development of a comprehensive measure to assess variables related to resilience (e.g., family functioning, peer relationships, school competence, interpersonal factors, and community factors) identified in the literature as being important for resilient functioning. This comprehensive measure can be used to assess resilience in a variety of high-risk populations.



Steele, Sarah

with Mickayla Bernard

Post-mortem Interval Determination in Southeast Texas

The rate of decomposition for a human body is influenced by the environment in which it is found. The decomposition of a human body can help forensic anthropologists estimate a post-mortem interval (PMI) or time since death (TSD). Quantitative and qualitative analyses help forensic anthropologists estimate an accurate PMI. This study compares empirically tested quantitative and qualitative methods for determining PMI and seeks to determine which method of analyses applies best in the Southeast region of Texas.

Stephens, Alison
with Kortney Hanson

Characterization of Novel Plant Extracts for Bioactive Properties

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Symank, Ashlee

A Rhetorical Analysis of the Perception of Time in Jorge Borges's "The Garden of Forking Paths"

In this presentation, I explore how Jorge Borges uses rhetoric to promote Immanuel Kant's theory that time is infinite and exists all at once in his short story "The Garden of Forking Paths." Kant's philosophy that all of time exists at once is reflected in Borges's depiction of Yu Tsun's interactions with Steven Albert, Captain Madden, and a book owned by T'sui Pên, also titled The Garden of Forking Paths. I will focus specifically on the rhetorical devices used by Borges to exemplify his representation of Kant's theory.

Urso, Philip

The Effects of Dietary Conjugated Linoleic Acids on Swine

Conjugated Linoleic Acids are becoming a more relevant ingredient in human weight loss supplements. This study used 24 swine as human models to observe the reactions and effects of CLA. Each hog was fed a controlled diet based on its body weight. 12 hogs were fed the test supplement, while others were fed soybean oil to eliminate variables associated with the state of the oil. Weights were taken every 7 days and blood samples were taken every 14 days. A gender tendency was observed and data indicated CLA might have a slight effect depending on the gender of the pig.

Utz, Dustin
with Jorge Picos, Chance Andries, and Roelan Drain

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Vasquez, Jacquelyn
with Laura Paez

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Vaughn, Nicole

Analysis of Atlantoaxial Complex of the Gekkota Families

In vertebrates, the atlas is an important element for angular movements such as flexion and extension of the neck while the axis participates more in the rotation of the head. Here we present an intricate analysis of several characteristics of the atlas, axis, and intercentra of the Gekkota families using CT scans and 3D software platforms in order to better visualize the anatomical structures of each family. Differences in the size, shape, and locations of the two anterior most cervical vertebrae were considered, along with fusion processes and the interface between these two elements. Focal characteristics were analyzed and the structures were digitally isolated in order to produce detailed images of each element for better comparison and understanding. The results of our observations were mapped onto a general phylogeny of the Gekkota. Differences in the atlantoaxial morphology have led to morphological questions about development processes, as well as evolutionary questions.

Wagner, Ashleigh

Effect of Aging on the Loin of the Scimitar Horned Oryx

Exotic animals, such as the scimitar horned oryx, have increased in popularity on high-fenced hunting leases; however, animals that have been hunted typically are not aged like traditional livestock species. The objective of this study is to determine if muscles from the loin of the scimitar horned oryx age in a manner similar to beef cattle. Instrumental tenderness was measured on cooked steaks aged to 1, 3, 7 or 14 days PM. Loins in this study had a 26.8% increase in tenderness from day 1 to 14, which is similar to the 19.4% value seen in cattle.

Wei, Jiamin

Policing Domestic Violence in United States and China

Domestic violence as a worldwide issue has drawn a lot of attention. The number of cases of domestic violence per year is only the tip of the iceberg, and the harm to the society and the victims is countless. As the initial people who confront both batterers and victims, police officers are vital in helping to reduce harm. Comparing policing of domestic violence in China and United States may produce effective suggestions for both.

**Woelfel-Monsivais, Christine
with Matthew Greenwood**

A Preliminary Study of Seasonal Effect on Bacterial Communities During Human Cadaver Decomposition in Southeast Texas

A cadaver passes through several stages of tissue change as it decomposes. Early stages of decomposition are marked by discoloration of the flesh and the onset and cessation of bacterially-induced bloat. During putrefaction, bacteria undergo anaerobic respiration and produce gases as by-products that inflate the cadaver and eventually forcing fluids out. While bacteria are credited as a driving force of decomposition, little is known about bacterial succession during decomposition. Understanding the bacterial basis of decomposition may help explain the variation of decomposition seen between cadavers. To investigate the effect of seasonality of the community structure during decomposition, six human cadavers were placed outdoors to decompose under natural conditions at the Southeast Texas Applied Forensic Science (STAFS) facility at the Center for Biological Field Studies (CBSF), SHSU during winter, spring and summer months. Initial results suggest season has an effect on the microbial communities during decomposition. Ultimately, bacterial data such as these can be refined to develop a model of microbial succession that can be used to estimate the time since death.

Xu, Yupeng

The Perfect Combination of See Alarm Rate and Rapid Response Mechanisms in the HPD Patrol System

In this presentation, the police patrol mechanism of the Houston Police Department will be examined to determine the high alarm rate vis-à-vis a rapid response mechanism. This can reduce crime and improve society's sense of security. I will elaborate on how HPD can complete this with their patrol system.

Yuods nukis, Briahna

Facial Recognition and the Influence of University Status and Affiliation

Several studies have investigated Sporer's IOM model which states that individuals process faces of in-group members more thoroughly than those of out-group members. The current study seeks to determine whether affiliation or status creates a stronger group categorization. We have chosen to test affiliation and status by labeling photographs as belonging to either the same university (affiliation) or by attending one of three other schools. The data supports previous research that shows that participants are better able to recognize the faces of those belonging not only to their own affiliation, but also those of individuals of higher status.

Zheng, Chengjie

The New Zero Tolerance

The term "zero tolerance" appeared for the first time in a report in 1994, to refer to a measure that police officers should take on crime: namely, that they should enforce strict, non-discretionary action against minor offense and disorder; however, with the change in social crime, zero tolerance has come to mean other actions as well, and we must understand these new meaning so as to better manage our cities.

Zheng, Kanxin

Police Vehicles: Personal Use in America and China

American police officers are allowed to drive their vehicles home for personal use because the vehicles are well-equipped and are considered to be an efficient and convenient way to deal with police affairs. While the procedure does have great benefits, there are some problems with this practice that must be considered. For example, some officers may be corrupt, and distrust from the public makes it hard to implement the personal use of police vehicles. It is a hard and long way to change the current situation in China.

