Undergraduate Research Conference

URC

Celebrating Research, Creativity, & Scholarship

2025 Program

Sponsored by CGI

University of Louisiana Lafayette

Student Center for Research, Creativity and Scholarship

ADVANCE Student Research Experience

Undergraduate Research Conference 2025 Program

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Message from Executive Director

Dear Conference Attendees,

Welcome to the University of Louisiana's Undergraduate Research Conference, I am delighted to extend my warmest greetings to all participants, presenters, mentors, organizers, and guests. This conference celebrates the creativity, dedication, and intellectual curiosity that define undergraduate research and scholarship across disciplines.

Your engagement today—whether sharing findings, asking questions, or offering feedback—reflects a commitment to learning that extends beyond the classroom. I encourage you to take full advantage of this opportunity to connect with peers and mentors, exchange ideas, and be inspired by the diverse range of projects presented.

Thank you for contributing to this vibrant community of inquiry and discovery. I wish you a productive and rewarding conference experience.

Sincerely,

Sherry L. Krayesky-Self

Sherry L. Krayesky-Self, PhD
Executive Director
Advance Student Research Experience Program
Student Center for Research, Creativity, & Scholarship

Thank you

Thank you to all those who support the Undergraduate Research Conference.

Special Thanks to **Dianne Olivier** for her consistent support.

SCRCS Staff
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Kiersten Freeman

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Aimee Lewis

UL Lafayette Printing Services

Keynote Guests
Jim Peake
Clancy Ratliff
Farzad Ferdowsi

CGI
Willima LaBar
Jacqulyn Craddock
Kylie Miller
Nicholette Darjean

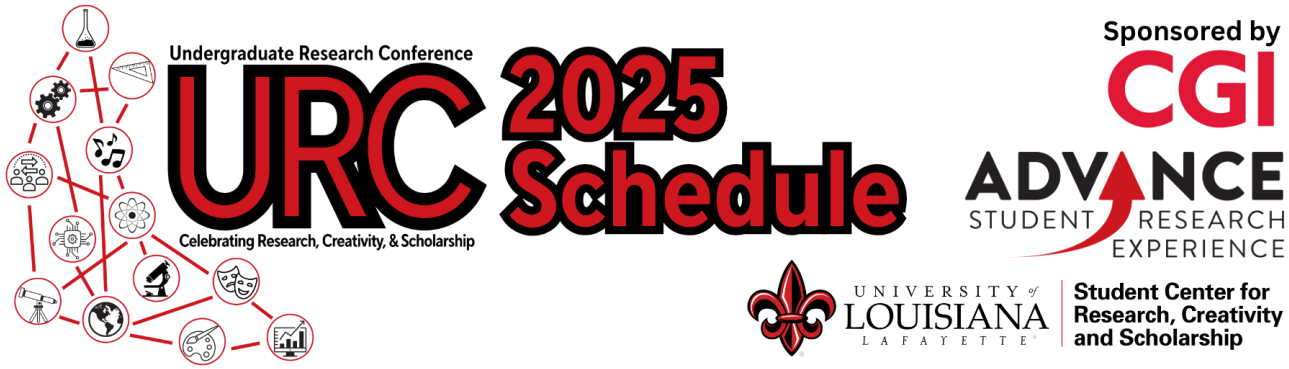
Presentation Moderators and Project Judges
William Schmidt
Ismatara Reena
Kevin Guillory
Nirmal Gope
Christine Briggs
Vanel Porter
Ritwij Kulkarni
Ivan Moberly
Joe Richards
Penny Powell
Beth Giroir
Tolga Karsili
Amelia Curtis
Brooke Breaux
Andrea Broussard
Tricia Templet
Amy Brown
Sara Gibson
Dustin Joubert

Tech Support
James Boffenmyer

Student Organizations for guest speaker special lunch arrangements
Preprofessional Society (PPS)
Advance Student Research Ambassadors

Student Volunteers
Jacques Laughlin
Madelynne Broussard
Izamary Lara
Elizabeth Drell
Luc Vinson
Laura Lorio

Conference Schedule



Friday, November 14th		Saturday, November 15th	
Check-in	2:30pm-3:00pm	Check-in	9:30am-10:00am
Concurrent Presentation Sessions (Oral Presentations, Lightning Talks, Creative Activities)	3:00pm-6:30pm	Poster Sessions (A, B, & C) and Brunch	10:00am-11:45am
Dinner and Keynote	6:40pm-9:00pm	Awards and Recognitions Sponsored by CGI	11:45am-12:30pm

Location

UL Lafayette Student Union
620 McKinley Street
Lafayette, LA 70504
Click here to view the campus map. The Union is number 65 on the map.

On-Campus Parking

Friday Parking
Girard Park Circle Parking Garage, **3rd floor (free)**
Girard Park Circle Parking Garage, **1st & 2nd floors (Payment via ParkMoble required)**
No parking on floors 4-6 (permit parking only); citations will be issued.

Saturday Parking
Girard Park Circle Parking Garage, **floors 1-3 (free)**
No parking on floors 4-6 (permit parking only); citations will be issued.

Click here to view campus map. Girard Park Circle Parking Garage is number 32 on the map.

What's open in the Union

Chick Fil A
- Friday open until 9pm
- Saturday 12pm-8 pm

Starbucks
- Friday open until 3pm
- Saturday 12pm-7pm

Smoothie King
- Friday open until 6pm
- Closed Saturday

McAlister's
- Friday open until 3pm
- Closed Saturday

Preferred Hotels

Comfort Suites Oil Center
114 Rue Fernand
Lafayette, LA 70508
Phone: (337) 347-9613

Fairfield Inn and Suites Lafayette South
1606 W Pinhook Road
Lafayette, LA 70508
(337) 233-5558

Keynote Guests

Keynote Guest

James B. Peake, MD, LTG (Ret.)
Senior Vice President, CGI

More Info & Registration

The Honorable James B. Peake, MD, LTG (Ret.), Senior Vice President, is a former Secretary of Veterans Affairs and Army Surgeon General, and he oversees the company's health care programs.

Dr. Peake was the principal advocate for veterans in the U.S. government and directed the nation's second largest cabinet department, responsible for a nationwide system of health care services, benefits programs, and national cemeteries for America's veterans and dependents. During his tenure, the VA employed more than 280,000 people at hundreds of medical centers, nursing homes, benefits offices, and national cemeteries throughout the country. The VA's budget for fiscal year 2009 was $97.5 billion.

A St. Louis, Mo., native, Dr. Peake received his Bachelor of Science degree from U.S. Military Academy at West Point in 1966 and was commissioned a second lieutenant in the U.S. Army Infantry. Following service in Vietnam with the 101st Airborne Division where he was awarded the Silver Star, a Bronze Star with "V" device and the Purple Heart with oak leaf cluster, Dr. Peake entered medical school at Cornell University in New York. He was awarded a medical doctorate in 1972 and served as Army Surgeon General from 2000 to 2004.

Keynote Address
Friday Evening, November 14, 2025

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UNIVERSITY of LOUISIANA LAFAYETTE | Student Center for Research, Creativity and Scholarship

Keynote Guest

More Info & Registration

Clancy Ratliff, PhD

Professor of English

Clancy Ratliff is a professor in the English department, and her research interests are in feminist rhetorics, environmental rhetorics, and authorship studies. Her work has been published in *Women's Studies Quarterly, Kairos, Pedagogy, Teaching English in the Two-Year College*, and other journals and edited collections. She has held a variety of leadership positions in professional organizations (National Council of Teachers of English, Conference on College Composition and Communication) and in the English department. She recently completed a four-year term as co-editor of the journal *Peitho*, published by the Coalition of Feminist Scholars in the History of Rhetoric and Composition.

Ratliff's research over two decades has contributed to the field of rhetoric and composition studies (rhet-comp) by being among the first work done on blogging and the blogosphere in the early 2000s. Her research on open access publishing, Creative Commons licenses, open source software, and progressive approaches to copyright law has also contributed to the work in rhet-comp on authorship studies. Ratliff's work in feminist rhetorics has demonstrated ways that women have used blogging for empowerment and activism. Her more recent research has used a relatively new method, poetic inquiry, to analyze rhetoric used by nonprofit advocacy organizations in donor letters. In 2024, she collaborated with undergraduate and graduate students on the article "Creative Reading: Using Poetic Inquiry in Research and Teaching," published in the *Journal for the Assembly of Expanded Perspectives on Learning*.

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Keynote Guest

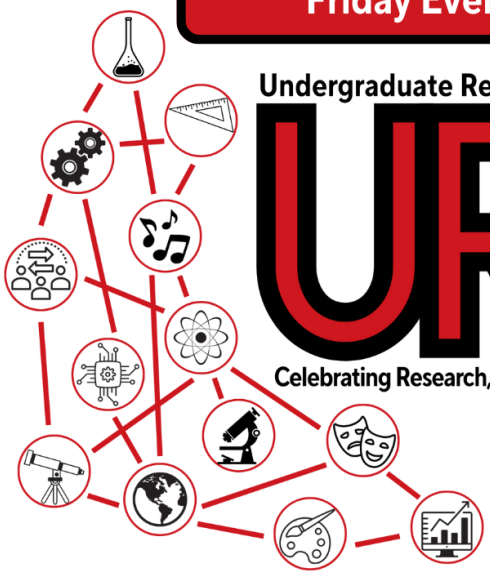
More Info & Registration

Farzad Ferdowsi, PhD

Associate Professor of Electrical & Computer Engineering

Farzad Ferdowsi is an Associate Professor in the Department of Electrical and Computer Engineering at the University of Louisiana at Lafayette. His research areas include smart and connected energy systems, power system operation and control, energy resilience, and engineering education. Ferdowsi received his Ph.D. from Florida State University in 2016 and served as a Research Associate/Lecturer at LSU-Baton Rouge before joining UL Lafayette. He is actively engaged in research, with over 60 peer-reviewed publications and 3 patents.

Keynote Address
Friday Evening, November 14, 2025



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Oral Presentation Schedules

Location: Helma Constantine Forum--room 209A & B, 2nd floor			
Friday, November 14, 2025 (Oral Presentations 3:00-5:45)			
Moderator	**Dr. Willam Schmidt & Ismatara Reena**		**ULL Students**
3:00-3:15	Edwards, Shelton	Accounting for the Wild: Integrating Exotic Animal Valuation into Zoo Pricing Models	yes
3:15-3:30	Leach, Zodah	Cognitive Resilience in Danio rerio: Methylene Blue as a Potential Antagonist to Stress-Induced Spatial Memory Deficits	no
3:30-3:45	Kemper, Katilyn	Evaluating Flood Exposure and Resilience of Public Buildings in Costal Louisiana	yes
3:45-4:00	Karki, Suyog	Building Web Apps Using Natural Language Prompts with Lovable AI	no
4:00-4:15	Perkins, Geremiah	Utilizing spicules in sediment samples to further define species richness of Freshwater Sponge populations in Louisiana	no
4:15-4:30	Guillot, Ali	Integrative Analysis of Cannabidiol (CBD) Mechanisms: Linking Maternal Mouse Neurobiology and Offspring Development to Computational Protein Structure Modeling	yes
4:30-4:45	**Break**		
Moderator:	**Dr. Willam Schmidt & Ismatara Reena**		
4:45-5:00	Alles, Alexandria and Thai, Thinh	The comparative analysis of growth and functional traits of native Louisiana prairie plants in stressed and unstressed environments	yes
5:00-5:15	Martinez, Keegan	The Impact of Gender Essentialism in Relation to Women in Ecology	no
5:15-5:30	Landry, Samuel	Utilizing Geo AI for Rapid and Accurate Damage Assessment	no
5:30-5:45	Da Silva Neto, Eurico	Beyond the "Black Box.": Analyzing SUNO AI's Practical Utility and Copyright Challenges for Professional Musicians	no

Undergraduate Research Conference 2025 Program

Location: Shadows--room 212A & B, 2nd floor			
Friday, November 14, 2025 (Oral Presentations 3:00-6:30)			
Moderator: Kevin Guillory & Nirmal Gope			**ULL Students**
3:00-3:15			
3:15-3:30	Daphne Thomas	When Words Don't Come: How Childhood Experiences Shape Voice and Sense	yes
3:30-3:45	Comeaux, Matthew and Segura,Devin	Zumiez	Yes
3:45-4:00	Hambrice, Katie	Geospatial Analysis of Disparities in Access to Long-Acting Reversible Contraceptives	
4:00-4:15	Edwards, Shelton	Accounting for the Wild: Integrating Exotic Animal Valuation into Zoo Pricing Models	no
4:15-4:30	Lewis, Luke	From Sea to Sand: Amphibious Infantry in the Battle of Wake Island	yes
4:30-4:45	**Break**		
4:45-5:00	Raafey, Abdur	Development of a Self-Healing Polyimide Coating Incorporating Inhibitor-Loaded Zn–Al LDH-Nanocontainers for Corrosion Protection in Oil & Gas Environments	yes
5:00-5:15	Guillory, Riley	Fabrication Strategies for Conductive Hydrogel-Based Wearable Sensors	yes
5:15-5:30	Adeniyi, Precious	Development of LaAces Payload For Light Intensity Study	no
5:30-5:45	Glass, Maren	College Students' Ability to Identify Racial-Ethnic Microaggressions in Workplace Scenarios	yes
5:45-6:00	Fontenot, Lance	ADCS, the art of controlling Satellites.	yes
6:00-6:15	Francois, Sydney	Counting Configurations: Exploring the Combinatorial Complexity of Kalah	yes
6:15-6:30	Whitman, Scott	Using Optimized Tiling Schemes for Attaining k-Coverage in Wireless Sensor Networks	yes

Undergraduate Research Conference 2025 Program

Location: Pelican--room 207A & B, 2nd floor			
Friday, November 14, 2025 (Oral Presentations 3:00-6:30)			
Moderator: Dr. Christine Briggs & Vanel Porter			**ULL Students**
3:00-3:15	Bryona Lyons and Trinitee Hills	The relationship among facial features and perceived attractiveness of African-American males	no
3:15-3:30	Kendrick Hunt and Wynn Williams	The relationship among facial features and perceived attractiveness among African American college students	no
3:30-3:45	Cheramie, Bailey	Speaking of Death: Positive and Negative Association of Death-Related Language	yes
3:45-4:00	Shannon, Amy	Dissociation Across as Predicted by Maladaptive Verbal Behavior	yes
4:00-4:15	Singleton, Bailey	Consent within Media Consumption: Sexual Assault Survivors' Perceptions of Content Warnings as Accessibility	yes
4:15-4:30	Boteler, Dax	To What Extent Do 'Likes' Influence the Credibility of 'Fake News' on Social Media	yes
4:30-4:45	**Break**		
Moderator: Dr. Christine Briggs & Vanel Porter			
4:45-5:00	Weaver, Silas	Optimism and Perceived Social Support in Gender Minorities: The Role of Minority Stress in LGBTQ+ Quality of Life	no
5:00-5:15	Dupre, Ava	Analysis of the Evolution of Deepfakes and Internet Victimization: A Literature Review	yes
5:15-5:30	Sigurdsson, Sara	Anatomical and Biomechanical Contributors to Hip Injury in Collegiate Athletes: Female-Focused Sex Differences	no
5:30-5:45	Steward, Christian	Pathways to Persistence: A Qualitative Study of Programs Supporting Black Men's Success in College -- A Research Study Proposal	yes
5:45-6:00	Clavelle III, Frank	Designing for Connection: Reimagining Campus Architecture as an Active Agent in Student Mental Health	yes
6:00-6:15	Borel, Alyssa	Target Ethnicity and Perceived Similarity on Blame Attributions for Rape	yes
6:15-6:30	Kumar, Darshan	Experimental Smart Ground-Station Grid (ESG-Grid)	Yes

Undergraduate Research Conference 2025 Program

Location: Magnolia--room 210A & B, 2nd floor			
Friday, November 14, 2025 (Oral Presentations 4:00-6:30)			
Moderator: Dr. Ritwij Kulkarni & Ivan Moberly			**ULL Students**
4:45-5:00	Brown, Konye	Trauma Data: Raising Awareness of a Cornerstone of Trauma Care	yes
5:00-5:15	Holt, Haylee	When Seconds Matter: Improving Emergency Medical Response for Children with Rare Diseases	yes
5:15-5:30	Foulkes, Lauren	Morphometric Variation of the Aortic Arch	no
5:30-5:45	Griffin, Christian-Paris and Aibel Evans	Stress-induced cytokine activity and white matter integrity in children and adolescents with chromosome 22q11.2 deletion syndrome (22q11.2DS): A preliminary study of a population at ultra-high risk for schizophrenia.	no
5:45-6:00	Provost, Reese	Delineating the effects of glycosuria on Klebsiella pneuomiae metabolism	yes
6:00-6:15	Gros, Breanna	Evaluating Hydrocarbon Effects on Extracellular Polysaccharide Production and Bacterial Growth in Vibrio vulnificus	no
6:15-6:30			

Creative Activity Schedule

Location: Helma Constantine Forum--room 209A & B, 2nd floor			
Friday, November 14, 2025 (Creative Activities 5:45-6:30)			
Moderator:	**Dr. Willam Schmidt & Ismatara Reena**		**ULL Students**
5:45-6:00	Lorio, Laura	A Forest in Autumn	yes
6:00-6:15	Dixon, Caleb	The Sound of Revolution	yes
6:15-6:30	Kumar, Darshan	Experimental Smart Ground-Station Grid (ESG-Grid)	yes

Lightning Talk Schedule

Location: Magnolia--room 210A & B, 2nd floor		
Friday, November 14, 2025 (Lightning Talks 3:00-4:05)		
Moderator: Dr. Ritwij Kulkarni & Ivan Moberly		
3:00-3:05		
3:05-3:10	James, Kennedy	Rent-to-Own Housing and the HOEPA Blind Spot: Modernizing Federal Consumer Finance Protections for Seller-Financed Home Purchases
3:10-3:15	James, Whitney	Exploring the Relationship Between Study Tools and Definitions of Learning of Learning for First-Year Science and Mathematics Majors
3:15-3:20	Trevino, Chloe	A Study of Student Reviews on Public Professor Evaluation Systems
3:20-3:25	Clavelle III, Frank	Designing for Connection: Reimagining Campus Architecture as an Active Agent in Student Mental Health
3:25-3:30	Griffin, Christian-Paris and Aibel Evans	Stress-induced cytokine activity and white matter integrity in children and adolescents with chromosome 22q11.2 deletion syndrome (22q11.2DS): A preliminary study of a population at ultra-high risk for schizophrenia.
3:30-3:35	Cohn, Louis	Sorel's and Nietzsche's Lessons for Political Radicals/ The Orthodox Response to the Reformation
3:35-3:40	Emily A. Dore	Phonological Processes in Louisiana Children's English
3:40-3:45	Edwards, Shelton	Pricing the Wild: An Analysis of an Exotic Animal's Value and Pricing Strategies in U.S. Zoos
3:45-3:50	Hill, Christopher C.M.	Don't get duped: the Importance of Data Validation
3:50-3:55	Guillory, Riley	Fabrication Strategies for Conductive Hydrogel-Based Wearable Sensors
3:55-4:00	Menard, Emma	Swipe, Scroll, Study: Is Tech Helping or Hurting Grades?
4:00-4:05	Kumar, Darshan	Experimental Smart Ground-Station Grid (ESG-Grid)

Poster Schedules

Poster Session A numbers 1-40; 10:00am-10:30am			**ULL Students**
1	Adams, Ethan	Effects of diet and Fibroblast Growth Factor Receptor in development of hypothalamic tanycyte development, interaction with diet and sex.	UL Lafayette
2	Adams, Ethan	Microecology of Public Restrooms: How Are Bathrooms Affecting Health?	UL Lafayette
3	Adeniyi, Precious and Damilola Osoba	Development of LaAces Payload For Light Intensity Study	
4	Adu, Romeo Appiah and Nwofor, Precious	Green Synthesis and Characterization of Silver Nanoparticles Using Lactuca sativa Extract for Broad Range Biomedical Applications	
5	Austin, Averi	Consumer Acceptability of Sweet Potato Coffee Cakes	
6	Ballanco, Lillie	The Purification and Crystallization of Rice Lipoxygenase-1	
7	Bashir, Abdullah	Fabrication of High-Sensitivity Nanofiber-Based Glucose Sensor for Non-Invasive Health Monitoring in Space Tourism	UL Lafayette
8	Batarseh, Angel	Workload Management: The Effect of Minutes Played on Injury Duration in the NBA	UL Lafayette
9	Beals, Michelle	The Effect Different Incubation Temperatures Have on Common Must Turtle Hatchlings	
10	Belsom, Kiley	Attendance at Home College Football Games	UL Lafayette
11	Bergeron, Caroline and Reed, Kris	Athletic Directors	UL Lafayette
12	Boudreaux, Ava	Determinants of Box Office Movie Ticket Sales	UL Lafayette
13	Breaux, Jace, Breaux, Taylor, and Valicevic Conner	How Organizational Success Relates to Career Trajectories of General Managers in the NFL	UL Lafayette
14	Bristow, Parker	Social Determinants of Cardiovascular Health: A State Level Comparison	UL Lafayette

15	Broussard, Madelynne, Morrison, Sharissa	The Association between Interparental Conflict and Somatic Symptoms in College Students	UL Lafayette
16	Brown, Benjamin	Survival & Growth of Oysters in the Field Following Low Salinity Exposure	UL Lafayette
17	Capps, Gabrielle	Weighing the Advice of Doctors Versus Online Strangers: A Socio-Demographic Profile	UL Lafayette
18	Chaisson, Paegan	Race and Racism in Forensic Facial Reconstruction	UL Lafayette
19	Chenier, Michael and Gaspard, Kylie	Bacterial and Viral Disease Outbreaks in the Old World Since 2017	
20	Chiasson, Andrew	Investigation into Phytochemicals Found in the Invasive Plant Giant Salvinia (Salvinia molesta)	UL Lafayette
21	Chouest, Parker	Bonepickers of the Lower Mississippi Valley	UL Lafayette
22	Clark, Brayden, Johnson, Nyla, and Williams, Cleavon	10 Year Analysis of Footlocker Revenue	UL Lafayette
23	Clark, Braylen	BETA 2 Agents	UL Lafayette
24	Cluse, Joseph; Garner, Gabe; Singleton, Kevin	Event managers	UL Lafayette
25	Cohn, Louis	Sorel's and Nietzsche's Lessons for Political Radicals/ The Orthodox Response to the Reformation	UL Lafayette
26	Coleman, Kya	The Impact of Cannabis Use on Game Performance: Analyzing Error Rates	UL Lafayette
27	Collins, Vincent	Profitability Analysis for Lululemon from 2014-2024	UL Lafayette
28	Crooks, Mia	Clementine Hunter's Insight into Modernism	
29	Davenport, Marissa	The Role of Dental Anatomy and Technology in Forensic Science	UL Lafayette
30	Derouen, Danielle	Bones as Biographies: Understanding Behavior and Health Through Skeletal Trauma	UL Lafayette
31	Deshotels, Grant	Ideal Self-Healing Microcapsule Wall Thickness in Epoxy Resins	UL Lafayette

32	Dore, Emily A.	Phonological Processes in Louisiana Children's English	UL Lafayette
33	Doucet, Ryley	Do Self-Other Related Beliefs influence Treatment Trajectory?	UL Lafayette
34	Doucette, Kelsey	Structurally polymorphic sex chromosomes do not inhibit gene flow in the common frog	UL Lafayette
35	Drell, Elizabeth	Anti-Transgender Attitudes Predict Victim Blame in a Sexual Assault Vignette	UL Lafayette
36	Ducote, Elizabeth (Sam)	The Complications of Gendering Human Remains	UL Lafayette
37	Duncan, Imani	College Students' Perceived Confidence and the Importance of Nutrition	
38	Dutil, Natalie	The Effects of Air Pollutants on Respiratory Cancer	UL Lafayette
39	Ector, Joi	Nutrition In The Now: College Students' Nutrition Knowledge and Behaviors	
40	Edmond, Mackenzie	Exploring Injury Trends: Are Southerners More Likely to get Injured in Major League Baseball?	UL Lafayette

Poster Session B numbers 41-80; 10:35am-11:05am			**UL Lafayette Students**
41	Edwards, Shelton	Pricing the WIld: An Analysis of an Exotic Animal's Value and Pricing Strategies in U.S. Zoos	UL Lafayette
42	Ellis, Avery	Examining the Role of Gender on Vascular Risk, Vascular Age, and Executive Functioning	
43	Erny, Michel	Balanced Ternary in CMOS	UL Lafayette
44	Fils, Breanna	The Hope and Fear for Undocumented Immigrants	UL Lafayette
45	Forbis, Hal	Automating Specific Leaf Area Measurements through Image Processing	UL Lafayette
46	Forniss, Sasha and Kliebert, Mackenzie	Protein Interactions in Alzheimer's Disease: A Cluster Analysis of Molecular Similarities	UL Lafayette
47	Fuentes, Daniel	S. elegans	UL Lafayette
48	Garza, Gabriella	Mental Health Stigma	UL Lafayette
19	Gaspard, Lana	Recreating heatwaves: How extreme temperatures impact maternal provisioning and future evolution	UL Lafayette
50	Gautreaux, Jacob	Effects of Non-Leisure Physical Activity on Levels of Arthritis in Adult Populations	UL Lafayette
51	Guidry, Megan	Self-efficacy as a Correlate of Depression, Anxiety, and Stress in Direct Support Professionals	UL Lafayette
52	Guillory, Riley	Fabrication Strategies for Conductive Hydrogel-Based Wearable Sensors	UL Lafayette
53	Hackett, Ramie	Understanding Why Some Schools Have Higher Discipline Rates Than Others	UL Lafayette
54	Hambrice, Katie	Geospatial Analysis of Disparities in Access to Long-Acting Reversible Contraceptives	UL Lafayette
55	Harrison,Kirsten	An Exploration of Students' Utilization of Generative Artificial Intelligence (GenAI) in Higher Education	
56	Hays, Andrew	Socioeconomic Factors Influencing Overall Health in U.S. Counties	UL Lafayette

57	Hebert, Cye	The Body Farms of Horror: A Literary Analysis on the Importance of the Establishment of Human Taphonomy Facilities Worldwide	UL Lafayette
58	Herkender, Nicholas	Expanding Molecular Ballistics: Advancing Forensic DNA Profiling through STR Innovation	UL Lafayette
59	Hernandez, Andrea, Amber Ramos, Natalie Himel, Aidan Thibodeaux, Alisa McCollums	Religious Identification and DERS	UL Lafayette
60	Holt, Haylee	When Seconds Matter: Improving Emergency Medical Response for Children with Rare Diseases	UL Lafayette
61	Howard, William and Hardy, Camren	Columbia Sportswear: 10-year Profitability Analysis	UL Lafayette
62		**Moved to Oral Presentation**	
63	James, Kennedy	Real Estate	UL Lafayette
64	Jones, Elijah	Cannabinoid Use In Professional U.S. Sports	UL Lafayette
65	Jose, Alejandro	The Impact of Polyethylene Nanoplastics on Antibiotic Performance Against Three Common Bacteria: E. coli, B. subtilis, & P. aeruginosa	
66	Kumar, Darshan	Experimental Smart Ground-Station Grid (ESG-Grid)	UL Lafayette
67	LaBove, Jaide	The Effects of N-acetylcysteine on Nicotine Addiction in Zebrafish	UL Lafayette
68	Foulkes, Lauren	Age as a Predictor of Aortic Arch Arterial Morphology	
69	Landry, Samuel	Title: Exploring GeoAI Capabilities for Timely and Accurate Post Hurricane Damage Assessment	
70	Lara, Izamary	Mother Tree Resilience: Tracking Plant Stress	UL Lafayette
71	Laughlin, Jacques	Childhood Maltreatment, Trauma, and Working Memory	UL Lafayette

72	Leger, Lexy and Songy, William	Comparing 3D Protein Structures of Traumatic Brain Biomarkers	UL Lafayette
73	Lorio, Laura	A Forest in Autumn	UL Lafayette
74		**Moved to Oral Presentation**	
75		**No poster**	
76	McCullough, Madison	Beta Blockers metoprolol	UL Lafayette
77	Mincey, Madeleine, Akiyah Brandon, Samuel Fatayo, Megan Guidry, Sydney Guidry, Taylor Soileau	The Association Between Empathy and Job Satisfaction in Direct Support Professionals	UL Lafayette
78	Morris, Montrell and Martin, Alex	Banned Substances in Athletes Stimulants, Amphetamine	UL Lafayette
79	Muthana, Shahd	Effects of Lean Hyperglycemia on Uropathogenic E. coli Pathophysiology in Acute and Chronic Mouse Models	UL Lafayette
80	Nasution, Cantika, Cy Dupuis, Olivia Walters, Cantika N and Emma Landry	Gender Differences in Perceived Parental Bonding in College Students	UL Lafayette

Poster Session C numbers 81-119; 11:10am-11:40am			**UL Lafayette Students**
81		**No poster**	
82	Nichols, Laura	Multipiul	UL Lafayette
83	Noel, Madison	Proactive Hoof Care in Giraffa camelopardalis: Understanding the Importance of Hoof Care for Giraffe Wellbeing Using Early Training Techniques	UL Lafayette
84	Notto, Leah	Site-specific elastic biomechanical properties of articular cartilage degraded with MMPs representing different stages to osteoarthritis	UL Lafayette
85	Raafey, Abdur	Development of a Self-Healing Polyimide Coating Incorporating Inhibitor-Loaded Zn–Al LDH-Nanocontainers for Corrosion Protection in Oil & Gas Environments	UL Lafayette
86	Reulet, Michael	The Louisiana Freshwater Sponge Project: a comprehensive analysis of the freshwater sponge population and its shift in species richness	
87	Rhymer, Mallory	The Role of Pneumatic Layer Thickness in Gemmule Gemmulosclere Formation	
88	Rivette, Bryant	How does school start time affect test scores	UL Lafayette
89	Robinson, Liam	Stanazol	UL Lafayette
90	Romero, Michael	Medieval Arms and Armor: A Holistic Anthropological examination of Medieval Material Culture	UL Lafayette
91	Sadou,Nadia	Finish Line inc	UL Lafayette
92	Savoy, Abigail	Will It Tear? Creating a Collegiate Athlete Cutting Mechanics Grading Process	
93	Segura,Devin and Comeaux, Matthew	Zumiez	UL Lafayette
94		**No poster**	
95	Shenell Tucker	Narcotics	UL Lafayette

96	Smith, Samantha, Fontenot, Allison, and Bergeron, Caroline	Oxford Industries: A 10 year Probability Analysis	UL Lafayette
97	Songy, William	The Forensic Significance of Oral Microbiome Variation in Human Remains	UL Lafayette
98	Soto Ortiz, Stephanie	Bomba Dance as Hidden Transcript in Puerto Rican Resistance	UL Lafayette
99	Spencer, Ashley	The Effects of Valproic Acid on ASD-related Behavior in the Zebrafish	UL Lafayette
100	Stewart, Christopher	Head Coaches	UL Lafayette
101	Tate, Brittany	App development for data validation of scientific collection processes in the Louisiana Freshwater Sponge Project	
102	Tewelde, Balseba	Impact of Chronic Binge Alcohol on Hepatic Immune Cell Infiltration in SIV-Infected Rhesus Macaques	
103	Theriot, Banyon, Logan Waldon and Colin Jacob	Wolverine Worldwide	UL Lafayette
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Oral Presentation Abstracts

Adeniyi, Precious; Osoba, Damilola

Development of LaAces Payload for Light Intensity Study

Objectives:

- Develop scientific weather balloon payload to measure ambient and UV light intensity, internal and external temperature and humidity up to 30.5 km
- Analyze light intensity, altitude, and atmospheric data correlations
- Build lightweight, durable system with sensors, GPS, and SD storage

Borel, Alyssa; Dupre, Ava

Target Ethnicity and Perceived Similarity on Blame Attributions for Rape

This study aims to examine how ethnicity impacts perceptions of blame in a rape case. Past research has found that when a perpetrator is part of a person's ingroup, they attribute less blame and call for a less severe punishment than an outgroup member for the same event (Halabi et al., 2015). One study found that attitudes towards offenders belonging to an ethnic minority were more negative than those who belong to an ethnic majority, and individuals less similar to participants were blamed significantly more (Rozmann & Levy, 2019). It was also found that when people can identify with a victim, they perceive an act of violence against them as more senseless than if the victim is dissimilar (Lodewijkx et al., 2005). This study hypothesizes that individuals are more likely to assign blame to victims and perpetrators of a different ethnic identity than their own. Furthermore, we predict that these effects will be moderated by similarity to the victim or perpetrator.

275 college students (65% women; 35% men) were asked to read one of two vignette conditions presented as a news article from 2010; An American reporter (female) raped by an Iraqi citizen (male), or an Iraqi citizen (female) raped by an American reporter (male). Participants then completed Likert-style questions to assess their similarity to the victim (3 items, $\alpha = .77$), similarity to the perpetrator (3 items, $\alpha = .83$), victim blame (6 items, $\alpha = .83$), and perpetrator blame (4 items, $\alpha = 83$).

Linear regression analyses were performed to test the effects of ethnicity condition, perceptions of similarity to the victim (Model 1) or similarity to the perpetrator (Model 2), and their interaction on victim blame (Model 1) or perpetrator blame (Model 2). Model 1 was significant ($R^2 = .12$); perceived victim similarity predicted victim blame ($b=-.48$, $p<.001$), as did ethnicity condition ($b=.44$, $p<.001$), but the interaction effect was not significant. Unexpectedly, victim blame was higher when the victim was portrayed as an American (and the perpetrator as an Iraqi) compared to when the victim was portrayed as Iraqi (and the perpetrator as American) In Model 2 ($R^2 = .24$), perceived perpetrator similarity predicted perpetrator blame ($b=-.76$, $p<.001$), but ethnicity condition and the interaction term were not significant.

This study contributes to existing research that found that individuals who perceive greater similarity to victims assign less victim blame (Rozmann & Levy, 2019). However, ethnicity conditions did not significantly influence perpetrator blame, indicating that solely belonging to a different ethnic group is not enough to alter judgments of responsibility without also having perceived personal connections. This study is important in highlighting that perceived similarity, rather than ethnicity alone, shapes judgements of blame.

Boteler, Dax

To What Extent Do Social Media “Likes” Influence People’s Beliefs about False News

Reliance on social media for our news continues to rise with 53% of U.S. adults getting their news information either “sometimes” or “often” from social media (Aubin & Liedke 2025). With this ever-increasing reliance, much attention has been paid to the credibility of the information posted online (Lazer et al., 2018); (Pennycook and Rand 2021). The widespread misinformation of the 2016 election marked a major shift toward the research of “fake news”, adopting President Trump’s popularization of the term. Since then, the prevalence of fake news has only become more apparent from the political misinformation in the 2020 election to the widespread health

misinformation during the Covid-19 Pandemic. Further exciting the problem is how pervasive fake news is. Numerous studies have shown that misinformation spreads farther and more rapidly than true information and is often prevalent among the highest trending posts for certain online topics, especially those that are political or health-related (see systematic review in Suarez-Lledo & Alvarez-Galves 2021); (Vosoughi et al., 2018); (Yeung et al., 2022). This has led to many studies investigating the underlying factors contributing to the spread of misinformation, including environmental, emotional, and individual factors. However, very few investigate whether social media metrics (e.g., likes, comments, shares, etc.) could be influences (Avram et al., 2020). Studies indicate that people use prior decisions made by others before them as information to influence their own decisions (Banerjee 1992); (Bikhchandani et al., 1992). Avram et al., 2020 supports that social engagement from prior users may play this role as a signal of credibility, finding participants more likely to like and share questionable content and less likely to fact check. However, while social engagement has been shown to influence shareability, studies have shown that sharing is not equivalent to belief (Pennycook et al. 2021); (Pennycook & Rand 2021). Therefore, the question of whether social engagement influences belief in misinformation is still yet to be answered. It is this gap in the fake news literature that we aim to fill by investigating the extent to which *social media likes* interact with the *misinformation effect* – the retention of false post-event information in replacement of the original memory. We follow the three-phase misinformation effect paradigm to replicate the eyewitness testimony suggestion studies of the past (see review in Loftus 2019). Participants watched a video of a simulated robbery, followed by viewing mock X posts (some possessing either a high or low like count and either containing misinformation or neutral information). They then completed a memory test to assess the accuracy of their recall. We are still in data collection but plan to measure our 2 (*Information Type*: misinformation/neutral) x 2 (*Like Count*: high/low) design, using a repeated measures, within-factors ANOVA and Tukey's Honest Significant Difference (HSD) test. Our primary hypotheses are: 1.) a negative main effect of misinformation exposure on memory accuracy, i.e., the misinformation effect and 2.) a dependence of the misinformation effect's strength on the size of the like count, demonstrating an interaction between the misinformation level and like count group. The findings of this study can give great insight into understanding the extent to which the interface models of current social media feeds influence people's beliefs, potentially illuminating solutions through future changes in the way information is presented on social media.

Brown, Konye

Trauma Data: Raising Awareness of a Cornerstone of Trauma Care

This project emphasizes Louisiana's need for improvement in trauma data infrastructures across the state. By mapping fatal and non-fatal injury rates in Louisiana and highlighting the workforce gaps in trauma data related fields, this research conveys how incomplete data sets inhibits equitable trauma care, resource allocation, and preventative medicine measures. Improving trauma data systems is one of the first steps in improving trauma care and equity across Louisiana's diverse regions.

Cheramie, Bailey; Touchet, Cameron; Rios, Caleb; Moon, Yoojin; Osman, Sara; Beck, Faith

Speaking of Death: Positive and Negative Associations of Death-Related Language

Researchers argue that people from various cultural backgrounds avoid using literal, death-related words such as “death” and “dying” (Biseko, 2024; Crespo-Fernandez, 2011; Herat, 2014). Instead, people from these cultures tend to use figurative language, such as “passed away,” when situations require them to talk or write about death. Avoidance of literal, death-related language is often explained as a consequence of the anxiety elicited by thoughts of death.

This argument is supported by studies showing that literal, death-related words induce negative emotions in individuals (Han et al., 2010) and that more positive language is generated by individuals faced with the task of reflecting on their own death (Kashdan et al., 2014). Our question, then, is whether there is evidence within language use itself that literal, death-related words are actually more negative in valence than other types of words.

We used data collected from the Corpus of Contemporary American English (Davies, 2008-), allowing us to explore linguistic patterns in naturally occurring language. We focused on the antonym pairs alive-dead, life-death, live-die, living-dying, and lively-deadly and conducted two analyses: one looking at the content words (i.e., nouns, verbs, adjectives, and adverbs) that appeared most frequently around uses of these target words (i.e., collocation analysis) and one looking at the words surrounding 100 randomly selected uses of these target words (i.e., context analysis).

Linguistic Inquiry and Word Count (LIWC-22) software was used to search for words indicating positive and negative tones. The collocates analysis showed that life-related collocates were more positive in tone ($M=14.00$) compared to their death-related counterparts ($M=2.5$; $t(399)=2.50$, $p<.001$). Even though life-related words were more likely to have positive collocates, some death-related words had their own positive collocates. The opposite effect was found when analyzing negative tone: Death-related collocates had a more negative tone ($M = 14.50$) compared to their life-related counterparts ($M=2.50$, $t(399)=4.40$, $p<.001$). Even though death-related words were more likely to have negative collocates, life-related words also had their own negative collocates. The context analysis also revealed significant differences in positive tone, $t(999)=3.99$, $p<.001$, with life-related words surrounded by contexts containing more positive tone words ($M=2.06$) compared to negative tone words ($M=2.94$), and negative tone, $t(999)=4.24$, $p<.001$, with death-related words surrounded by contexts containing more negative tone words ($M=2.10$) compared to positive tone words ($M=1.32$).

We found empirical evidence that death-related language appears more often in negative contexts than life-related language. Interestingly, more fine-grained analyses revealed that the positive collocates associated with death-related language were most often used to refer to a person who died and the positive aspects of their life and positive feelings we still experience when thinking about them. The negative collocates associated with life-related language were most often used to indicate that someone’s life might be in danger. Of particular interest in the context data is that the frequency of occurrence across death-related and life-related words was quite small, with average frequencies across contexts differing by less than one word, suggesting that these differences in valence might be more subtle than suggested by previous literature.

Clavelle III, Frank

Designing for Connection: Reimagining Campus Architecture as an Active Agent in Student Mental Health

According to the American Phycological Association (APA), in “Nearly every metric, student mental health is worsening. During the 2020-2021 school year, more than 60% of college students met the criteria for at least one mental health problem.” The rising prevalence of mental health challenges among university students has prompted urgent conversations about how educational environments can better support their psychological well-being. While counseling and wellness programs are common interventions, the design of the physical campus is often overlooked. Prior scholarship has noted that architectural design can significantly impact and enhance students’ ability to manage stress, depression, and social isolation. This research is motivated by the belief that campus design can be a powerful and preventative tool for addressing students' mental health concerns.

This study explores how the architectural design features in the university campus can positively influence students’ mental well-being and social connection at the University of Louisiana at Lafayette. Specifically, it asks: (1) Which built environment features, such as natural lighting, biophilic elements, or flexible spaces, most effectively reduce stress and anxiety? (2) To what extent do environmental elements influence perceptions of social connection? (3) How do students’ interactions with classrooms, study areas, and outdoor spaces affect cognitive and emotional functioning?

The research uses a mixed-method approach combining quantitative and qualitative data. Surveys are distributed to university students in all colleges of all classifications to assess their experiences in various campus environments, focusing on mental wellness, stress levels, and perceived environmental quality. In-depth interviews among selected faculty and staff explore their perception of students’ emotional responses to specific spaces.

The initial analysis of 144 survey responses indicates that around 95% of students believe the physical environment plays a significant role in supporting their mental health, particularly in relation to stress and social isolation. Despite this recognition, only 25% of respondents agreed that the current architectural design and layout of campus buildings adequately promote mental well-being. Additionally, half of respondents reported utilizing outdoor green spaces enhances their comfort, followed by communal areas, such as the library (29%).

The study will highlight the importance of reimagining university architecture not only as a backdrop for academic life but as an active agent in student health. By integrating emotional architecture and green design principles, campuses can become environments that support well-being, resilience, and a deeper connection to place and community. The findings aim to guide architects, campus planners, and university leaders in making evidence-based design decisions that promote mental health and sustainability simultaneously. All the data will be used to create and install a design piece that reflects and brings light to this national problem.

Comeaux, Matthew; Segura, Devin

Zumiez

Aim - To perform a 10 year profitability analysis of Zumiez using 6 profitability indicators.

Research Design- archival data analysis from company websites Google Finance and Yahoo Finance.

Case Study Approach- a single case study of Zumiez, a publicly traded sports apparel company in Washington

Profitability Indicators:

- Return on Assets (ROA) = Net Income/Total Assets x 100
- Return on Capital (ROC) = EBIT/Capital Employed
- Return on Equity (ROE) = Net Income/Equity
- Net Profit Margin (NPM) = Net Profit/Total Revenue x 100
- Earnings before Interest, Taxes, & Depreciations (EBITD)

Gross Profit Margin (GPM) = (Revenue – Cost of Goods Sold)/ Revenue

Da Silva Neto, Eurico Cosme

Beyond the "Black Box": Analyzing SUNO AI's Practical Utility and Copyright Challenges for Professional Musicians

Generative Artificial Intelligence (AI) platforms like SUNO AI are rapidly emerging as powerful tools for music creation. However, their practical application and impact on professional musicians, particularly within specific cultural genres, remain largely unexamined. This presentation investigates the capabilities, limitations, and critical challenges posed by SUNO AI as a collaborative tool in music composition. Drawing from the preliminary findings of the "Lovin' Louisiana" qualitative case study, this research employs a two-part methodology: (1) a critical platform analysis of SUNO AI's interface, speed, and user policies, and (2) a qualitative framework involving professional musicians in the creation of Louisiana cultural music. The analysis reveals significant barriers to professional adoption. First, the platform is at the center of a complex and unresolved copyright landscape, highlighted by ongoing lawsuits from major labels (RIAA). This raises critical questions about ownership, even for users of the paid "pro" version. Second, and most critically for performers, SUNO AI functions as a "black box." It delivers a finished audio product with remarkable speed (e.g., a two-minute song in 20 seconds) but fails to provide any form of musical notation, score, or performance guide. This research concludes that while SUNO AI is a powerful content generator, this functional gap creates a fundamental disconnect from traditional musicianship and adaptation. For generative AI to move from a novelty to a true collaborative partner, it must evolve to address the practical needs of musicians regarding creative control, legal clarity, and the ability to reproduce and orchestrate AI-generated material for live performance.

Dupre, Ava

Analysis of the Evolution of Deepfakes and Internet Victimization: A Literature Review

In recent years, a growth of media has shed light on a complex issue when addressing sexual victimization: The rise of “Deepfakes,” or pornographic, AI-generated content that manipulates the likeness of (often unsuspecting) real people. It is accessible to the average internet user with a few clicks of a keyboard and can be weaponized in numerous contexts. This literature review examines articles regarding the technology’s global impact, the disproportionate victimization of women and girls, lack of legislation surrounding AI, and proposals to attempt to regulate deepfake creation and consumption. We will also explore how the advancement, accessibility, and popularity of GANs (Generative Adversarial Networks) presents an intricate dilemma in the realm of evolving artificial intelligence. Although the research on the implications of this technology is limited, this review involves an intersection of multiple disciplines: law, computer science, sociology, and psychology. Citizens and experts alike call for changes in the regulation and responsibility of companies, social media platforms, and governmental entities to reduce the generation and dissemination of this harmful media. With this project, we also hope to inform and educate as this issue continues to develop.

Edwards, Shelton

Accounting for the Wild: Integrating Exotic Animal Valuation into Zoo Pricing Models

Valuation of income producing assets has served as a strong component of financial reporting for decades. One exception to this rule is non-profit organizations, specifically zoos. As of current, zoos are not required to determine the value of their zoo animals and report them in their financial statements due to the fact that these animals are not sold in a legal marketplace. This study will research the valuation of zoo animals in multiple aspects and determine whether or not including a value would be useful for zoos in their pricing strategies. This research matters as it will contribute to both increasing awareness of how much zoo animals actually do for the economy as well as improving quality of financial statements that will allow them better transparency for donors and other public users. I will research the top zoos in the United States and analyze different aspects of their operations such as average annual attendance, main source of funding, exotic animals exhibited, and ticket price. A survey will also be conducted asking families of several income levels about their perspective on zoos, and which animals determine the demand for each zoo.

Fontenot, Lance; Petry, Kolby; Colomb, Hayes

ADCS, The Art of Controlling Satellites

One of the most critical aspects of satellite design is control of the orientation. Orientation of a satellite refers to the specific direction a satellite is facing in space. For satellites to function properly, they must constantly know their orientation and be capable of adjusting it. This responsibility belongs to the ADCS system. An Attitude Determination and Control System (ADCS) is a complex subsystem that determines, measures, and controls the satellite's orientation. For CubeSats (a miniature satellite built with standardized measurements) this is particularly challenging due to limitations in power, size, hardware capability, and budget. Developing a precise and efficient ADCS is essential for maintaining reliable communication links, ensuring accuracy in pointing toward Earth or other mission targets, and keeping movement operations within a strictly limited power budget. The ADCS can be developed using student-designed and fabricated hardware, significantly reducing costs while providing hands-on experience in satellite engineering. The current design employs two different types of actuators working together to physically control the satellite, along with multiple types of sensors that determine its orientation. A control algorithm commands and manages the entire system. The goal of an ADCS project is to create a fully functional, modular system to be used in future satellite missions.

Foulkes, Lauren

Morphometric Variation of the Aortic Arch

Objective: This study aimed to examine how demographic characteristics and aortic arch (AA) type influence the angulation of the AA's three major branches: the brachiocephalic trunk (BCT), left common carotid artery (LCC), and left subclavian artery (LSC). Given that age and the angle at which the three arteries branch from the AA are associated with procedural challenges, better characterization of AA morphology may support improved surgical planning.

Materials and Methods: 35 formalin-phenol embalmed cadaveric specimens aged 61 to 105 years were dissected and classified into Type I, II, or III arches using Madhwal et al's (2008) method [1]. Take-off angle was measured using a goniometer, and statistical comparisons across arch types were performed using one-way ANOVA with Tukey's post-hoc tests. Relationships between demographic factors and arterial morphology were analyzed using Pearson correlations and linear regression models.

Results: The BCT showed the most obtuse branching angle (M = 93.03°), while the LCC was most acute (M = 62.69°). Type I AA was most prevalent in the sample (54.29%). Take-off angle of all three arteries decreased from Type I to Type III, with significant differences found across AA types. LCC and LSC take-off angle was significantly associated with age ($p < 0.001$).

Conclusion: Variations in arterial angulation by AA type, along with demographic influences on morphology, may have important implications for endovascular access and risk assessment. These findings support increased integration of AA morphology into preoperative assessments and highlight the need for further investigation in larger, more diverse populations.

*Keywords***:** aortic arch, arterial morphology, take-off angle, cadaveric study, endovascular surgery.

Francois, Sydney

Counting Configurations: Exploring the Combinatorial Complexity of Kalah

This research investigates the number of unique board configurations that can occur in Kalah, a two-player strategy game that belongs to the Mancala family. Although Kalah is a relatively simple game, the moves that a player makes can create remarkably complex configurations that can affect their ability to win. Understanding how many distinct board configurations are possible can give us valuable insight into the game's combinatorial structure. In this study, a configuration is defined as the complete layout of the board after a player's turn has ended. Specifically noting the number of seeds in each pit. Configurations where the game has come to an end are excluded, as they represent non-playable positions. By defining a configuration, it allows for a systematic and consistent counting method.

Traditionally, the board has six pits per player and 4 seeds per pit which produces a very large number of potential configurations. Since it can be time consuming to find patterns through a decision tree of the traditional board, I have decided to start my research by analyzing a smaller scale model. The board I have been using only has three pits per player and 2 seeds per pit. I have noticed the smaller model reveals key patterns and structural restrictions in how valid configurations evolve and eventually terminate the game. From these observations, the goal is to develop a generalized expression or predictive model that is capable of estimating the total number of unique configurations in the standard version of Kalah. By characterizing Kalah's configuration complexity, this research can contribute to broader discussions in combinatorial game theory, mathematical modeling, and computational complexity. The insights from this project could aid in studying other strategy games and in finding mathematical ways to model complex decision-making systems.

Glass, Maren; Dupre, Paris; Guidry, Aidan; Vernon; Cambias, Isa

College Students' Ability to Identify Racial-Ethnic Microaggressions in Workplace Scenarios

Racial microaggressions are "brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults toward people of color" (Sue et al., 2007, p. 271). Being targeted by racial microaggressions is associated with negative mental health outcomes (e.g., Hall & Fields, 2012). Their presence in the workplace can negatively affect employee performance and job satisfaction (Firi & Baryeh, 2024; Hunter, 2011). To reduce racial microaggressions in the workplace, employees need to first identify them; however, there are at least three different types of microaggressions described in the literature: Microinvalidations, microinsults, and microassaults (Sue et al., 2007). Given this complexity, we wondered whether college students, who are preparing for the workforce, are familiar with microaggressions and able to identify different types in various workplace scenarios.

Data was collected from 111 college students (72% females; 56% White). Participants were asked about their familiarity with the term "microaggressions." Those unfamiliar were presented with the term's definition. Everyone then responded to a semantic differential scale, assessing their understanding of microaggressions along eight dimensions: bad-good, unpleasant-pleasant, disrespectful-respectful, degrading-empowering, indirect-direct, accidental-intentional, biased-unbiased, and harmful-harmless. Participants were then presented with six comic strips depicting workplace scenarios involving a White person (i.e., majority status) in a position of power talking to a person of color (i.e., minority status). Half the scenarios depicted pleasant interactions, and half depicted verbal microaggressions with one example of each type.

Participants rated the extent to which they thought what the person in power said was a microaggression. Participants, whatever their majority-minority status, were somewhat familiar with microaggressions but could not provide an example; however, 22% reported never hearing the term. A mixed-design ANOVA was used to look for differences across the adjective pair ratings as well as for any impact that term familiarity and minority status might have on these ratings.

There was a main effect of adjective pair ($p < .001$) with participants thinking of microaggressions as unpleasant, degrading, disrespectful, and bad. There were subtle, but significant, differences in ratings depending on participants' familiarity with the term ($p = .026$). The same mixed-design ANOVA was used to analyze microaggression ratings across the different scenarios, revealing a significant effect of scenario type ($p < .001$), with participants less sure that microinvalidations and microinsults are microaggressions and more confident that microassaults are. Participants with majority status, regardless of their familiarity, were generally unsure whether a microaggression occurred, but participants with minority status and higher familiarity were more likely to indicate the presence of microaggressions as compared to those who were unfamiliar.

Given college students' limited knowledge of microaggressions, employers should consider implementing training focused on identifying microaggressions, especially microinsults and microinvalidations. Our findings support this recommendation: When college students reported familiarity with the term "microaggressions," they were more inclined to rate them as bad, unpleasant, disrespectful, degrading, biased, and harmful and more open to the possibility that they might be indirect or accidental.

Griffin, Christian-Paris; Evans, Aibel

Stress-induced Cytokine Activity and White Matter Integrity in Children and Adolescents with Chromosome 22q11.2 Deletion Syndrome (22q11.2DS): A Preliminary Study of a Population at Ultra-High Risk for Schizophrenia

Background: Chromosome 22q11.2 deletion syndrome (22q11.2DS) is a developmental disorder with serious medical, behavioral, and psychological problems including a 30-fold increased risk of schizophrenia in adulthood and risk of immune dysfunction. Elevated inflammation is associated with increased risk of schizophrenia in patients without 22q11.2DS. Thus, identification of key inflammatory markers and brain development could be a valuable endophenotypic biomarker of schizophrenia risk in children with 22q11.2DS well before they develop psychosis. The aim of this study was to examine pro-inflammatory cytokines associated with white matter damage over time. In DTI, higher radial (RD) and mean diffusivity (MD) with lower fractional anisotropy (FA) indicate compromised white-matter microstructure that is typically consistent with myelin disruption and poorer fiber organization. We hypothesized that those with 22q11.2DS would have elevated inflammatory markers in relation MRI diffusion tensor imaging (DTI) indicators of potential white matter damage. **Methods:** We collected blood samples from children with 22q11.2DS and age-matched typically developing (TD) controls following a 45-minute MRI, DTI, and fMRI scanning session which was a natural stressor. From blood we measured Il-17α, IL-1α, Eotaxin, IL-6, TNFα, and Fractalkine using a Magpix Immunoassay Multi-plex Kit. From the DTI data, we calculated fractional anisotropy (FA), mean diffusivity (MA), and radial diffusivity (RD) values of major white matter tracts using Freesurfer 7.0, FSL and ProbtrackX. **Results:** TNFα levels were higher in the 22q11.2DS group versus the

TD controls ($p = 0.049$) but there were no significant differences between groups on the levels of any of the other cytokines ($ps > 0.05$). In 22q11.2DS, higher TNFα related to greater global white-matter RD ($r = 0.35$, $p = 0.0016$) and MD ($r = 0.32$, $p = 0.0041$). In TD, higher Eotaxin related to higher RD ($r = 0.36$, $p < 0.001$), higher MD ($r = 0.24$, $p = 0.016$), and lower FA ($r = -0.28$, $p = 0.0038$). Combining 22q11.2DS and TD groups revealed that TNFα was positively associated with RD ($r = 0.20$, $p = 0.0061$) and MD ($r = 0.19$, $p = 0.0105$). Reported measures survived FDR correction. **Discussion:** TNFα was elevated in 22q11.2DS and tracked with greater RD and MD in overall white matter, suggestive of inflammation related changes in myelin integrity. In TD youth, Eotaxin related to higher RD and MD and lower FA, suggesting a relationship between stress mediated inflammation affecting white matter. Importantly, this is a preliminary study using a very modest sample size. Nevertheless, several findings remained significant after FDR correction, highlighting TNFα as a promising biomarker of white-matter integrity loss in 22q11.2DS. **Conclusion:** In this sample of children, and particularly in the 22q11.2DS group, elevated TNFα correlated with higher RD and MD with reduced FA. This suggests that increased inflammatory signaling is linked to compromised white matter microstructure. The next step is a better-powered longitudinal study with tract-specific DTI and concurrent, objective stress measures.

Gros, Breanna

Title: Evaluating Hydrocarbon Effects on Extracellular Polysaccharide Production and Bacterial Growth in *Vibrio vulnificus*

Vibrio vulnificus, a Gram-negative pathogen endemic to the Gulf of Mexico, frequently colonizes tar balls rich in non-volatile hydrocarbons like *n*-hexadecane (*n*-C16). To evaluate hydrocarbon effects on bacterial physiology and persistence, expression of *brpD* (extracellular polysaccharide [EPS] biosynthesis) and *alkB* (alkane degradation) was measured by RT-qPCR, and growth influence was assessed via curve analysis. Exposure to 2.5% *n*-C16 reduced *brpD* and *alkB* gene expression by ~25–30%, indicating stress-responsive repression or altered carbon metabolism. In nutrient-rich medium with *n*-C16, significant inhibition was observed at 4 h in the wild-type strain ($p = 0.02$), suggesting early EPS-mediated hydrocarbon interaction. A delayed effect in the EPS-deficient strain became significant at 24 h ($p = 0.03$), supporting a role for EPS in facilitating access to hydrocarbons under nutrient-depleted conditions. In nutrient-limited artificial seawater, EPS-deficient cells trended toward earlier inhibition ($p \approx 0.07$), further implicating EPS in adaptive resource acquisition. Neither strain grew upon inoculation into minimal media with *n*-C16 as the sole carbon source, though dextrose controls supported growth, indicating *n*-C16 metabolism is not constitutive. However, the presence of *alkB*, transcriptional shifts, and delayed growth effects align with inducible, environmentally regulated hydrocarbon metabolism. These findings suggest that EPS influences hydrocarbon interaction and stress response in a context-dependent manner in *V. vulnificus*. Future work will use transcriptomic and metabolomic analyses to identify conditions that enable adaptive alkane degradation and support pathogen persistence in polluted marine environments.

Guillory, Riley

Fabrication Strategies for Conductive Hydrogel-Based Wearable Sensors

This project proposes a literature-driven design for a non-invasive wearable sensor that uses a dual-network conductive hydrogel as its active sensing material. The goal of this work is to outline a fabrication strategy informed by current research on conductive polymers and hydrogel-based sensors. The proposed sensor design incorporates a chitosan-based hydrogel matrix for structural stability and biocompatibility, combined with a conductive polymer such as poly(3,4-ethylenedioxythiophene) (PEDOT) or poly(vinyl alcohol) (PVA) to enable electrical responsiveness. Conductive MXene nanoparticles are incorporated to enhance mechanical strength, electroconductivity, and long-term stability. To fabricate the hydrogel component, digital light processing (DLP) 3D printing and electrospinning will be used to achieve precise geometry and fibrous reinforcement within the sensor. The literature review supporting this proposal highlights how these techniques have been applied in recent scaffold and hydrogel systems to control structure, porosity, and conductivity. The outcome is a conceptual roadmap detailing materials selection, fabrication steps, and testing plans for future experimental validation. Future work will focus on evaluating mechanical robustness, conductivity, and self-healing properties once prototypes are produced. This design proposal represents an early-stage framework for developing flexible, conductive hydrogel-based wearable sensors guided by current literature and fabrication experience.

Guillot, Ali

Integrative Analysis of Cannabidiol (CBD)Mechanisms: Linking Maternal Mouse Neurobiology and Offspring Development to Computational Protein Structure Modeling

Cannabidiol (CBD), a major non-psychoactive compound from *Cannabis sativa*, interacts with many molecular targets that influence neurotransmission, stress regulation, and behavior. Despite its widespread use, the mechanisms of how CBD alters brain function during pregnancy are unknown. CBD's ability to act on both central and peripheral systems makes it an important compound for studying how maternal exposure may influence offspring neurodevelopment. In this project, I integrate behavioral neuroscience and computational protein modeling to better understand how CBD's molecular interactions might relate to anxiety-related outcomes observed in a maternal exposure model.

In BIOL 410, I work under Austin Foreman, M.S. Thesis Candidate, assisting with his maternal CBD exposure experiment in mice, which investigates how exposure influences offspring anxiety and hippocampal CB1 receptor expression. In CHEM 362, I use Triangular Spatial Relationship (TSR) modeling on the LONI supercomputer to analyze 3-D binding-site geometry of CBD-bound proteins, including CB1, CB2, TRPV2, and 5-HT1A. The integration of these demonstrates at a molecular-level how CBD's structural flexibility may allow its diverse physiological and behavioral effects.

Hambrice, Katie

Geospatial Analysis of Disparities in Access to Long-Acting Reversible Contraceptives (LARCs)

Equal access to reproductive healthcare is crucial to improving public health, but many women, especially those residing in rural and low-income communities, continue to face challenges in accessing contraception. Long-acting reversible contraceptives (LARCs), such as intrauterine devices (IUDs) and subdermal implants, are among the most effective methods of preventing unintended pregnancy, but they are disproportionately available across Louisiana. This study, supported by the TExBioMed Summer Institute, applies public health informatics to identify and visualize geographic and demographic disparities in LARC provider availability across the state.

Datasets from existing public sources, including PolicyMap, the Louisiana Department of Health, and the U.S. Census Bureau, were gathered. Using RStudio, PolicyMap, and Datawrapper, spatial and demographic measures were combined to produce a set of choropleth maps. Provider-to-population ratios, Medicaid enrollment rates, and rurality by parish were calculated for these maps. Three interactive maps, which were made accessible through a QR code, were developed to publicly share the findings and allow for interaction with healthcare providers, policymakers, and community stakeholders.

Results indicate significant geographic clustering of LARC providers in urban parishes such as Orleans, East Baton Rouge, Lafayette, and Shreveport, with notable provider shortages in more rural parishes throughout northern and central Louisiana. Several high-need areas exhibit low provider density despite high concentrations of Medicaid-eligible people, reflecting a mismatch between service availability and population need. Such inequities highlight how both geography and socioeconomic status intersect to define disparities in reproductive healthcare access.

The study demonstrates how geospatial informatics can be a valuable resource in healthcare gap identification and informing data-driven policy interventions. Policy recommendations based on this analysis involve expanding provider networks within underserved areas, creating mobile or telehealth-based reproductive services, and encouraging providers to provide more accessible LARC methods to rural communities.

By integrating publicly available datasets, spatial analysis, and interactive visualization, this project offers a replicable framework for mapping healthcare disparities and informing equitable resource allocation. Ultimately, this project underscores the imperative to harness public health informatics for the purposes of promoting reproductive autonomy, accessibility, and equity for all women of Louisiana.

Holt, Haylee

When Seconds Matter: Improving Emergency Medical Response for Children with Rare Diseases

Rare diseases in pediatric patients remain critically underrepresented in emergency medicine research, despite their potential for rapid, life-threatening deterioration. Current U.S. emergency medical services (EMS) protocols and formularies are primarily designed for “typical” emergencies and often exclude interventions for rare conditions — for example, the absence of hydrocortisone sodium succinate (Solu-Cortef) in adrenal crisis protocols. This study asks: How can EMS protocols and digital tools be improved to ensure timely, life-saving care for pediatric patients with rare diseases?

To address this question, researchers conduct a structured review of EMS protocols, policy documents, and published case reports to examine how protocol gaps, policy ambiguity, and provider hesitation impact prehospital care. Three hypotheses guide this work: (H1) EMS formularies rarely permit field administration of disease-specific medications; (H2) unclear policies and fear of legal liability restrict EMS staff and caregivers from delivering timely care; and (H3) standardized digital tools, such as automated dispatch alerts or wearable IDs, may reduce treatment delays and improve outcomes.

Expected findings include evidence that protocol flexibility and digital notification systems could improve response times and patient outcomes. These results will be discussed in the context of policy change, EMS training, and caregiver empowerment to strengthen rare-disease emergency care.

Hunt, Kendrick; Williams, Wynn

The Relationship Between Ethnic Identity and Perceived Attractiveness Among African American College Students

This study investigates the relationship between facial features, ethnic identity, and perceived attractiveness. To accomplish this investigation, participants completed an attraction evaluation task and the Multigroup Ethnic Identity Measure (MEIM). The attraction evaluation task required participants to view images of Black female faces from the Chicago Face Database and rate the faces on attraction on a scale from 1- 4. The MEIM measured participants' sense of belonging and connection to their ethnic or cultural group. It was hypothesized that skin tone, nose width, and lip thickness would be related to perceived attractiveness. This relationship was also expected to be modulated by ethnic identity.

Karki, Suyog

Building Web Apps Using Natural Language Prompts with Lovable AI

This project explores how to build and publish full-stack web applications using Lovable, an AI tool that transforms plain language prompts into functioning websites. Lovable supports popular web development platforms, including React, TypeScript, Tailwind CSS, PostgreSQL, and more. It integrates smoothly with version control systems like GitHub. The requirements for using Lovable are quite straightforward. All users need is a web browser, an internet connection, a Google account to sign up for Lovable, and access to GitHub. There is no need for coding skills or software installation.

For this presentation, we experimented with Lovable to create and deploy several demo web applications. For example, we used prompts to design webpages for an art gallery and a digital book library. Additionally, we successfully developed a web app to display a directory. The process begins with typing a prompt that describes the app idea. Next, we utilize a built-in chat feature to make adjustments or add functionalities. Lovable then generates the complete project code, organized in folders similar to a typical developer project.

Lovable simplifies the process of publishing projects directly from the platform with just one click, providing users with a live link to share. Additionally, users have the option to deploy their projects on their own hosting spaces. In our experiment, we tested manual deployment using Firebase Hosting. This involved cloning the project from GitHub, running it locally, building it, and then pushing it online. By trying both methods, we gained insights into how AI-generated projects integrate with real-world development workflows.

We encountered some challenges, such as fixing file structure issues, understanding build steps, and setting up access permissions for GitHub repositories. These challenges highlighted the limitations of AI tools and the areas where human input is still essential.

In this presentation, we will take a step further by offering a live demonstration of how to use Lovable to create a simple web app from start to finish. This hands-on demo will showcase what Lovable looks like, how it functions, and how the final code can be deployed.

Overall, our project demonstrates that AI tools like Lovable can empower more people, especially those without a coding background, to build and share real web applications. It lowers the barrier to learning software development, accelerates the design process, and opens up new opportunities for teaching or prototyping ideas. In the future, we aim to explore how effectively this tool can be used to build more complex applications and how it can be integrated into classrooms or workshops.

Kemper, Kaitlyn

Evaluating Flood Exposure and Resilience of Public Buildings in Coastal Louisiana

This research focuses on the flood exposure and resilience of public buildings in coastal Louisiana. Public buildings are essential community assets, yet many remain at risk from environmental hazards. In the past, Louisiana has experienced multiple instances of irreversible damage caused by extreme weather events, particularly flooding. Schools, libraries, and other public buildings that serve as government facilities within these parishes are especially vulnerable. These public buildings, located in parishes such as St. Tammany, Terrebonne, Lafayette, St. Mary, and Jefferson, identified in the Louisiana State Mitigation Plan, are vital to the residents who depend on them, and without proper preventive measures, they will continue to face recurring risks and structural vulnerabilities.

This research aims to examine these risks and explore how the resilience of public buildings in flood-prone zones can be enhanced through specific design strategies. By applying existing knowledge and developing new strategies, we can help prevent environmental and economic damage while promoting long-term resilience.

An assessment will be conducted to better understand hazard mitigation plans and identify opportunities to improve the protection and resilience of public buildings in certain areas that are vulnerable to flood-related risks. This will include site analysis and evaluations of exterior design features, informed by comparative policy frameworks. The objectives of this study are to examine how location, ground level, and access routes affect building flood exposure; to assess exterior features such as entry elevations, façade materials, and protections for openings; and to develop design strategies guided by Louisiana's hazard mitigation plans and building codes, as well as best practices from other flood-prone coastal regions.

The research methods will include spatial analysis using GIS to overlay FEMA flood maps with public building locations, as well as qualitative analysis of local planning documents to identify resilience strategies and relevant building code requirements. In addition, I will conduct comparative research to identify flood-resilient design approaches from other U.S. and international coastal regions. The study will synthesize findings into annotated diagrams, risk assessment summaries, and precedent-based design strategies such as elevated entries, protected openings, and improved site grading.

Expected outcomes include a comprehensive public building assessment report and a set of design guidelines that link architectural strategies to policy frameworks. These guidelines will feature material studies, recommendations for updated building codes tailored to evolving flood risks, and practical design strategies to strengthen community resilience. Ultimately, this research will highlight the urgent need for systematic assessments of how site and exterior design can be adapted to reinforce local resilience in vulnerable coastal regions.

Kumar, Darshan; Dauphiney, Chad; Tran, Duy

Experimental Smart Ground-Station Grid

Conventional ground stations or networks of ground stations working with LEOSAT(s) and/or CubeSat(s) do not offer sufficient flexibility or globally scalable transparent coordination of communications, instrumentation, and/or functional or physical actuation at satellites or ground stations to fully exploit these systems so as to operate practically, experimental missions anywhere on Earth, or to achieve highly desirable globally scalable experimentation missions in general. Fortunately, UL Lafayette researchers have invented the ESG-Grid to overcome these limitations. The ESG-Grid is an Internet-cloud coordinated network of one or more LEOSAT(s)/CubeSat(s) combined with a plurality of Terrestrial Participant Devices (TPDs) (i.e. simple portable or mobile smartphone-based ground stations, or same functionality installed in automobiles, boats, planes, drones, tanks, missiles and/or instrumented robots to name a few) where the collective resources and functionality of both satellites and TPDs may be coordinated to achieve novel capabilities, including choreographed and highly economical, automated, transparent, and globally scalable exploration, instrumentation, and experimentation missions, in orbit or anywhere on Earth.

Currently, ESG-Grid is being developed by a team of undergraduate students who are developing and implementing the ESG-Grid via building the LoRa packet schema, RF ground-stations, and the web app utilized to communicate and view information to and from the satellites in orbit. The undergraduate team consists of an embedded system, front-end, back-end, cyber security, operations, and management team. The team expects to have a minimal viable product (MVP) by December of 2025 and hopes to complete their “Phase I” plans by May of 2026. In the MVP, the team plans to be able to receive communication from a mock satellite, decode packets, upload the information to the backend servers, and display the information to logged-in users on the front-end application. The ESG-Grid will also be used as an educational outreach platform where teachers will be able to create lesson plans around satellite information and can receive live data from active mission via lite ground-stations located at their schools.

Landry, Samuel

Exploring GeoAI Capabilities for Timely and Accurate Post Hurricane Damage Assessment

Geographic Information System (GIS) Artificial Intelligence (GeoAI), is a powerful tool that enhances the interpretation, analytics, and scalability of spatial data processing by analyzing large and complex geospatial datasets. GeoAI helps geospatial analysts streamline workflows, automate analyses, and increase productivity across various applications. Within GeoAI, machine learning and deep learning (ML and DL) are concepts that determine how AI will perceive and use the data provided to derive meaningful outputs. However, these models require substantial amounts of data and time to train. To reduce the amount of data needed to train a model, Pre-trained deep learning models can be used. Pre-trained AI models are ML or DL models that are already trained on large datasets that can be implemented in a GIS environment to address workflows such as hurricane damage assessments. The objective of this presentation is to showcase the significance of GeoAI in damage assessment classification and detection in south Louisiana. Using a deep learning architecture *SegUNet* in *ENVI* 6.0, post-Ida damage assessment was conducted. The AI model was tasked with locating and extracting blue tarps around Lafourche Parish. The accuracy within the verification was 99%. After performing “ground truthing” the model successfully detected most if not all blue tarps within the extents, however a considerable amount of false positives were also extracted. Within *ArcGIS Pro*, various image analyst tools were used to eliminate the mis-labelled outputs, as well as converting the raster output into a vector to produce an exact count of blue tarps detected. In addition, pretrained models such as the building footprint extraction, and vessel detection deep learning models were used. Post hurricane damage was assessed by comparing residential and commercial building footprints pre and post Hurricane Ida along with the outputs from the trained model. The next step in this project includes creating a more full scale damage assessment including different levels of damage. This includes tasking the AI model with detecting four levels of damage in increasing order as “Roof Damage (Blue Tarp), Exposed Roof Damage, Structural Damage, and Rubble (Total loss). We are in the process of developing accuracy metrics for both pre-trained and trained GeoAI models. The goal of this research is to provide insurance companies with fast but reliable damage assessments to expedite the process of insurance claims and reduce the effect of progressive damage to homeowners. The results from this ongoing project will be presented.

Leach, Zodah

Cognitive Resilience in Danio rerio: Methylene Blue as a Potential Antagonist to Stress-Induced Spatial Memory Deficits

No abstract provided.

Lewis, Luke

From Sea to Sand: Amphibious Infantry in the Battle of Wake Island

In 1941 the Japanese Empire stood almost fully mobilized for war; within a span of 48 hours they had launched a crippling attack on the U.S. naval base of Pearl Harbor, taken most of the Marines stationed in China prisoner and begun their assault on the small American airfield of Wake Island. The Battle of Wake Island would become the first ground battle fought by Americans of World War II which alongside Pearl Harbor would fully pull the United States into the war. The Battle of Wake Island demonstrates the capabilities of the two amphibious infantry units that fought at Wake Island, the 2nd Maizuru of the Special Naval Landing Force (SNLF) and the 1st Defense Battalion of the United States Marine Corps, setting the precedent of violence which would become characteristic of the Pacific theater of war. The Battle of Wake Island is a great example that demonstrates how the origins, training, and existence of these American and Japanese Infantry forces in the larger military apparatus affect the battlefield at the beginning of the war.

Lyons, Bryona; Hills, Trinitee

The relationship among facial features and perceived attractiveness of African-American males

This study investigates the relationship between facial features and perceived attractiveness in African American males. To accomplish this investigation, participants completed an attraction evaluation task. The attraction evaluation task required participants to view images of Black male faces from the Chicago Face Database and rate the faces on attraction on a scale from 1- 4. It was hypothesized that skin tone, nose width, and lip thickness would be related to perceived attractiveness. Results showed supporting evidence that skin tone and nose width were related to attractiveness. Faces with darker skin tones and wider noses were rated as less attractive. These results show the relationship between societal norms and ‘beauty’ standards.

Martinez, Keegan

The Impact of Gender Essentialism in Relation to Women in Ecology

Ecofeminism, as defined by Greta Gaard, draws on the combined fields of ecology, feminism, and socialism to display the oppression of marginalized groups as synonymous with the oppression of the natural world. Since the 1980's, 1990's, and into the new millennium, Ecofeminism has faced immense scrutiny as mainstream feminists and ecologists alike have accused ecofeminists of perpetuating ideas of gender essentialism. Ecofeminists and their goals, as ever changing as they might be, face the question of whether their different disciplines and varied theories are rooted in essentialist doctrine. I argue in the affirmative that essentialism, commonly defined in this context as the inherent connection between women and nature, has permeated ecofeminist thought, and it has proven to be a disservice to female ecologists. Ecofeminism should not focus on the dualism between women and nature, as neither women nor men share an inherent genetic connection with nature itself. Extensive evidence exists in both scholarly articles and scholar reviewed statistics which outline the increase in epistemic objectification female ecologists have faced up until 2010. Due to the essentialist ideas, which are emitted from some ecofeminist theorists, female ecologists struggle to receive the same respect and value outside of the information they possess in comparison to their male counterparts. I offer an analysis of this discourse and the effects it has had on females in the field of ecology by expounding on the different disciplines and theories ecofeminism encapsulates as well as explicating the issues that rise out of essentialism and its relation to ecofeminism.

Perkins, Geremiah; Mehaffey, Jesse

Utilizing Spicules in Sediment Samples to Further Define Species Richness of Freshwater Sponge Populations in Louisiana

The Louisiana Freshwater Sponge Project (LFSP) is a longitudinal study designed to document the diversity of freshwater sponges across the state. The study compares the current sponge populations with those reported by Michael Poirrier in 1969. Sponge specimens are identified through morphological analysis of spicules present in the sponge body and/or gemmules, supplemented by COI and ITS gene sequencing for molecular confirmation. This research examines the utility of isolating and identifying spicules in sediment to further define species richness within Louisiana. Fifty sites throughout Louisiana were analyzed using a modified version of Lukowiak's protocol for marine sponges. A total of 500 grams of sediment was collected from multiple points at each site. It was then dried and processed through a series of chemical treatments to eliminate both organic and inorganic materials, isolating silica-based particles, including sponge spicules. These particles were subsequently examined using light microscopy. In the absence of live specimens, sediment analysis can provide morphological evidence of sponge presence, indicating a higher species richness than is documented solely through specimen collection. This approach not only corroborates the presence of observed live sponges but also extends the documented species richness at many sites. Sediment analysis thus represents a valuable tool for comprehensive biodiversity assessments. It enables verification of species presence in the absence of observable sponge bodies and mitigates limitations associated with seasonal sampling constraints.

Provost, Reese

Delineating the Effects of Glycosuria on Klebsiella Pneuomiae Metabolism

The research being done focuses on the bacterium *Klebsiella pneumoniae* and its involvement in urinary tract infection. This species has seen recent trends in hospital related urinary tract infections. The specific strain being researched TOP52, and how its metabolism and virulence changes in diabetic human urine, or under glycemic conditions. Research in our lab includes inoculating human urine and urine treated with glucose with *K. pneumoniae* for certain intervals of time and infecting diabetic and non-diabetic mice with bacteria and counting colony growth and immune cell count in the bladder, spleen, and kidneys. My own personal aim with the effects of glycosuria on *K. Pneumoniae* is how the condition affects the bacterium's metabolism, specifically glycolysis, gluconeogenesis, amino acid uptake, and amino acid synthesis. This can be measured by the use of Reverse Transcriptase-quantitative Polymerase Chain Reaction (RT-qPCR). This experiment involves the extraction of RNA from the bacterium in a normal and diabetic urine environment and make complementary DNA from the extracted RNA. This DNA would then be amplified to determine how much these genes are expressed in comparison to *K. pneumoniae* grown in a standard growth medium. The aim of the experiment, as previously stated, is to differentiate what nutrients and metabolic pathways are favored or repressed while in a glucose-rich environment. Our hypothesis is that given the nutrient-rich environment, the bacteria will become more virulent. My own hypothesis is that the bacterium will display higher expression of genes involved in glycolysis and amino acid uptake and suppress gene expression of gluconeogenic genes.

Raafey, Abdur

Development of a Self-Healing Polyimide Coating Incorporating Inhibitor-Loaded ZnAl LDH-Nanocontainers for Corrosion Protection in Oil & Gas Environments

Corrosion of steel pipelines and equipment in the oil and gas industry particularly in sour environments containing CO_2 and H_2S continues to be a major and ongoing issue. Traditional coatings often fail due to microcracks, physical damage, or adhesion loss under high temperatures and chemical exposure, resulting in continual deterioration and expensive upkeep. To tackle this, the research aims to create a smart, self-healing polymer coating that offers long-lasting, active protection to steel surfaces in harsh conditions.

This system uses a high-temperature-resistant polyimide (PI) matrix embedded with Zn–Al layered double hydroxide (LDH) nanoparticles loaded with an imidazoline corrosion inhibitor. These LDH nanoparticles serve as nanocontainers, releasing the inhibitor when corrosion starts triggered by localized pH changes or the penetration of chloride or sulfide ions thereby forming a protective barrier that stops further corrosion. The study will focus on synthesizing and modifying the surface of the LDH–inhibitor particles, evenly dispersing them into the polyimide precursor, and developing a stable coating formulation. The goal is to produce a durable, thermally stable, and pH-responsive self-healing coating that significantly prolongs the lifespan of steel structures in oil and gas environments.

Shannon, Amy; Coreil, A

Dissociation Across as Predicted by Maladaptive Verbal Behavior

The current study examined the relationship of rule-governed verbal behavior and anxiety sensitivity to dissociative symptoms. Dissociative symptoms are experienced by nonclinical and clinical populations and remain poorly understood. In clinical populations, dissociative symptoms are associated with poorer prognosis and treatment outcomes. Current treatments designed to address dissociative symptoms in the clinical context tend to rely on the reduction of fear and avoidance of these symptoms. The current study utilized a cross-sectional design of non-clinical participants obtained from online study advertisements. The present study is an applied validation of a proposed contextual behavioral science models for dissociative symptom etiology and maintenance. Hierarchical regression analyses supported hypotheses that schema consistency and Schema Flexibility are, together, stronger predictors of dissociation frequency than anxiety sensitivity, panic symptoms, and trauma status independently. The present study investigates the relationship between flexible and adaptive verbal behavior, tendency to reactivity, and clinical symptom presentations as predictors of dissociation. Behavioral models of dissociation (McEnteggart et al., 2017) suggest that an inability to relate flexibly and adaptively to beliefs about the self and others may be predictive of dissociative symptoms. These models of dissociation will be examined in relation to functional analytic accounts of the etiology and maintenance of anxiety (Forsyth, 2000) and related disorders (posttraumatic stress disorder; Mulick et al., 2011) where dissociation frequently occurs. Interpretation of relationships between observed or self-reported behaviors using the principles of behavior analysis has long been used as a method to account for observations of behavior that are not otherwise easily manipulated (Kohlenberg et al., 1993; Moore, 2013; Wilson & Blackledge, 2000).

Sigurdsson, Sara

Anatomical and Biomechanical Contributors to Hip Injury in Collegiate Athletes

Hip injuries represent a substantial concern in collegiate athletics due to the hip's central role in force transfer, rotational control, stabilization, and locomotion. Female athletes demonstrate distinct biomechanical, anatomical, and hormonal characteristics that may predispose them to greater hip-joint strain, labral pathology, and instability compared to males. Structural variation (e.g. increased acetabular and femoral anteversion), anterior pelvic tilt, ligamentous laxity, and menstrual hormone–related effects on collagen stiffness intersect with sport-specific loading (particularly cutting, pivoting, and endurance demands) to shape sex-differentiated injury risk. This mixed-methods study evaluates hip and lower-extremity injury patterns in NCAA Division I athletes at Nicholls State University (2021–2025), integrating certified athletic-training surveillance with athlete-reported exposure and risk-factor data to contextualize modifiable and non-modifiable contributors. A total of 995 injuries were documented across 15 athletic programs (7 men's, 8 women's). Athlete surveys (n=90) provided data on surface type, running/cutting demands, caloric sufficiency, prior injury history, hip symptoms, and menstrual-cycle–related factors. Descriptive statistics, χ^2 tests, unpaired t-tests, and ANOVA were performed; lower-extremity injury burden was normalized by athlete-exposures (AEs).

Females demonstrated predominance of lower-extremity injuries (57.7%), with hip injuries comprising 12.6%. Males demonstrated 50.3% lower-extremity involvement, with hip injuries comprising 10.0%. Football accounted for 80.6% of men's injuries, while female injuries were dispersed across sports. AE-adjusted incidence was highest in women's cross-country (41.21/100 AEs) and men's football (48.02/100 AEs), reflecting differing volume and impact-based demands. Survey data showed high artificial-turf exposure and repetitive-load profiles in female field and endurance sports. Athletes reporting high running/cutting demands described more lower-extremity symptoms. Overall injury distribution by sex was not significant on χ^2 testing. Hip-injury proportion differences were not significant but trended higher in females (RR≈1.30). AE-normalized injury rates differed significantly across sports (ANOVA $p<0.05$), driven by women's cross-country and men's football. Within-sex analyses demonstrated significant variation in anatomical injury patterns and sport-specific burdens ($p<0.05$), indicating independent mechanical influences in each sex group. Findings align with literature linking sex-specific pelvic morphology, neuromuscular control, ligamentous laxity, menstrual-cycle variation, and energy-availability status to hip vulnerability. The data support sex-informed prevention including eccentric posterior-chain and hip-rotator strengthening, surface and load-specific periodization, and monitoring of menstrual function and energy availability. This translational model links physiology, sport demands, and surveillance data to inform early screening, targeted conditioning, and evidence-based return-to-play strategies in NCAA athletics.

Singleton, Bailey

Consent within Media Consumption: Sexual Assault Survivors' Perceptions of Content Warnings as Accessibility

Content warnings, a visual or written warning for audiences that media they are consuming will include discussions or depictions of sensitive or explicit content, is a common tool used in our world. Nearly all movies in America must have a label depicting how explicit the depictions within will be and what audiences the film will likely be appropriate for (Motion Picture Association, 2019). Music and video games must also display labels to alert consumers of explicit themes and violence, beginning in 1985 and 1994 respectively (Chastagner, 1999). As media continues to evolve, this practice of making certain audiences are aware of what they are agreeing to consume has continued. Social media sites like Facebook and Instagram filter for sensitive content and place a visual content warning over certain posts that the user has the choice to remove to proceed to the post. Most of these warnings are seen as commonplace and respectful to consumers. However, when content warnings created to support individuals with trauma are discussed, the perception often becomes more critical, both in public opinion and academic research.

Content warnings for topics like sexual assault began to be used in feminist spaces in the 1990s (Sheri, 2024). The goal was to offer individuals who may be triggered by that topic a choice in whether or not to engage with it. There was no standardized labeling system or incentive within these warnings, except for a goal to increase accessibility and informed consent for those who have experienced trauma. It placed the power to decide back into survivors' hands.

There is a still a deficit in understanding what creates an effective, comprehensive content warning for sexual assault, especially from the perspective of the population these warnings were created to support. Instead, academic research seems to be focusing on the general public's reactions to and perceptions of content warnings (e.g., Bridgland et al., 2018).

To remedy this oversight, this research aims to allow self-identified sexual assault survivors to give their perspectives on content warnings. In a world where social media employs content warnings often and over half of American college professors have used them (Kamenetz, 2016), it's important to know how these warnings effect the population it was created to empower.

To better understand and catalogue the perspectives of those who have experienced sexual violence, four to six focus groups of survivors will be held. Each group will include three to five participants and take 1.5 to two hours to complete. At the time of abstract submission, two groups have been completed.

This research aims to use qualitative analyses to understand and catalogue how sexual violence survivors view content warnings: their perceived efficacy and public perception, as well as survivor's' personal preferences. This information has the potential to provide valuable insight for content creators in how to create effective content warnings that support the population it was created for. The hope for this data is to both fill a gap in research and amplify sexual violence survivors' voices.

Steward, Christian

Pathways to Persistence: A Qualitative Study of Programs Supporting Black Men's Success in College -- A Research Study Proposal

This research project dives into the need for structured programs that support minority college students. This also uncovers how the initiatives pushed by these programs contribute to improved grade point averages, retention, and graduation rates. Minority students (specifically African Americans) are already underrepresented at the majority of colleges, excluding historically Black colleges, of course. This lack of representation in the higher education field puts them at a disadvantage before they start. Programs such as the Louisiana Educate Program (LEP), the Collegiate 100, and the Reginald F. Lewis Scholars Program demonstrate how a program these initiatives can potentially transform individual college experiences. While transforming the experience, they address both the academic and environmental needs of minority college students. The Louisiana Educate Program (LEP) is a state-supported initiative designed to increase the participation and success of underrepresented minority students in higher education, with a focus on STEM and other high-demand fields. The program supports students through their academic endeavors, research opportunities, mentoring, housing, scholarships, financial aid, and graduate school preparation. These resources are designed to address systemic barriers in education and help the student break them down. The program also gives students access to undergraduate research and professional development. For their students, the LEP program has a transformative initiative that opens doors to academic and professional success in STEM but also addresses deeper systemic issues by creating spaces that validate and uplift students. The Collegiate 100, an extension of 100 Black Men of America, Inc., as a campus-based student organization on college campuses. The organization focuses on mentoring, academic support, and community involvement for African American college students. Members participate in structured mentoring programs, community service projects, and professional development workshops that prepare them for both academic success and leadership beyond college. Through these activities, participants gain valuable networking opportunities, develop leadership skills, and improve academic performance. Collegiate 100 is a platform for African American college students to serve as leaders and mentors while gaining skills that support their personal, academic, and professional growth. The Reginald F. Lewis Scholars Program further enhances the support model for minority success. This three-year initiative supports Black male students in the University of Louisiana System by combining full financial assistance with academic research, study abroad experiences, and mentorship. The program strengthens leadership skills, enhances research capabilities, provides a study abroad experience, and offers global perspectives while improving retention and graduation rates. Collectively, all of these programs have initiatives that are essential to closing educational gaps. By addressing systemic barriers through mentorship, financial support, and academic engagement, programs like LEP, the Collegiate 100, and the Reginald F. Lewis Scholars Program empower minority students to achieve academic excellence, graduate at higher rates, and become leaders within their professional and community sphere.

Thai, Thinh; Alles, Alexandria

The Comparative Analysis of Growth and Functional Traits of Native Louisiana Prairie Plants in Stressed and Unstressed Environments

Conservation and restoration efforts depend on identifying plant species' resilience to environmental stress such as intense drought and heat. This study examined growth and functional trait responses of five native Louisiana prairie species—*Baptisia sphaerocarpa*, *Hibiscus lasiocarpos*, *Rudbeckia grandiflora*, *Silphium gracile*, and *Sorghastrum nutans*—under stressed and unstressed conditions. Drought was simulated by limiting water, while heat stress was applied in a controlled greenhouse environment. Measured traits included plant height, total leaf area, and chlorophyll content across developmental stages. Preliminary analyses revealed species-specific responses in plant height under drought stress. *R. grandiflora* and *S. gracile* showed a steady increase in height with age, whereas *H. lasiocarpos* either increased or maintained constant height within drought conditions. *B. sphaerocarpa* remained largely stable, while *S. nutans* exhibited a consistent decline in height as plants aged because of wilting. Similar trends appeared under drought plus heat stress: *H. lasiocarpos*, *R. grandiflora*, and *S. gracile* continued to grow steadily, *B. sphaerocarpa* displayed modest growth with some decreases, and *S. nutans* reversed its trend, increasing in height under combined stress.

Leaf area patterns also varied across treatments. In general, total leaf area tended to be greater under drought plus heat than under drought alone, particularly in *B. sphaerocarpa*, *H. lasiocarpos*, and *R. grandiflora*. *S. gracile* initially followed this pattern but later exhibited a peak and subsequent decline as plants aged. Under drought alone, *R. grandiflora* showed a gradual increase, while *S. gracile* exhibited a sharp rise in leaf area. In contrast, *S. nutans* maintained a nearly constant leaf area in both treatments, suggesting low plasticity in response to environmental stress.

Chlorophyll content responses were more variable. *B. sphaerocarpa* exhibited decreasing chlorophyll content with age across both treatments, whereas *R. grandiflora* and *S. nutans* increased. *H. lasiocarpos* demonstrated a mild decline under drought stress but a slight increase under drought plus heat. *S. gracile* displayed mixed responses under drought and an overall decrease under combined stress.

Overall, each species responded differently to drought and drought plus heat stress across all measured traits. *R. grandiflora*, *S. gracile*, and *H. lasiocarpos* were more consistent in maintaining or increasing height, leaf area, and chlorophyll content under stress, suggesting higher tolerance. *B. sphaerocarpa* and *S. nutans* showed less variation and weaker responses to changing conditions. These differences in functional trait responses indicate that some native Louisiana prairie species may be better suited for restoration and conservation efforts in environments expected to experience greater drought and heat stress.

Thomas, Daphne

When Words Don’t Come: How Childhood Experiences Shape Voice and Sense

This research considers the connections of memory, speech, and sensory experience. More specifically, it investigates the ways in which, and for what purposes, a person’s childhood experiences, especially those which were intense, emotional, or traumatic, can shape an individual’s speaking voice as well as how they respond to certain scents. In particular, this research studies how participants spoke while recalling memories of scents and aims to identify connections across emotion, speech fluency, and sensory memory. Quadrant findings suggest that the human voice carries subtle physical echoes of personal history and reflects both how the body remembers and how profoundly our experiences shape our communication and perception. It is also anticipated that the research context will support a deeper understanding of the emotional anchors of speech and sense, utilizing awareness of emotional phenomena shaping our individual and collective means of communication for approaches to speech pathology and trauma-informed communication.

Weaver, Silas

Optimism and Perceived Social Support in Gender Minorities: The Role of Minority Stress in LGBTQ+ Quality of Life

Minority stress contributes to quality of life due to its correlation to physical health disparities, increase in addiction and substance use, and decreased optimism. Optimism is crucial in the development of healthy coping skills, positive outlooks about the future, and self-efficacy for responding to negative input, and it is associated with a higher quality of life. The Buffer Hypothesis predicts that social support can be used as a mediator between stressful events and social optimism, decreasing the development of maladaptive coping mechanisms. The proposed work will focus on the correlation between social support and optimism as it pertains to minority stress in college students of various gender identities. Information will be collected through a convenience sample survey, measuring self-efficacy, dispositional optimism, and various components of minority stress. Among the expected outcomes are: (a) gender minority students will have significantly lower levels of perceived social support, self-efficacy, and optimism than cisgender participants, (b) perceived social support will be negatively correlated with optimism in gender minorities, and (c) participants who are both racial and gender minorities will have the lowest levels of optimism and perceived social support. Clinicians can potentially integrate the Minority Stress Model into treatment through the implementation of positive coping mechanisms, regulation of physiological stress symptoms, and support resources for better mental well-being.

Whitman, Scott

Using Optimized Tiling Schemes for Attaining *k*-Coverage in Wireless Sensor Networks

Attaining coverage of a region is one of the main goals of any Wireless Sensor Network (WSN) design. It is known that the placement scheme that uses the fewest sensors to cover the plane is to break up the plane into a regular hexagonal tiling and cover each tile by a sensor in the middle of the tile. A natural way to extend this to *k*-coverage by placing *k* sensors to cover each tile. Prior work in this direction has generally been done by starting with a region in which to place the k sensors, then choosing a tile based on that. Here, we use numerical optimization techniques to find the optional tiling for any polygonal deployment region. This allows for the use of fewer sensors to *k*-cover a region within the same placement constraints. Based on these tiles we use numerical optimization to obtain less restrictive deployment regions that still cover those tiles. Based on these deployment regions we have a conjecture for the best deployment region for sensor density. Our comparisons to prior deployment schemes by area show that our methods provide better sensor densities.

Creative Activity Abstracts

Dixon, Caleb

The Sound of Revolution

Within the space provided, I will perform an homage to the history of revolution in the south of African Americans. You will find that that fight to be treated fairly both by their government and society still continues.

My performance is a mixture of dance and vocals that encapsulates the journey that blacks have taken to reach closer to justice and equality in America.

The stories I tell throughout my performance showcase the perseverance, pain, fear, and hope that African Americans feel while living in a world that does not cater to them.

This performance takes inspiration from books I've researched in the Dupre Library, as well as songs I've performed during my undergrad at UL, and lastly from black artist productions I've watched.

Throughout this journey, you will watch performances that embody the joys and triumphs of African Americans as well as somber pieces that reflect the struggle that is the "African American experience."

Kumar, Darshan

Experimental Smart Ground-Station Grid

Conventional ground stations or networks of ground stations working with LEOSAT(s) and/or CubeSat(s) do not offer sufficient flexibility or globally scalable transparent coordination of communications, instrumentation, and/or functional or physical actuation at satellites or ground stations to fully exploit these systems so as to operate practically, experimental missions anywhere on Earth, or to achieve highly desirable globally scalable experimentation missions in general. Fortunately, UL Lafayette researchers have invented the ESG-Grid to overcome these limitations. The ESG-Grid is an Internet-cloud coordinated network of one or more LEOSAT(s)/CubeSat(s) combined with a plurality of Terrestrial Participant Devices (TPDs) (i.e. simple portable or mobile smartphone-based ground stations, or same functionality installed in automobiles, boats, planes, drones, tanks, missiles and/or instrumented robots to name a few) where the collective resources and functionality of both satellites and TPDs may be coordinated to achieve novel capabilities, including choreographed and highly economical, automated, transparent, and globally scalable exploration, instrumentation, and experimentation missions, in orbit or anywhere on Earth.

Currently, ESG-Grid is being developed by a team of undergraduate students who are developing and implementing the ESG-Grid via building the LoRa packet schema, RF ground-stations, and the web app utilized to communicate and view information to and from the satellites in orbit. The undergraduate team consists of an embedded system, front-end, back-end, cyber security, operations, and management team. The team expects to have a minimal viable product (MVP) by December of 2025 and hopes to complete their “Phase I” plans by May of 2026. In the MVP, the team plans to be able to receive communication from a mock satellite, decode packets, upload the information to the backend servers, and display the information to logged-in users on the front-end application. The ESG-Grid will also be used as an educational outreach platform where teachers will be able to create lesson plans around satellite information and can receive live data from active mission via lite ground-stations located at their schools.

Lorio, Laura

A Forest in Autumn

Through experimental methods involving trial and error, I embarked on a journey to fill the largest canvas I have used so far in a style reminiscent of the current season and using warm colors that I tend to shy away from. The use of impressionism in my featured work opposes the perfectionist tendencies that can lead to burning out while pursuing my major. Artistic endeavors allow for low stress application of experimental methods, training of fine motor skills in anticipation of future classes, and the opportunity to improve focus.

By establishing and testing multiple different hypotheses in terms of methodology and craft, I learned new ways to express form and color. I made miniature paintings to practice these new techniques and color palettes. To imply scale, I strategically placed minor details. Even though I had an end goal in mind, by the time my brush hit the canvas, I had experienced many epiphanies. Only by being flexible, to accommodate these discoveries, was I able to combine colors I previously never would have tried together. Using the contrast of muted versus clear tones as well as brush stroke order, texture, and layering helped achieve a sense of depth in my work. I applied knowledge of artistic color theory and color psychology to invoke the desired emotions when viewing my piece. The warm tones in this color palette serve as a visual oasis and a reminder of the mindset I wish to maintain. The wind flowing through the grass and sunlight filtering through the leaves encourage viewers to take a deep breath and notice the details of life as it is now rather than stress over the encroaching future.

Lightning Talk Abstracts

Clavelle III, Frank

Designing for Connection: Reimagining Campus Architecture as an Active Agent in Student Mental Health

According to the American Phycological Association (APA), in “Nearly every metric, student mental health is worsening. During the 2020-2021 school year, more than 60% of college students met the criteria for at least one mental health problem.” The rising prevalence of mental health challenges among university students has prompted urgent conversations about how educational environments can better support their psychological well-being. While counseling and wellness programs are common interventions, the design of the physical campus is often overlooked. Prior scholarship has noted that architectural design can significantly impact and enhance students’ ability to manage stress, depression, and social isolation. This research is motivated by the belief that campus design can be a powerful and preventative tool for addressing students' mental health concerns.

This study explores how the architectural design features in the university campus can positively influence students’ mental well-being and social connection at the University of Louisiana at Lafayette. Specifically, it asks: (1) Which built environment features, such as natural lighting, biophilic elements, or flexible spaces, most effectively reduce stress and anxiety? (2) To what extent do environmental elements influence perceptions of social connection? (3) How do students’ interactions with classrooms, study areas, and outdoor spaces affect cognitive and emotional functioning?

The research uses a mixed-method approach combining quantitative and qualitative data. Surveys are distributed to university students in all colleges of all classifications to assess their experiences in various campus environments, focusing on mental wellness, stress levels, and perceived environmental quality. In-depth interviews among selected faculty and staff explore their perception of students’ emotional responses to specific spaces.

The initial analysis of 144 survey responses indicates that around 95% of students believe the physical environment plays a significant role in supporting their mental health, particularly in relation to stress and social isolation. Despite this recognition, only 25% of respondents agreed that the current architectural design and layout of campus buildings adequately promote mental well-being. Additionally, half of respondents reported utilizing outdoor green spaces enhances their comfort, followed by communal areas, such as the library (29%).

The study will highlight the importance of reimagining university architecture not only as a backdrop for academic life but as an active agent in student health. By integrating emotional architecture and green design principles, campuses can become environments that support well-being, resilience, and a deeper connection to place and community. The findings aim to guide architects, campus planners, and university leaders in making evidence-based design decisions that promote mental health and sustainability simultaneously. All the data will be used to create and install a design piece that reflects and brings light to this national problem.

Cohn, Louis

Sorel’s and Nietzsche’s Lessons for Political Radicals

Georges Sorel is colloquially known for his influence on the development of the foremost radical political movements of the 20th century, Fascism and Bolshevism (Meisel, 1950). Mussolini, Duce of Fascist Italy, cited Sorel as his main teacher and influence, and Sorel saw Lenin as his most faithful disciple in the latter half of his life (Meisel, 1950). The chaos of the 20th century and the First World War unleashed a torrent of illiberal radical movements predicated on the earlier Western intellectual rejection of rationalism (Rouanet, 1964). Sorel's thoughts must be considered to understand the growth and development of these movements, specifically his infamous book *Reflections on Violence*. Friedrich Nietzsche, a distinct influence on Sorel’s political thought, and his *Beyond Good and Evil* provide another medium to understand and interpret Sorel’s lessons.

In this seminal work, Sorel presents a political philosophy with the goal of achieving a proletarian socialist revolution over the static bourgeoisie status quo. Sorel breaks with the Marxists of his day by emphasizing the superiority of action over paralyzing rationalistic theory in political life (Rouanet, 1964). This echoes Nietzsche’s priority of action and vigor of the higher type of man over the rationalistic dissection of the “mediocre mind” (Nietzsche, 1886, 253). Sorel also emphasizes the importance of myth in human experience and to inspire revolutionary action. Myths should not be rationally analyzed but created and left unmolested in their totality to inspire the proletarian man (Rouanet, 1964). Like Sorel, Nietzsche emphasizes the need for a slavery of morals and limited perspectives, i.e. myths, as conditions for the growth of the human spirit (Nietzsche, 1886, 188).

Sorel recognizes violence as a vital component of revolutionary action. Militant spontaneous action galvanizes the proletariat into action against bourgeois parliamentary complacency and force based on abstract norms (Rouanet, 1964). This echoes the Nietzschean conception of life as fundamentally violent and necessarily violent to be alive truly (Nietzsche, 1886, 259). Through violence and devotion to myth, pre-Socratic heroism will emerge from the proletariat predicated on transcendental notions as opposed to bourgeois material decadence (Rouanet, 1964). Recognizing the need for violence and myth will give any political movement an upper hand because these elements have produced the best spiritual achievements of humanity (Nietzsche, 1886, 188).

In conclusion, Sorel must be examined to truly understand the development of the radical movements of the 20th century. Sorel interpreted in light of Nietzsche adds a further dimension to his political lessons. If liberalism wants to withstand any future radical threats, it must understand these political lessons to combat them. The polarization and populist discontent of the 21st century present opportunities for any discontented radical to seize the moment in the vein of Mussolini or Lenin.

Dore, Emily

Phonological Processes in Louisiana Children's English

Phonological research sheds light on children's speech patterns during development. Current English speech developmental norms used for clinical/research purposes in the US (Smit et al. 1990; 1993a, b) do not reflect contemporary use in the nation nor the Louisiana context. Similarly, previous works cross-linguistically do not account for variant language input effects on children's speech acquisition. This study starts an investigation of English speech developmental patterns in typically developing children in the Louisiana family context. The ultimate goal of the project, called *UL Lullaby*, is to establish English child speech norms and a demographic infographic map of family language use in Louisiana. The methodology comprises i) a survey to collect demographic and family language use data, ii) a reading task with an adapted lullaby text, and iii) a single-word-elicitation test. We comprehensively describe the development and modeling of these methodologies to ensure sensitivity to the Louisiana sociolinguistic/cultural terrain. The language assessment tool we are advancing comprises 120 child and culturally appropriate words, is representative of English phonotactics, phone frequency distributions, and predominant phonetic variation, and assesses variable levels of phonological complexity. We are collecting speech data in Louisiana from English-speaking children aged 2-5 years old, and from their parents/caregivers to gauge each child's language input and adult language use. The presentation situates the study within the framework of cross-linguistic phonological acquisition research in typical and atypical contexts (e.g., McLeod & Crowe, 2018) and outlines the theoretical tenets (e.g., Babatsouli 2019, 2024; Ingram & Babatsouli 2024) that guide this research. The contribution presents analyses of first data from 10 children/families, highlighting predominant phonological processes in the children's phonologies and seeking to identify production differences resulting from variable language input in the children's familial contexts. This contributes to investigating the role of family language use on children's phonological development, better informing speech norms.

Keywords: Louisiana English, child speech, phonological processes

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Edwards, Shelton

Accounting for the Wild: Integrating Exotic Animal Valuation into Zoo Pricing Models

Valuation of income producing assets has served as a strong component of financial reporting for decades. One exception to this rule is non-profit organizations, specifically zoos. As of current, zoos are not required to determine the value of their zoo animals and report them in their financial statements due to the fact that these animals are not sold in a legal marketplace. This study will research the valuation of zoo animals in multiple aspects and determine whether or not including a value would be useful for zoos in their pricing strategies. This research matters as it will contribute to both increasing awareness of how much zoo animals actually do for the economy as well as improving quality of financial statements that will allow them better transparency for donors and other public users. I will research the top zoos in the United States and analyze different aspects of their operations such as average annual attendance, main source of funding, exotic animals exhibited, and ticket price. A survey will also be conducted asking families of several income levels about their perspective on zoos, and which animals determine the demand for each zoo.

Griffin Christian-Paris

Stress-induced Cytokine Activity and White Matter Integrity in Children and Adolescents with Chromosome 22q11.2 Deletion Syndrome (22q11.2DS): A Preliminary Study of a Population at Ultra-High Risk for Schizophrenia

Background: Chromosome 22q11.2 deletion syndrome (22q11.2DS) is a developmental disorder with serious medical, behavioral, and psychological problems including a 30-fold increased risk of schizophrenia in adulthood and risk of immune dysfunction. Elevated inflammation is associated with increased risk of schizophrenia in patients without 22q11.2DS. Thus, identification of key inflammatory markers and brain development could be a valuable endophenotypic biomarker of schizophrenia risk in children with 22q11.2DS well before they develop psychosis. The aim of this study was to examine pro-inflammatory cytokines associated with white matter damage over time. In DTI, higher radial (RD) and mean diffusivity (MD) with lower fractional anisotropy (FA) indicate compromised white-matter microstructure that is typically consistent with myelin disruption and poorer fiber organization. We hypothesized that those with 22q11.2DS would have elevated inflammatory markers in relation MRI diffusion tensor imaging (DTI) indicators of potential white matter damage. **Methods:** We collected blood samples from children with 22q11.2DS and age-matched typically developing (TD) controls following a 45-minute MRI, DTI, and fMRI scanning session which was a natural stressor. From blood we measured Il-17α, IL-1α, Eotaxin, IL-6, TNFα, and Fractalkine using a Magpix Immunoassay Multi-plex Kit. From the DTI data, we calculated fractional anisotropy (FA), mean diffusivity (MA), and radial diffusivity (RD) values of major white matter tracts using Freesurfer 7.0, FSL and ProbtrackX. **Results:** TNFα levels were higher in the 22q11.2DS group versus the TD controls ($p = 0.049$) but there were no significant differences between groups on the levels of any of the other cytokines (ps > 0.05). In 22q11.2DS, higher TNFα related to greater global white-matter RD (r = 0.35, $p = 0.0016$) and MD (r = 0.32, $p = 0.0041$). In TD, higher Eotaxin related to higher RD (r = 0.36, $p < 0.001$), higher MD (r = 0.24, $p = 0.016$), and lower FA (r = −0.28, $p = 0.0038$). Combining 22q11.2DS and TD groups revealed that TNFα was positively associated with RD (r = 0.20, $p = 0.0061$) and MD (r = 0.19, $p = 0.0105$). Reported measures survived FDR correction. **Discussion:** TNFα was elevated in 22q11.2DS and tracked with greater RD and MD in overall white matter, suggestive of inflammation related changes in myelin integrity. In TD youth, Eotaxin related to higher RD and MD and lower FA, suggesting a relationship between stress mediated inflammation affecting white matter. Importantly, this is a preliminary study using a very modest sample size. Nevertheless, several findings remained significant after FDR correction, highlighting TNFα as a promising biomarker of white-matter integrity loss in 22q11.2DS. **Conclusion:** In this sample of children, and particularly in the 22q11.2DS group, elevated TNFα correlated with higher RD and MD with reduced FA. This suggests that increased inflammatory signaling is linked to compromised white matter microstructure. The next step is a better-powered longitudinal study with tract-specific DTI and concurrent, objective stress measures.

Guillory, Riley

Fabrication Strategies for Conductive Hydrogel-Based Wearable Sensors

This project proposes a literature-driven design for a non-invasive wearable sensor that uses a dual-network conductive hydrogel as its active sensing material. The goal of this work is to outline a fabrication strategy informed by current research on conductive polymers and hydrogel-based sensors. The proposed sensor design incorporates a chitosan-based hydrogel matrix for structural stability and biocompatibility, combined with a conductive polymer such as poly(3,4-ethylenedioxythiophene) (PEDOT) or poly(vinyl alcohol) (PVA) to enable electrical responsiveness. Conductive MXene nanoparticles are incorporated to enhance mechanical strength, electroconductivity, and long-term stability. To fabricate the hydrogel component, digital light processing (DLP) 3D printing and electrospinning will be used to achieve precise geometry and fibrous reinforcement within the sensor. The literature review supporting this proposal highlights how these techniques have been applied in recent scaffold and hydrogel systems to control structure, porosity, and conductivity. The outcome is a conceptual roadmap detailing materials selection, fabrication steps, and testing plans for future experimental validation. Future work will focus on evaluating mechanical robustness, conductivity, and self-healing properties once prototypes are produced. This design proposal represents an early-stage framework for developing flexible, conductive hydrogel-based wearable sensors guided by current literature and fabrication experience.

Hill, Christopher

Don’t Get Duped: The Importance of Data Validation

In biology and data science alike, maintaining data integrity is critical for reproducibility and meaningful results. Launched in 2019, the Louisiana Freshwater Sponge Project (LFSP) has surveyed approximately 400 sites to date, yielding a medium-sized dataset that contains data that are constantly evolving. Evolving data sets are prone to errors without data validation procedures. One such error is duplication of samples. This has been discovered, while logging samples post-survey. Small errors at the start of a process can skew project data downstream. Attention to detail in the initial workflow supports data integrity that is pertinent to research. This ensures accurate sample logging processes. This study, focused on identifying and correcting duplicate sample logs. The process included locating physical samples, and comparing entries in both student lab notebooks and the PI field collection notebook for double verification. The duplications were only located in the electronic record and not the physical specimens. The electronic records were updated to reflect accurate samples. In collaboration with the PI, conditional-formatting and data-validation rules capable of flagging duplicate identifiers were introduced. These safeguards have made the workflow more transparent and reliable. Team members are assigned specific roles for data entry and only one team member logs samples to further control data validity. Potential duplicates are flagged earlier, enabling quicker confirmation and correction, and improving consistency and traceability across the sample life cycle. By walking through the lifecycle of this sample duplication error case study, attendees can look forward to seeing how a culture of transparency can empower research students, reveal process improvement opportunities, and strengthen a project’s data architecture.

James, Kennedy

Rent-to-Own Housing and the HOEPA Blind Spot: Modernizing Federal Consumer Finance Protections for Seller-Financed Home Purchases

The aspiration of homeownership, a cornerstone of the American Dream, is increasingly unattainable due to record high gaps between income and home prices, restrictive lending standards, and heightened interest rates. This modern affordability crisis compels many prospective buyers, particularly those unable to qualify for a traditional mortgage, to seek alternative financing, primarily through seller financed agreements such as rent to own and contract for deed arrangements.

THE REGULATORY GAP: AN AMERICAN NIGHTMARE

While these agreements are often presented as pathways to homeownership, their unique structure frequently drafted as leases or installment contracts allows them to evade the core protections of the federal **Truth in Lending Act (TILA)** and the **Home Ownership and Equity Protection Act (HOEPA)**. This regulatory **HOEPA blind spot** is significant because, in substance, these transactions function as high cost extensions of credit.

By operating outside of federal oversight, seller financed buyers are exposed to the very predatory practices TILA and HOEPA were designed to eliminate. These practices include:

● **Forfeiture of Equity:** Buyers lose down payments, investments, and accumulated equity following minor default.

● **High Risk Terms:** Buyers face unforeseen pitfalls like undisclosed title issues, property defects, high interest rates, and balloon payments.

● **Lack of Due Process:** Buyers can be removed through eviction rather than judicial foreclosure, even after years of payments have been made.

CALL FOR LEGISLATIVE AND REGULATORY REFORM

This research argues that by excluding seller financed and installment sale housing from the definitions of "credit" and "high cost mortgage," Congress and the Consumer Financial Protection Bureau (CFPB) have perpetuated this critical regulatory gap.

The solution requires coordinated action to align legal doctrine with economic reality, as courts have already affirmed a "substance over form" approach, treating these long term, non terminable obligations as credit sales.

We propose a two pronged reform strategy:

1. **Congressional Amendment: Modernize HOEPA** to explicitly extend its disclosure, cost cap, and enforcement protections to any seller financed or rent to own arrangement that creates a long term payment obligation tied to a residence.

2. **CFPB Regulatory Clarification:** Amend Regulation Z to **presumptively deem any transaction involving deferred payment for residential property as "credit"** when termination forfeits accrued equity.

Closing the HOEPA blind spot will not solve the affordability crisis, but it will ensure that alternative paths to ownership are transparent, fair, and safe, legitimizing seller financing by requiring it to adhere to the core consumer protections that define fair credit

James, Whitney

Exploring the Relationship Between Study Tools and Definitions of Learning of Learning for First-Year Science and Mathematics Majors

Retention in science and mathematics disciplines is a national challenge. Research highlights that science identity and self-efficacy, shaped by students perceived belonging in science communities, are critical factors in persistence and academic success. At a large research-intensive institution in the south, a first-year seminar was designed to build these elements by integrating students into the campus community, fostering academic and personal development, and demystifying scientific career pathways. The purpose of this research is to explore how the first-year seminar contributes to the development of science identity, enhances self-efficacy, and supports first-year student retention. To accomplish this goal, a survey was administered to students enrolled in first-year seminar during the Fall 2024 semester. The survey included questions probing students' academic and personal interests, expectations for college-level coursework, study tools do they currently use or predict using, study strategies and activities do they find most effective or plan to adopt, future career aspirations, and personal definition of learning. To investigate the students' academic and personal development within the study, we inductively coded student responses. After all responses were inductively coded, constant comparative analysis, and thematic analysis were used to examine the data and identify emerging themes within and across student narratives, providing a richer understanding of how first-year students perceive their academic journey and future in science and mathematics. Data revealed that students' definitions of learning impact the educational strategies of science and math majors. Survey responses showed that students who had more active definitions of learning, also had more active educational study strategies.

Kumar, Darshan

Experimental Smart Ground-Station Grid

Conventional ground stations or networks of ground stations working with LEOSAT(s) and/or CubeSat(s) do not offer sufficient flexibility or globally scalable transparent coordination of communications, instrumentation, and/or functional or physical actuation at satellites or ground stations to fully exploit these systems so as to operate practically, experimental missions anywhere on Earth, or to achieve highly desirable globally scalable experimentation missions in general. Fortunately, UL Lafayette researchers have invented the ESG-Grid to overcome these limitations. The ESG-Grid is an Internet-cloud coordinated network of one or more LEOSAT(s)/CubeSat(s) combined with a plurality of Terrestrial Participant Devices (TPDs) (i.e. simple portable or mobile smartphone-based ground stations, or same functionality installed in automobiles, boats, planes, drones, tanks, missiles and/or instrumented robots to name a few) where the collective resources and functionality of both satellites and TPDs may be coordinated to achieve novel capabilities, including choreographed and highly economical, automated, transparent, and globally scalable exploration, instrumentation, and experimentation missions, in orbit or anywhere on Earth.

Currently, ESG-Grid is being developed by a team of undergraduate students who are developing and implementing the ESG-Grid via building the LoRa packet schema, RF ground-stations, and the web app utilized to communicate and view information to and from the satellites in orbit. The undergraduate team consists of an embedded system, front-end, back-end, cyber security, operations, and management team. The team expects to have a minimal viable product (MVP) by December of 2025 and hopes to complete their “Phase I” plans by May of 2026. In the MVP, the team plans to be able to receive communication from a mock satellite, decode packets, upload the information to the backend servers, and display the information to logged-in users on the front-end application. The ESG-Grid will also be used as an educational outreach platform where teachers will be able to create lesson plans around satellite information and can receive live data from active mission via lite ground-stations located at their schools.

Menard, Emma

Swipe, Scroll, Study: Is Tech Helping or Hurting Grades?

No abstract provided.

Trevino, Chloe

A Study of Student Reviews on Public Professor Evaluation Systems

During the COVID-19 pandemic, educational institutions nationwide shifted toward online and hybrid learning. Due to social distancing and remote learning, traditional means of communication through Word of Mouth (WoM) or on-campus interactions became limited. Consequently, students turned to electronic WoM, such as social media and public professor evaluation (PPE) sites, for information about their professors. By the end of 2023, the most popular PPE site, RateMyProfessors (RMP), had indexed more than 19 million reviews of around 1.7 million professors across almost 7,500 universities and colleges from all over the world [27].

Research in higher education has shown that students find professor evaluations on PPE sites to be a helpful, credible, and valuable source of information when making class enrollment decisions [18, 27, 7]. However, discriminatory language and prejudice are frequently detected in both the textual reviews and numerical ratings on such sites [3, 27, 25]. When left unaddressed, bias in professor evaluations can significantly impact classroom dynamics, leading to negative student attitudes toward professors, lowered expectations for educational outcomes, and even sub-optimal exam performance [12, 11]. Additionally, biased evaluations can undermine professors' self-efficacy and negatively influence their behavior in the classroom [5]. These effects tend to be especially pronounced for junior and tenure-track faculty, stemming from concerns that such unofficial evaluations may be used to inform hiring, promotion, and tenure decisions [20].

Intellectual Merits: The main thrust of this proposal is the recognition that credible, unbiased, and accessible teaching evaluations are crucial for a sustainable system of higher education. To that extent, this proposal outlines a cross-disciplinary research plan to examine sources of bias in public professor evaluation (PPE) sites and suggest strategies for mitigation. In particular, the proposal will leverage various theories of behavioral economics and social psychology as well as employ Large Language Models (LLMs) to develop an understanding of how cognitive biases—such as sexism, racism, and classism—can influence students' perception of their professors' instruction quality. These insights will inform the design and development of evidence-based software engineering strategies to actively counteract such patterns of bias on PPE sites.

Poster Abstracts

Adams, Ethan

Effects of Diet and Fibroblast Growth Factor Receptor in Development of Hypothalamic Tanycyte Development, Interaction with Diet and Sex

Fibroblast Growth Factor Receptor 1 (FGFR1) is a tyrosine kinase receptor expressed in glial cells of the hypothalamus, particularly in tanycytes of the ventricular zone. FGFR1 is known to induce cell proliferation and growth in multiple cellular contexts, and to influence gene expression and cellular responses through second messenger signaling such as mitogen activated protein kinase (MAPK), PI3K, and Phospholipase C γ/Calcium signaling cascades. Tanycytes are radial glial-like astrocytes with cell bodies present in the subventricular zone of the 3rd ventricle (3V) with long processes into the hypothalamic nuclei. In adult mice, tanycytes retain stem cell properties, and their daughter cells migrate and integrate into hypothalamic nuclei, such as the arcuate nucleus (ARC). There are two main types of tanycytes in the brain, α tanycytes, which line the lateral walls of the third ventricle (3V), and β tanycytes, which reside ventrally along the median eminence. Tanycytes are implicated in glucose homeostasis and appetitive behaviors via response to glucose and endocrine ligands including Leptin, Ghrelin, and Fgf21. We previously demonstrated that inactivation of *Fgfr1* in glial stem cells resulted in reduced β tanycyte process length and impaired glucose tolerance after one month on a high fat diet. HFD also reduced SOX2 positive cell number along the 3V. Here, we examine sex differences in male and female *Fgfr1* conditional knockout mice (cKO) after a 60-day high fat diet (HFD), the length of time after which is the HFD is expected to induce diabetes in control mice and compare that to animals on a control diet. We found that female *Fgfr1 cKO* mice had impaired glucose tolerance at day 0 and 30 days of a high-fat diet (HFD) compared to age-matched wildtype controls on the same diet. Significantly, this occurred without significant differences in body weight change between genotypes. By 60 days of HFD, all groups had developed impaired glucose tolerance. Immunohistochemistry was performed to characterize the cell markers associated with neural stem and progenitor cells and adult neurogenesis (PCNA, GFAP, VIM). Quantification of protein expression was assessed using ImageJ software.

Adams, Ethan

Microecology of Public Restrooms: How Do Bathrooms Affect Health?

Frequently in the U.S., public restrooms have the stigma of being unclean and a source of disease. A standardized method of sanitization would reduce the reservoir of pathogens, thereby reducing the probability of infection. Because bacteria are constantly evolving resistance to disinfectants, as well as many pathogenic microbes possessing the ability to form biofilms, a colonial analysis of the microbiome in a public restroom allowing for an informed decision when choosing proper disinfectants. In addition to cleaning of restrooms, there must be proper facilities to prevent further cross-contamination between surfaces. When hot-air hand dryers are used in restrooms, they produce an aerosol of microbes and spores, both negating the effect of washing hands by inoculating the previously clean skin. To prevent nosocomial infections a sanitary method of drying hands should be implemented to protect immunocompromised individuals.

Adeniyi, Precious; Osoba, Damilola

Development of LaAces Payload for Light Intensity Study

This project is aimed to build a LaACES scientific balloon payload with ambient light sensor, UV light sensor, and temperature and humidity sensor. The PCB board will be designed and implemented for the sensors to measure ambient light intensity, UV light intensity, temperature, and humidity. GPS module and real-time-clock (RTC) will be used to measure altitude and timestamps. Arduino Mega and SD card module will be used for sensor data collection and data storage. Software will be developed for Arduino to properly collect the sensor and GPS data and store the data.

Adu, Romeo Apppiah; Nwofor, Precious

Green Synthesis and Characterization of Silver Nanoparticles Using Lactuca sativa Extract for Biomedical Applications

Nanoparticles have specific physicochemical properties different to bulk materials of the same composition and are being used for various applications in biomedicine, catalysis, advanced manufacturing and many more. Most of these nanoparticles are mainly synthesized using harsh chemicals which in turn produce toxic waste to the environment. Green Synthesis has appeared as an eco-friendly approach that uses the rich bioactive compounds found in plants, such as polyphenols and flavonoids, to reduce metal ions and promote the formation of metal (Ag, Cu, Zn, Au) nanoparticles. Silver nanoparticles demonstrate antimicrobial and antiproliferative effects and have been applied in diverse areas such as drug delivery, cancer therapy, and biosensing. This study uses lettuce extract (Lactuca sativa) as an alternative to common chemical solvents for the synthesis of silver nanoparticles. The synthesized nanoparticles were characterized using a range of analytical techniques, including X-ray diffraction (XRD) to confirm their crystalline structure, Fourier-transform infrared (FTIR) spectroscopy to examine functional groups, and Dynamic Light Scattering (DLS) to measure particle size distribution. Scanning Electron Microscopy (SEM) and Energy-Dispersive X-ray (EDX) spectroscopy will also be explored later. These characterizations revealed that the nanoparticles were of high quality, with well-defined crystalline structures and sizes suitable for our targeted applications. The long-term goal of this research is to synthesize silver nanoparticles using green methods, functionalize them, and explore their biomedical applications. A comparative study on the properties of nanoparticles synthesized using green methods and conventional chemical methods will be carried out later.

Austin, Averi

Consumer Acceptability of Sweet Potato Coffee Cakes

In addition to serving as a rich source of vitamin A, vitamin C and dietary fiber, sweet potatoes (*Ipomoea batatas*) are a relatively inexpensive crop that is available year-round (fresh in season, as well as frozen, canned or other forms out of season). Sweet potatoes are a nutrient-dense crop with the potential to enhance the quality of the diet, while simultaneously enriching the food supply when incorporated into various food products. Furthermore, research has demonstrated the ability of the nutritional components of the sweet potato to assist in health promotion. The purpose of this research was to pilot the initial development and consumer evaluation of a sweet potato baked good (or product). Sweet potato coffee cakes were formulated using boiled fresh sweet potatoes, all-purpose flour, baking soda, salt, sugar, butter, eggs, milk, vanilla extract, and spices A control coffee cake and two sweet potato coffee cakes (½ cup and 1 cup sweet potato) were formulated and evaluated for appearance, aroma, flavor, texture, aftertaste and overall acceptance using a 7-point hedonic scale. The sweetness, sweet potato flavor, chewiness and moistness were evaluated using a 5-point just-about-right scale. The overall preference and intent to buy the baked goods were also examined. A convenience sample of untrained panelists was recruited to provide feedback during the initial recipe formulation phase. Although the average scores for the sensory attributes were similar, the control coffee cake received higher ratings. The coffee cake formulated with 1 cup of sweet potato had slightly higher ratings for aroma, texture, aftertaste, and overall acceptability, as well as sweetness, sweet potato flavor, chewiness and moistness, in comparison to the coffee cake formulated with ½ cup of sweet potato. This research suggests that there is the potential for sweet potato baked products, pending the optimization of the sensory attributes. As the need for health-promoting, sustainable, versatile food products is essential in addressing food insecurity and diet-related chronic disease prevention, this research offers promise in addressing this challenge. The feedback acquired during the consumer acceptability will be considered in the development of additional sweet potato products to meet the consumer demands of healthier food options that may be useful in promoting health and preventing disease.

Ballanco, Lillie

The Purification and Crystallization of Rice Lipoxygenase-1

Lipoxygenases (LOX) are enzymes found in fungi, animal, and plants and require mononuclear metal centers to add molecular oxygen to a polyunsaturated fatty acid. The human LOXs have been linked to inflammatory disorders including asthma, atheroscelerosis, and allergic rhinitis. We are interested in studying a LOX from Oryza sativa (Rice) LOX-1 that is implicated in positively regulating rice seed vigor and drought stress. Overall, the LOX gene family is widely distributed in plants, and its activity is closely associated with seed viability and stress tolerance. We have overexpressed the Rice LOX-1 in *E. coli* and purified by affinity chromatography followed by size-exclusion chromatography. I have also initiated crystallization trials of the macromolecule with success in growing plate-like crystals with dimensions ~100 x 50 x 10 microns. Future studies will include using X-rays produced by a synchrotron to diffract the crystals in order to solve the three-dimensional structure. Additionally, I will perform kinetics of the enzyme in the presence and absence of calcium and the model membrane system (nanodiscs) to test for common allosteric activators of LOXs. Altogether, these studies will aid in the molecular understanding of LOXs and the activation pathways the Rice LOX-1 undergoes for catalysis.

Bashir, Abdullah; Deshotel, Grant

Fabrication of High-Sensitivity Nanofiber-Based Glucose Sensor for Non-Invasive Health Monitoring in Space Tourisms

As space tourism advances, non-invasive health monitoring becomes essential for ensuring traveler well-being. In this work, we present the development of a high-sensitivity glucose sensor designed to monitor glucose levels through sweat. Unlike conventional chemical polymerization methods that produce dense, low-surface-area films with limited reproducibility, electrospinning enables the fabrication of lightweight, flexible nanofiber mats with high porosity and tunable morphology. These features provide superior enzyme loading, enhanced electron transfer, and stable sensor performance, making electro spun nanofibers highly suitable for integration into wearable devices and for operation under the extreme conditions of space travel.

The fabricated sensor employs a polyaniline (PANI)/graphene oxide nano scroll (GONS) nanofiber matrix doped with sulfuric acid to enhance electrical conductivity, coupled with a Nafion coating for selectivity. Unlike previous designs that incorporated carboxymethyl chitosan (CMC) as a stabilizing polymer, the exclusion of CMC in this work eliminates polymeric interference and improves structural order. X-ray diffraction (XRD) analysis confirmed higher crystallinity for GONS (76.6%) compared to PANI (60%), while Fourier-transform infrared spectroscopy (FTIR) verified the retention of functional groups after electrospinning. Scanning electron microscopy (SEM) revealed uniform nanofibers with interconnected pores, enabling efficient glucose diffusion and enzyme immobilization. These material and structural improvements are translated into enhanced electron transport and overall sensor sensitivity.

Batarseh, Angel

Workload Management: The Effect of Minutes Played on Injury Duration in the NBA

In recent years, workload management has emerged as a widely discussed issue in sports, particularly for National Basketball Association (NBA) teams. Workload management is the term used to describe how coaches assign playing time to their players, often to minimize injury risk and maximize respite, ensuring players are available and ready to play in more or more important games. However, coaches' decisions to rest star players can result in fan disappointment as they attend live games or watch televised games with the expectation of seeing these star players who are instead tasked with resting rather than playing. This delicate balance of appeasing fans and resting players to maximize performance throughout the season–both of which are helpful for the head coach to forestall their likelihood of dismissal–presents several questions. One of these questions is "Does resting players reduce the duration of their injuries among those who sustain injuries?" If the answer is "yes," this could be due to the injuries being less severe and support workload management practices. Another question then arises: "How much of an effect does workload management have on reducing injury duration?" If a player needs to rest several games to realize an effect of injury duration that is reduced by only one game, workload management may not be practical. Ultimately, the results from this study has implications for (a) sport fans and analysts concerned with this topic and ensuring fans are receiving the entertainment they are paying for; (b) players, sports agents, and players' labor unions, all of which want to ensure that the players can maintain high productivity while reducing the rate, severity, and duration of their injuries; (c) coaches balancing playing the demands of getting their best players playing time and also reducing the amount of games they may miss due to injury, and therefore, increasing the amount of wins they accrue and consumer demand for their teams' games, merchandise, etc.; and (d) team management (e.g., general managers, owners, athletic directors) who make both player personnel decisions (e.g., hiring/trading potentially injury-prone players) and coach personnel decisions (e.g., hiring/firing coaches based on their ability to effectively manage player workloads while balancing season-long high performance with high/consistent consumer demand).

Beals, Michelle

The Effect Different Incubation Temperatures Have on Common Must Turtle Hatchlings

Many ectothermic organisms are energetically constrained early in life by their yolk provisions before hatching. Major energetic needs during embryogenesis are development, growth, and maintenance. Temperature plays a significant role in energy usage by ectothermic organisms, and we expect different temperatures during incubation to produce trade-offs in energy usage. Specifically, we hypothesize that 1) development will occur quicker at warmer temperatures, 2) maintenance costs will increase at temperature extremes, and 3) growth will be reduced at temperature extremes. To test our hypotheses, we incubated eggs of the Common Musk Turtle, *Sternotherus odoratus* (TSD II), at four different temperatures (24, 26, 28, and 30ºC). Before incubation, each egg was assigned an ID and clutch, weight, width, and length were recorded. When possible, eggs from each clutch were placed into each temperature. Upon hatching, number of incubation days, weight, plastron length, carapace length, and shell height were recorded. Hatchlings in the 30 ºC had the shortest incubation period and were generally smallest. While hatchlings at 24 ºC, had the longest incubation, but were the same relative size as hatchlings from 26 and 28 ºC. Embryos in 30 ºC were more costly to maintain, withdrawing energy from growth resulting in smaller hatchlings. Temperatures below 28 ºC were the most efficient at maintaining balance between development, maintenance, and growth. Temperature during incubation determines the sex in this species, where females are mostly produced above 28 ºC or below 24 ºC, thus females are more likely to hatch out sooner, but smaller than males.

Belsom, Kiley

Attendance at Home College Football Games

In my project I looked at 12 different factors that could have an effect on college football home game attendance. I wanted to see which factor had the most effect on attendance and how that could be improved.

Bergeron, Caroline; Reed, Kristopher

Athletic Directors

This study explores the career trajectories of Athletic Directors (ADs), focusing on their educational backgrounds, pathways to leadership, and the systemic factors influencing their advancement. It uses a case study and survey-based research design grounded in Social Cognitive Career Theory. The aim of the study is to examine the career paths and experiences of athletic directors at high school and collegiate levels. To understand how gender, race/ethnicity, education, and professional networks influence access to leadership roles. To identify barriers and facilitators in the journey to becoming an AD.

Boudreaux, Ava

Determinants of Box Office Movie Ticket Sales

The movie industry generates over $30 billion per year. However, the amount of money movies generate at the box office in a given year can vary widely. Moreover, trends in what attracts movie-goers to see movies each year continue to change. Therefore, it is important to understand what factors increase the popularity of movies and, subsequently, the propensity of movie-goers to purchase tickets for certain movies. Examining the top 100 movies for the past 10 years, multiple regression is used to identify determinants of movie ticket sales in recent years based on factors such as the movie run time, genre, production company, and availability to consumers (e.g., time in theaters and number of theaters the movie appeared in). Several significant findings emerged, including Disney movies and horror movies selling more movie tickets in the box office. These results can be useful for screen writers, movie producers, and theater managers as they attempt to produce popular movies that will sell more tickets, generate more revenue, and contribute to the economy.

Breaux, Jace; Breaux, Taylor; Valicevic, Connor

How Organizational Success Relates to Career Trajectories of General Managers in the NFL

No abstract provided.

Bristow, Parker

Social Determinants of Cardiovascular Health: A State Level Comparison

This study aims to **explore relationships between social determinants of health (SDoH) and cardiovascular (CVD) disease/CVD risk factors**: **obesity, hypertension (high blood pressure), diabetes, and physical inactivity (PIA)**. An additional goal is to identify a comparable **state to analyze health outcomes** relative to Louisiana (LA). **In effect, this may inform targeted public health interventions in LA.**

Broussard, Madelynne; Morrison, Sharissa; Rosenzweig, Dennis

The Association between Interparental Conflict and Somatic Symptoms in College Students

Introduction

Somatic symptoms are commonly reported among young adults and may be related to childhood adversity (Loeb et al., 2018). Gao et al. (2019) found that children's psychological distress was significantly associated with elevated cortisol reactivity to interparental conflict. Similarly, Bi et al. (2015) found a relationship between family conflict and somatic symptoms. Taken together, exposure to interparental conflict may contribute to physiological stress responses that increase vulnerability to somatic symptoms. This study examined the association between interparental conflict and somatic symptoms in college students, while testing whether this association remained robust above and beyond covariates.

Method

A sample of 662 participants (477 females, *M*age = 19.9, *SD*age = 3.7) from the Psychology Department's SONA system completed the Children's Perception of Interparental Conflict Scale (CPIC; Grych et al., 1992) and the Somatization subscale of the Symptom Checklist 90 Revised (SCL-90-R; Derogatis, 1994). The CPIC assesses children's experiences with parental conflict from ages 9-17. The Somatization subscale of the SCL-90-R is a self-report measure that assesses the severity of 12 somatic symptoms over the previous 7 days. A correlation analysis and multivariate regression analysis were performed to determine the relation between interparental conflict and somatic symptoms.

Results

A significant positive correlation was found between interparental conflict ($M = 15.0$, $SD = 3.6$) and somatic symptoms ($M = 8.4$, $SD = 6.2$), $r = .17$, $p < .001$, indicating that participants who reported more interparental conflict also reported more somatic symptoms. A multivariate regression analysis was run with demographic covariates including age, race/ethnicity (Black/African American, Caucasian/White, Hispanic/Latin American, and Other), and gender (male and female). The overall model was significant, $F(7, 497) = 4.08$, $p < .001$, R2 = .04. Interparental conflict emerged as a significant predictor of somatic symptoms above and beyond the covariates, $b = .14$, $SE = .08$, $t(497) = 3.23$, $p = .001$. Age was a significant predictor in the model, $b = .09$, $SE = .07$, $t(497) = 2.02$, $p = .04$. Gender significantly predicted somatic symptoms, $b = -2.01$, $SE = .63$, $t(497) = -3.19$, $p = .001$, with males reporting less somatic symptoms than females.

Conclusion

These results suggest that when a child experiences more parental conflict during their adolescence, they may exhibit more severe somatic symptoms in adulthood. The regression results demonstrate that interparental conflict plays a meaningful role in physical symptoms above and beyond covariates of age, gender, and race. Gender also predicted somatic symptoms, with women reporting more symptoms than men. Women may report more somatic symptoms than men due to differences in visceral and somatic perception of stimuli, with women generally exhibiting increased perception to pain (Barsky et al., 2001). Age also emerged as a significant predictor. This aligns with research that suggests somatic symptoms may compound with age due to factors like stress and environmental changes (Beck, 2008). These results suggest that

practitioners and researchers should pay close attention to children, and specifically women, who report high interparental conflict as they may struggle with physical symptoms later in life.

Brown, Benjamin

Survival & Growth of Oysters in the Field Following Low Salinity Exposure

No abstract provided.

Capps, Gabrielle

Weighing the Advice of Doctors Versus Online Strangers: A Socio-Demographic Profile

Medical misinformation is ubiquitous online. With the rise of mass media, it now spreads faster than ever before. The public is often exposed to information shaped by personal biases, political agendas, and limited evidence. Parents are left to navigate conflicting advice between formal healthcare providers (HCPs) and people who post in online forums such as “mommy groups.” On social media, these groups are often stereotyped as preferring “all-natural” household products and being wary of modern medicine, especially vaccines like the flu or COVID-19 vaccine. Social media frequently portrays such “all-natural” preferences as characteristic of affluent, middle-aged, politically conservative white women, often referred to as “crunchy moms.”

The purpose of this study was to develop a data-driven sociodemographic profile of people who weigh the advice of online users either more than or equal to that of credentialed HCPs. We accomplished this, in part, by developing a new questionnaire to measure attitudes toward “all-natural” products and services. We conducted an online survey of 957 parents (and individuals planning to become parents in the near future). Factor analyses revealed that the “all-natural” construct is multifaceted. Contrary to popular stereotypes, affluent white women were not the ones most likely to place relatively more trust in online forum users compared to HCPs. In some cases, the opposite was true. Relative trust in HCPs—and excessive trust in online forum users—was not strongly associated with many demographic variables at all. However, those with stronger all-natural preferences were generally more likely to use online forums to acquire healthcare information. There was also a tendency for nonwhite participants to express greater distrust in HCPs. While Asian, Hispanic, and multiracial participants showed patterns similar to white participants, those who identified as Black were somewhat more likely to trust online users over HCPs. Patterns of distrust were also linked to complex attitudes toward what participants perceive as “all-natural,” and to psychological reactance—a tendency to respond with oppositional behavior when autonomy feels threatened.

The present findings challenge prevailing stereotypes about who is most likely to distrust healthcare professionals or turn to online forums for medical advice. Popular narratives tend to frame “all-natural” lifestyles as the domain of affluent white women with conservative values. However, our results suggest that this image does not accurately represent the broader population engaging in these behaviors. Instead, tendencies to (dis)trust online communities over healthcare providers appear to cut across multiple demographic lines, indicating that mistrust of formal medical systems may be more widespread and multifaceted than commonly assumed.

Importantly, attitudes toward “all-natural” products and psychological reactance emerged as central psychological correlates of medical distrust. People who value personal autonomy may be especially drawn to peer-driven online spaces that emphasize freedom of choice and experiential evidence. This suggests that interventions aimed at improving public trust in healthcare should not only target misinformation but also acknowledge and respect people’s underlying motivations for autonomy and self-determination.

Keywords: trust in healthcare, online information seeking, reactance

Chaisson, Paegan

Race and Racism in Forensic Facial Reconstruction

The topic of race and racism in the forensic facial reconstruction process is one that has not received nearly as much attention as needed. It is disturbingly hard to find sources on the matter, specifically sources explaining exactly how race is determined and used within the process. As a whole, not even in regards to race, it is difficult to find discussions on the accuracy and comparison of different reconstruction methods. What information I have been able to find is frequently contradictory and frankly unscientific in method. The entire field of forensics, I've found, is not just off the same page of the rest of the biological anthropology community, they're not even on the same page with each other. There's a disturbing lack of communication within this field that needs to be addressed, especially in regards to the use of race. I went into this research with six main questions. How is race determined, how is race used in the reconstruction process, how accurate are the racial assessments, how accurate are the reconstructions, what are our alternatives, and do we notice the alternatives yield a more accurate result than the race based reconstructions. I've found that not only is the determination of race completely unreliable, but the application of race to the reconstruction process is inaccurate and far better results can be achieved by examining the skull through individual parts and their shape types. As such, the practice of racial IDing skeletal remains in the field of forensic anthropology as a whole, not just facial reconstruction, needs to be abolished. Not only does it impair our accuracy, but the use of race by scientists, especially those who work so closely with law enforcement, helps to perpetuate the idea of biological race which has been disproven by biological anthropologists time and time again.

Chenier, Michael; Gaspard, Kylie

Bacterial and Viral Disease Outbreaks in the Old World Since 2017

Within the last eight and a half years, the World Health Organization (WHO) has reported bacterial and viral disease outbreaks in multiple countries. Disease outbreaks from the Old World were reviewed (less COVID-19), and the population density in select outbreaks was analyzed. We reviewed disease outbreaks occurring since 2017 using Disease Outbreak News (DON) from WHO. The disease outbreaks reported by DON include: measles (25 outbreaks), chikungunya (22 outbreaks), cholera (19 outbreaks), dengue (17 outbreaks), polio (13 outbreaks), monkeypox (12 outbreaks), avian influenza (H5N1) (9 outbreaks), Middle East respiratory syndrome (8 outbreaks), Nipah (7 outbreaks), and psittacosis (5 outbreaks). Outbreaks were categorized by disease, causative agent, signs/symptoms, and transmission. We created a timeline using the number of outbreaks for each disease. We further investigated the population densities of countries having chikungunya, measles, and dengue outbreaks. The average population density for the countries affected by measles (25 countries) was 147 people/km2; by dengue (13 countries) was 237 people/km2; and by chikungunya (20 countries) was 673 people/km2. Out of the three diseases observed by population density, 80% of the countries affected had a population density greater than 50 people/km2. Understanding how population density can promote the spread of disease provides further information on how outbreaks can be prevented.

Chiasson, Andrew

Investigation into Phytochemicals Found in the Invasive Plant Giant Salvinia (*Salvinia molesta*)

Giant Salvinia (*Salvinia molesta*) is an invasive free-floating fern species that has become one of the most aggressive aquatic plants in Louisiana's freshwater ecosystems. Native to Brazil and other places in South America, *Salvinia molesta* rapidly spreads and multiples across lakes, bayous, and wetlands. As a result of this spreading, Giant Salvina creates a dense blanket or mat on the water surface that blocks sunlight, depletes dissolved oxygen, and out-competes native vegetation and aquatic life. Since its invasion of Louisiana and most of the Southeastern US, Giant Salvinia has posed a serious problem not only to native species but also to water activities by limiting fishing and recreation in these areas. The use of herbicides is not effective for long term Giant Salvinia controlling due to its fast-spreading growth, and the application of herbicides also bring environmental pollution problems. As a result, harvesting is considered an alternate way for Giant Salvinia outgrowth control. This harvested Giant Salvinia biomass can be a resource for valuable products.

Currently, phytosterol chemicals are a rapidly growing market in nutraceuticals which have been shown to lower cholesterol, decrease symptoms of BPH, and reduce risk of heart disease. Market value of Beta Sitosterol, a phytosterol, is reported to be $150 million in 2024 and projected to reach $250 million by 2033 with 40% consumption in nutraceuticals. This research addresses the use of Giant Salvinia to produce phytochemicals such as beta sitosterol. Extraction of the plant using Accelerated solvent extraction (ASE), also known as pressurized solvent extraction (PSE), is a method for extracting various chemicals from a complex solid or semisolid sample matrix. The research also investigated both traditional solvents such as hexane and biocompatible solvents such as alpha pinene. Once extracted the analysis was carried out using High Pressure Liquid Chromatography (HPLC) coupled to a mass spectrometer. Separation was achieved using a Phenomenex Kinetex C18 reverse phase column (100 x 60mm) and the introduction into the mass spectrometer utilizing Atmospheric Pressure Chemical Ionization (APCI). Calibration curves were generated from 0.56 to 1150 mg/L with a correlation coeffect of 0.999962. Results will show extraction efficacy and detection limit quantitation. The initial beta sitosterol extraction in alpha pinene was 42 mg/L from raw plant material. This indicates Giant Salvinia could be a feasible resource for phytosterol chemicals production.

Chouest, Parker

Bonepickers of the Lower Mississippi Valley

The Bonepicker was a societal figure unique to a number of tribes throughout the LMV (Lower Mississippi Valley). Most of what we know of them today come from early ethnographic research done by European Americans in the 19th century focused primarily on the largest of the two noted tribes of the region, the Choctaw and Natchez. The Bonepicker held a position in tribal society of great religious and spiritual importance while also being a figure purposefully separate from the larger societal interaction. While many have thought to compare them to the European concept of the 'Sin eater' but this analogy loses much of the nuance of the Bonepickers role and how they would have been viewed by their own people in their time. The name of the Bonepicker stems from their role within the larger mortuary ritual which gives them their grave importance. Traditionally tribes would lay their deceased wrapped and placed high up either on scaffolding built or set within the branches of a tree that would be left for a period of decomposition where family would mourn. After this period the Bonepicker would come and collect the body. They would proceed to clean the remains by scraping whatever flesh remained using their fingernails which would be grown long for this purpose. The bones would then be bundled and returned to the tribe where they would sit in a sort of communal crypt until a set date in which all the deceased remains would be collectively interned in a large ritual. Although certain parts of these rights vary amongst local customs of their respective tribes, the

Bonepickers role appears the same within and shares their role within the tribe's social hierarchy. The Bonepicker is typically an elder member of the tribe most traditionally men though post-menopausal women were also documented in the role as well. They appeared to hold a rank in society similar to a highly specialized shaman would in that they were highly venerated but not to be casually approached or associated with. Death was a heavily spiritual matter that could not be handled lightly at the risk of harm both to the self and to others. This led to the role of the Bonepicker being similar to the Shaman in that they would undertake this risk themselves and handle the dangerous medicine for the sake of their tribe. Although the role of the Bonepicker is not one traditionally practiced among the contemporary tribal groups they are associated with, they are still heavily venerated within these Nations and are remembered and respected for the roles they once played and still hold as Ancestors and symbols of their respective cultural heritage.

Clark, Braylen; Williams, CleaVon; Johnson, Nyla

10 Year Analysis of Footlocker Revenue

To execute a 10-year (2015-2024) profitability analysis of Footlocker Inc. using 6 profitability indicators

Research Design- Providing Data analysis from company websites including Yahoo finance & Google Finance

Case Study Approach- Single Case Study of Footlocker, a publicly traded retailer of sports and fashion goods trading on the New York Stock exchange (NYSE), as FL.

Profitability Indicators:

-Return on assets (ROA) = Net Income/Total Assets

-Return on Capital (ROC) = EBIT/ Capitol Employed

-Return on Equity (ROE)= Net income/Equity

-Net Profit Margin (NPM)= net Profit/Total Revenue x 100

-Earnings before interest, Taxes, & Depreciations (EBITD)

-Gross profit Margin (GPM)=(revenue-Cost of Goods sold/Revenue)

Cluse, Joseph; Garner, Gabe; Singleton, Kevin

Event Managers

This presentation provides a detailed comparative overview of event management strategies used in two of the most influential sporting events in the world, the FIFA World Cup and the 2024 Super Bowl. While both events share the goal of delivering an unforgettable fan experience and driving significant economic impact, their planning and execution differ in scope, scale, and operational focus. The presentation examines key management aspects such as strategic planning, sponsorship development, marketing campaigns, risk assessment, crowd and security management, sustainability efforts, and the integration of emerging technologies. The FIFA World Cup emphasizes international collaboration, cultural exchange, and long-term tourism benefits through multi-country coordination. In contrast, the 2024 Super Bowl focuses on a single, high-profile event that maximizes commercial returns, entertainment value, and media visibility within the U.S. market. Through this comparative analysis, the presentation illustrates how both events achieve success through innovation, leadership, and adaptability. Ultimately, it highlights best practices and lessons that can guide future sports event managers in optimizing performance, engagement, and legacy outcomes for global audiences.

Cohn, Louis

Sorel’s and Nietzsche’s Lessons for Political Radicals

Georges Sorel is colloquially known for his influence on the development of the foremost radical political movements of the 20th century, Fascism and Bolshevism (Meisel, 1950). Mussolini, Duce of Fascist Italy, cited Sorel as his main teacher and influence, and Sorel saw Lenin as his most faithful disciple in the latter half of his life (Meisel, 1950). The chaos of the 20th century and the First World War unleashed a torrent of illiberal radical movements predicated on the earlier Western intellectual rejection of rationalism (Rouanet, 1964). Sorel's thoughts must be considered to understand the growth and development of these movements, specifically his infamous book *Reflections on Violence*. Friedrich Nietzsche, a distinct influence on Sorel’s political thought, and his *Beyond Good and Evil* provide another medium to understand and interpret Sorel’s lessons.

In this seminal work, Sorel presents a political philosophy with the goal of achieving a proletarian socialist revolution over the static bourgeoisie status quo. Sorel breaks with the Marxists of his day by emphasizing the superiority of action over paralyzing rationalistic theory in political life (Rouanet, 1964). This echoes Nietzsche’s priority of action and vigor of the higher type of man over the rationalistic dissection of the “mediocre mind” (Nietzsche, 1886, 253). Sorel also emphasizes the importance of myth in human experience and to inspire revolutionary action. Myths should not be rationally analyzed but created and left unmolested in their totality to inspire the proletarian man (Rouanet, 1964). Like Sorel, Nietzsche emphasizes the need for a slavery of morals and limited perspectives, i.e. myths, as conditions for the growth of the human spirit (Nietzsche, 1886, 188).

Sorel recognizes violence as a vital component of revolutionary action. Militant spontaneous action galvanizes the proletariat into action against bourgeois parliamentary complacency and force based on abstract norms (Rouanet, 1964). This echoes the Nietzschean conception of life as fundamentally violent and necessarily violent to be alive truly (Nietzsche, 1886, 259). Through violence and devotion to myth, pre-Socratic heroism will emerge from the proletariat predicated on transcendental notions as opposed to bourgeois material decadence (Rouanet, 1964). Recognizing the need for violence and myth will give any political movement an upper hand because these elements have produced the best spiritual achievements of humanity (Nietzsche, 1886, 188).

In conclusion, Sorel must be examined to truly understand the development of the radical movements of the 20th century. Sorel interpreted in light of Nietzsche adds a further dimension to his political lessons. If liberalism wants to withstand any future radical threats, it must understand these political lessons to combat them. The polarization and populist discontent of the 21st century present opportunities for any discontented radical to seize the moment in the vein of Mussolini or Lenin.

Coleman, Kya

The Impact of Cannabis Use on Game Performance: Analyzing Error Rates

Drug use data is difficult to obtain, especially among populations that face additional prohibitions and testing for illicit substances. In sport, college athletes face additional prohibitions and testing for illicit substances, often under the guise of ensuring fair competition. However, many arguments have been made about differences in athletic performance based on marijuana use. Though data are difficult to obtain on individual athlete marijuana usage, I combined three datasets to try to understand the relationship between errors in men's college basketball, based on a proxy for marijuana use (the prevalence of marijuana usage in the athlete's home state). The three datasets included data on individual athletes' season statistics, team rosters showing where athletes are from, and marijuana use by state. I found that higher levels of marijuana use in athletes' home states decreases field goal percentages. This is informative for basketball players trying to increase their performance, basketball coaches trying to recruit players, and sport governing bodies that make policies about prohibited drug use in sports.

Collins, Vincent; Manning, Madyson

Profitability Analysis for Lululemon from 2014-2024

Aim to measure profitability analysis of Lululemon between 2014-2024.

•Retrieve data from company website, google finance, annual reports, and yahoo finance.

•This will be a single case study focusing on the profitability of Lululemon.

Profitability Indicators:

•Return on Assets (ROA) = Net Income/ Total Assets

•Return on Capital (ROC) = EBIT/Capital Employed

•Return on Equity (ROE) =Net Income/ Equity

•Net Profit Margin (NPM) = Net Profit/ Total Revenue X 100

•Earnings before Interest, Taxes, and Depreciations (EBITD)

•Gross Profit Margin

Crooks, Mia

Clementine Hunter's Insight into Modernism

This poster examines the art of 20th-century Louisiana folk artist Clementine Hunter. As an African American woman living on and near Melrose Plantation during the Jim Crow Era, her visual language effectively communicates cultural concepts of community, history, and memory. But, like other folk artists, Hunter's work has historically been associated with Primitivism and Naive art. These genres are often created outside of institutional art spheres and lack, or intentionally disregard, formal artistic training and subject matter. This project uses visual analysis to highlight Hunter's artistic style and larger folk art stylistic tendencies as a mode that lends itself to narrative storytelling. Hunter's style often utilizes vibrant coloration, simplified or

abstracted forms, and rhythmic patterns. This challenges traditional academic notions of high art by dismissing focus on anatomical realism and linear perspective. By examining the artistic and historical context of Hunter's work, this project defines Hunter as an artist operating outside of, or on the margins of, Modernism. This highlights the importance of her work in imparting knowledge about what that movement, and Avant-Garde art as a whole, might exclude from the larger art historical canon. Hunter's paintings demonstrate folk art's ability to convey information clearly. She depicts little that must be translated and interpreted outside of her canvas. She paints subjects and events from memory, often featuring scenes of work, leisure, and spiritual practice, in a direct and unfiltered manner easily accessible to universal audiences. Her work imparts information about the human experience equally as clearly as messages portrayed through "high art."

Davenport, Marissa

The Role of Dental Anatomy and Technology in Forensic Science

Teeth play a critical role in forensic identification due to their durability, uniqueness, and ability to preserve biological and structural information under extreme conditions. This presentation explores the forensic applications of dental evidence through the use of dental implants, radiographs, and DNA extraction from teeth in identifying unknown individuals. Pulling from systematic reviews, experimental studies, and case reports, researchers can highlight that dental features can survive incineration, aid in age and sex estimation, and support identification in mass disasters and criminal investigations. The presentation will also address the limitations of relying solely on dental morphology and emphasize the importance of integrating radiographic and genetic data. By examining current methods and technologies in forensic odontology, this presentation discusses how teeth serve as reliable tools in both routine and complex forensic cases.

Derouen, Danielle

Bones as Biographies: Understanding Behavior and Health Through Skeletal Trauma

This research dives into how trauma that is inflicted to human skeletal remains can shed light on the life experiences, environmental adaptations, and conditions that molded an individual before death. By analyzing an assortment of peer reviewed scientific journal articles I formed this project that unites evidence across the disciplines of anthropology, archaeology, forensic science, and osteology to have deeper knowledge of how various types of trauma can manifest on human bone depending on physical, social, and cultural stimuli that the individual had lived through. Throughout my project, I analyzed how skeletal markers such as fractures, lesions, degenerative or infectious diseases, or metabolic conditions reflect biological processes, labor patterns, violence, and health throughout time and differing situations. This research focuses on interpreting skeletal trauma regarding the importance of demographic and contextual differences between specimens and collections. Variables such as the individual's age, sex, geographical location, and cultural practices can be observed to disclose how social and environmental factors can lead to injury risk and healing results. The data I have gathered allows one to distinguish whether the trauma being observed was survived by the person or if it lead to their death. A significant aspect of this work is the ability to understand the difference between antemortem, perimortem, and postmortem trauma. Misinterpretations of these three groups have lead to harrowing errors in bioarcheology studies and forensic investigations. Accurate trauma classification can deepen our understanding of past and modern human life at different levels: individual, community, and population. Skeletal trauma joins biological data and cultural observation to constitute a physical record of human experience. Realities lived by those who have passed can be reconstructed due to these markers. Without this knowledge, these individuals would remain voiceless and unable to explain what caused their death. Understanding how to read bones sheds light on disease patterns, occupational hazards, conflict either within or between communities, and daily routine. This research reaches farther than just archeology and anthropology. It can contribute to forensic science, osteological studies, and medical care by improving the foundation of trauma identification and interpretation. The bones of a human skeleton act as an archive of an individual's experiences with the world they lived through by telling stories of endurance, hardship, healing, and resilience that continuously shapes how we comprehend the past, consider the present, and carve the future.

Deshotel, Grant

Ideal Self-Healing Microcapsule Wall Thickness in Epoxy Resins

Self-healing materials have been widely used to repair microcracks and prolong the onset of corrosion. There are several methods of implementation used by researchers, with one of the most popular being the microcapsule method. In this approach, the healing agent is embedded within microcapsules that are dispersed throughout the polymer matrix. When this matrix cracks, the microcapsule ruptures, and the healing agent is dispersed and put into action. The effectiveness of the microcapsule method depends heavily on achieving the optimal wall thickness to prevent premature or prolonged rupture. In my experiment, I will attempt to determine the ideal microcapsule wall thickness for use in epoxy resins. I will test three wall thicknesses—thin, medium, and thick—with the precise thicknesses being determined once the microcapsules have been made through in-situ polymerization of urea-formaldehyde. After fabrication, I will perform micro-compression tests to measure the force required to rupture capsules of each thickness. I will then conduct load-bearing tests on the epoxy resin, using high-resolution microscopy to detect the exact moment microcracks form. I will then cross-reference the rupture force of the capsules with the force needed to crack the epoxy resin. With this information, I will identify the ideal wall thickness for application in epoxy resins.

Dore, Emily

Phonological Processes in Louisiana Children's English

Phonological research sheds light on children's speech patterns during development. Current English speech developmental norms used for clinical/research purposes in the US (Smit et al. 1990; 1993a, b) do not reflect contemporary use in the nation nor the Louisiana context. Similarly, previous works cross-linguistically do not account for variant language input effects on children's speech acquisition. This study starts an investigation of English speech developmental patterns in typically developing children in the Louisiana family context. The ultimate goal of the project, called *UL Lullaby*, is to establish English child speech norms and a demographic infographic map of family language use in Louisiana. The methodology comprises i) a survey to collect demographic and family language use data, ii) a reading task with an adapted lullaby text, and iii) a single-word-elicitation test. We comprehensively describe the development and modeling of these methodologies to ensure sensitivity to the Louisiana sociolinguistic/cultural terrain. The language assessment tool we are advancing comprises 120 child and culturally appropriate words, is representative of English phonotactics, phone frequency distributions, and predominant phonetic variation, and assesses variable levels of phonological complexity. We are collecting speech data in Louisiana from English-speaking children aged 2-5 years old, and from their parents/caregivers to gauge each child's language input and adult language use. The presentation situates the study within the framework of cross-linguistic phonological acquisition research in typical and atypical contexts (e.g., McLeod & Crowe, 2018) and outlines the theoretical tenets (e.g., Babatsouli 2019, 2024; Ingram & Babatsouli 2024) that guide this research. The contribution presents analyses of first data from 10 children/families, highlighting predominant phonological processes in the children's phonologies and seeking to identify production differences resulting from variable language input in the children's familial contexts. This contributes to investigating the role of family language use on children's phonological development, better informing speech norms.

Keywords: Louisiana English, child speech, phonological processes

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Doucet, Ryley

Do Self-Other Related Beliefs Influence Treatment Trajectory?

Anxiety and related disorders are marked by rigid patterns of self-referential thinking and interpersonal avoidance. This study examines whether self–other related verbal behavior, conceptualized as deictic framing within Relational Frame Theory, predicts treatment response in adults receiving care at a partial hospitalization and intensive outpatient anxiety center. Deictic relations—flexible shifts among "I–You," "Here–There," and "Now–Then" perspectives—are core components of psychological flexibility, yet remain understudied as predictors of clinical improvement in routine care.

To approximate individual differences in self–other relating, subscales from the Young Schema Questionnaire–Short Form (YSQ-S3) were used as proxies for maladaptive deictic patterns, reflecting rigid self- or other-focused schema themes (e.g., defectiveness/shame, dependence/incompetence, subjugation). Pre-treatment schema profiles were examined as predictors of change in standardized measures of anxiety, depression, and obsessive–compulsive symptoms collected over the course of exposure- and acceptance-based treatment (ERP, ACT, CBT) within the center's PHP and IOP programs.

Regression analyses tested whether specific schema patterns at intake were associated with differential symptom trajectories while controlling for demographic and diagnostic factors. Findings are expected to clarify whether patterns of deictic verbal behavior, captured through proxy self-report measures, account for variance in clinical outcomes beyond baseline severity. Establishing deictic processes as meaningful predictors of therapeutic change could bridge behavioral theory and applied clinical practice, supporting precision interventions that directly target flexibility in self-other related verbal behaviors.

Doucette, Kelsey

Structurally Polymorphic Sex Chromosomes Do Not Inhibit Gene Flow in the Common Frog

Sex chromosomes are thought to play a major role in reproductive isolation between species, a pattern known as the large-X effect. As a result, X chromosomes have reduced gene flow compared to autosomes between species and between populations within a species. However, these analyses are largely limited to “heteromorphic” or highly differentiated sex chromosomes. Here, we examine gene flow between populations of the European common frog, *Rana temporaria*, using transcriptomic data. The common frog possesses karyotypically homomorphic sex chromosomes, however the degree and extent of X-Y differentiation on chromosome 1 varies between populations. Furthermore, some populations have additional chromosomes linked to sex resulting in structurally polymorphic sex chromosomes. This is predicted to further block gene flow as a result of chromosome mispairing during meiosis. Contrary to this expectation, our preliminary analyses of three populations in Northern Europe show increased levels of gene flow on the X chromosomes as compared to the autosomes, despite the presence of structural polymorphism. Future plans for this project include expanding our sampling to include publicly available transcriptomic data from populations in Switzerland and England. Further, we will expand our analyses to test hypotheses for this unexpected result, disentangling neutral demographic processes, such as female-biased migration, from possible selective introgression of X-linked adaptive alleles.

Drell, Elizabeth

Anti-Transgender Attitudes Predict Victim Blame in a Sexual Assault Vignette

Transphobic sentiment and bias are extremely prevalent, usually appearing as direct violence or prejudice towards a member of this group. For example, compared to cisgender persons, transgender people are four times more likely to experience violence, including rape, sexual assault, and simple assault (Flores et al., 2021). In a sample of 96,000 transgender/gender diverse persons, 47% had experienced sexual assault (Abern et al., 2023). Although prior research shows evidence for overt bias in the form of violence against transgender persons, in some instances, anti-transgender prejudice can present itself in more discrete ways. The current research intended to study covert biases against transgender persons in the form of attributions of blame for a sexual assault victimization by examining participants' perceptions of transgender victims of sexual assault when accompanied by a victim's alcohol consumption prior to the encounter. Our hypothesis stated that the transgender sexual assault victim who consumed alcohol would be blamed more than the sober transgender victim and both cisgender victims. Furthermore, we explored the extent to which these effects were moderated by anti-transgender attitudes.

236 college students read a story about a sexual assault between two acquaintances. Half of the stories described the victim as a transgender woman; half described her as a woman, expecting that participants would assume she was cisgender in this case. The two versions had the victim either drink before the assault or abstain from alcohol for a total of four vignette conditions. After reading, the participants answered a series of questions that assessed their attitudes towards the characters, including 7 items assessing victim blame ($\alpha = 0.86$). The participants then completed an abbreviated form of the Genderism and Transphobia Scale (GTS, Tebbe et al., 2014), which measures general attitudes about gender and transgenderism (16 items, $\alpha = 0.95$). Lastly, participants answered basic demographic questions regarding their age, race, and gender.

A two-way ANOVA was conducted and revealed no significant main or interaction effects between the gender and alcohol conditions on victim blame. Models including GTS scores showed no interaction effects between either gender or alcohol condition variables and GTS scores. However, an exploratory analysis including participant gender showed that GTS scores were positively related to victim blame, $b = 0.30$, $t = 6.87$, $p<0.001$. There was also a significant interaction effect between participant gender and GTS scores, $b = 0.15$, $t = 3.33$, $p = 0.001$, with the positive association between GTS scores and victim blame being much stronger among men than among women.

The study's hypothesis was not supported, thus we found no evidence of covert bias against transgender sexual assault victims. However, the positive association between transphobic attitudes and victim blame is consistent with other research that conservative attitudes tend to be associated with higher levels of victim blame generally (Rosewood & Hammond, 2023).

Ducote, Elizabeth (Sam)

The Complications of Gendering Human Remains

No abstract provided.

Duncan, Imani

College Students' Perceived Confidence and the Importance of Nutrition

The field of nutrition and dietetics is critical in reducing the risks of diet-related diseases and improving overall health and wellness. General nutrition courses are usually offered at colleges and universities to provide students with foundational knowledge of the field. However, very little research has been devoted to examining the perceived confidence of students in engaging in, understanding and applying the basic principles of nutrition. The purpose of this research was to examine the demographic characteristics, perceived confidence in the real-life application of the major objectives of the field and perceived importance of nutrition. A convenience sample of students enrolled in Southern University and A&M College was recruited to complete an online Qualtrics questionnaire aimed at examining their perceived confidence and the importance of nutrition. A 5-point Likert scale (strongly disagree to strongly agree) was used to measure levels of disagreement or agreement with statements related to the importance of nutrition. A 5-point Confidence scale (not confident at all to completely confident) was used to measure students' self-reported confidence in applying nutrition concepts. We hypothesize that the majority of students would agree (or strongly agree) about the importance of nutrition, as well as the positive influence of their knowledge of nutrition on their diet, behaviors and perceptions of nutrition and dietetics. In addition, we hypothesize that students will exhibit varying levels of confidence (somewhat confident, fairly confident, completely confident) in applying nutrition and dietetics concepts. The findings of this research will provide important insight into the perceptions of students and may provide guidance on establishing standards to ensure that students receive adequate exposure to nutrition and dietetics content and courses so that they will be better equipped and exhibit greater confidence when engaging in nutrition-related activities that may promote overall health and wellness. More importantly, increases in student knowledge and confidence have the potential to positively and significantly impact dietary intake and overall health.

Dutil, Natalie

The Effects of Air Pollutants on Respiratory Cancer

The purpose of this study was to determine the relationship between air pollution levels and the incidence of respiratory cancer. With growing concerns over rising greenhouse gas emissions and their effect on the environment, data on air quality can be useful in making decisions regarding regulations for the future. Data was collected across multiple years over urban and industrial areas in the United States. The dependent variable studied is the rate of lung and bronchial cancer, and the independent variables studied are smoking prevalence, socioeconomic status, air pollutant concentrations, exposure to asbestos, age, access to healthcare, population density, environmental regulations, and alcohol consumption. The findings are relevant to the general health and those who are interested in reforming environmental regulations. The results from this study will show the strength and direction of the association between air pollution levels and respiratory cancer to contribute to the betterment of public health policy.

Ector, Joi

Nutrition In the Now: College Students' Nutrition Knowledge and Behaviors

It has been said that knowledge is power. However, the application of knowledge is even more powerful. The nutrients in food have the potential to power the body on its journey to optimal health. However, if that power is untapped, the food (or energy) is wasted. Although nutrition knowledge may be viewed as the key that unlocks the door to allowing food to be your medicine, very few actively acquire or apply the knowledge. Steady increases in diet-related diseases such as cardiovascular disease, hypertension, diabetes and obesity, despite a vast array and availability of nutrition knowledge, further emphasize that knowledge and behaviors must work in unison to achieve the desired goal of optimal health. Research has shown that nutrition knowledge may increase the likelihood of engaging in more health-promoting behaviors. Therefore, exposure to knowledge sooner rather than later may increase the likelihood of sustaining these behaviors. The purpose of this research was to examine the demographic characteristics, nutrition knowledge and behaviors of college students. A convenience sample of students enrolled in Southern University and A&M College was recruited to complete an online Qualtrics questionnaire aimed at examining their nutrition knowledge and behaviors. Basic nutrition knowledge about expert recommendations for certain foods and the relationship between dietary patterns and risk for specific chronic diseases was examined. In addition, behaviors related to dietary intake, physical activity and stress management were measured using a 5-point Likert scale (strongly disagree to strongly agree). We hypothesize that the majority of students will know basic nutrition concepts and the relationship between diet and disease. In addition, we hypothesize that students with increased nutrition knowledge will likely agree that they engage in more health-promoting behaviors such as selecting healthier food options, eating more fruits and vegetables, and eating less salt and fast foods. The findings of this research will provide important insight into and understanding of the relationship between the nutrition knowledge and behaviors of students. Furthermore, these findings may assist in developing strategic interventions to increase nutrition knowledge and health-promoting behaviors among college students.

Edmond, Mackenzie

Are Southerners More Likely to Get Injured in Major League Baseball?

Research suggests that southerners may be less healthy, more prone to injury, and an overall larger burden on healthcare systems, even among more health populations that frequently exercise such as in the military. To further study these relationships, I collected data on Major League Baseball player injuries in the 2024 season. I used this data for my two independent variables: Was the player injured in 2024? And how many times was the player injured in 2024? I also collected data about players' birthplaces and used the county that they were born in to find out if being from the south had an effect on their injury rates. I also included other related independent variables like how much sleep, physical activity, education, etc. people had in those counties. I found that baseball players in the south actually have lower rates of injury than other players born outside of the south. Future research needs to be done to understand why this finding is different for baseball players than people in the military.

Edwards, Shelton

Pricing the Wild: An Analysis of an Exotic Animal's Value and Pricing Strategies in U.S. Zoos

Valuation of income producing assets has served as a strong component of financial reporting for decades. One exception to this rule is non-profit organizations, specifically zoos. As of current, zoos are not required to determine the value of their zoo animals and report them in their financial statements due to the fact that these animals are not sold in a legal marketplace. This study will research the valuation of zoo animals in multiple aspects and determine whether or not including a value would be useful for zoos in their pricing strategies. This research matters as it will contribute to both increasing awareness of how much zoo animals actually do for the economy as well as improving quality of financial statements that will allow them better transparency for donors and other public users. I will research the top zoos in the United States and analyze different aspects of their operations such as average annual attendance, main source of funding, exotic animals exhibited, and ticket price. A survey will also be conducted asking families of several income levels about their perspective on zoos, and which animals determine the demand for each zoo.

Ellis, Avery

Examining the Role of Gender on Vascular Risk, Vascular Age, and Executive Functioning

Introduction: Cardiovascular disease (CVD) is the leading cause of death worldwide and is associated with accelerated cognitive decline and dementia risk for racial/ethnic minorities. Latino older adults are at greater risk of CVD when compared to non-Latino whites, which may contribute to elevated executive dysfunction. Previous research indicates that males exhibit a higher prevalence of these CVD risk factors in mid-life, whereas females are more affected in late life. Vascular age represents an additional indicator of cardiovascular risk, created to determine whether an individual's vasculature is older than their chronological age**,** yet its relationship to cognitive health remains limited. Additionally, while the relationship between vascular health and cognition has been studied extensively, few investigations have explored gender differences in these relationships among Latino older adults living in the South. Therefore, the current study sought to examine the role of gender on vascular risk, vascular age, and executive functioning.

Methods: The study sample included 1,161 Latino older adults (female= 66.7%, age= 62.7±7.8), without dementia (MCI= 22.2%), largely of Mexican descent, enrolled in the Healthy Aging Brain Study–Health Disparities. Vascular risk percentage was calculated using the publicly available Framingham Heart Study cardiovascular disease 10-year risk (FRS) prediction equation calculator, which included modifiable risk factors such as systolic blood pressure, treatment for hypertension, smoking status, diabetes history, total cholesterol, and high-density lipoprotein cholesterol. Vascular age was determined after calculating the vascular risk percentage of an individual and then determining the age of a person with the same predicted risk but with all other risk factors falling within the normal ranges. Executive function composite consisted of Trails Making Test Part A and B Total Time, Digit Span Backward Total Score, Digit Symbol Substitution Total Score, Animal Fluency Total Score, and Letter (FAS) Fluency Total Score. Linear regressions were conducted to examine gender differences in vascular risk, vascular age, and executive functioning. Covariates include age, years of education, annual income, and depressive symptomology.

Results: After controlling for covariates, the model predicting executive functioning was significant ($F(5, 1068) = 254.10$, $p < .001$), but there was no significant main effect for gender ($\beta = -0.06$, $p = .07$). For vascular risk, the model was significant ($F(5, 1060) = 181.40$, $p < .001$), with a significant main effect for gender ($\beta = 9.90$, $p < .001$), indicating that males had higher risk scores than females. For vascular age, the model was significant ($F(5, 1060) = 98.49$, $p < .001$), with a significant main effect for gender ($\beta = 1.97$, $p = .008$), indicating that males exhibited higher vascular age scores than females.

Conclusion: Findings reveal gender differences in vascular health but not in executive functioning, with Latino males showing higher cardiovascular risk and vascular age than Latina females. These results highlight potential gender disparities in cardiovascular aging among Latino older adults. Future research should examine sociocultural mechanisms underlying these associations and investigate the interactive effects as they relate to brain-based markers of vascular health.

Erny, Michel

Balanced Ternary in CMOS

No abstract provided.

Fils, Breanna

The Hope and Fear for Undocumented Immigrants

The purpose of this study is to explain the pathways for citizenship for undocumented immigrants and how it can impact the education of immigrant children. This research seeks to bring awareness to the difficulties immigrants face when trying to get an education. According to the Equal Protection Clause of the 14th Amendment, all children, despite their legal status, have access to education. The Supreme Court case Plyler V. Doe case established this federal law. This is also backed up by Title VI of the Civil Rights Act of 1964. While this is a federal law, some communities have made it extremely difficult for undocumented children to go to school by having a lack of translators, extreme residency and guardianship requirements, and lack of resources for enrollment. Some students are fearful of immigration enforcement which has resulted in higher truancy.

Being one out of 11 million undocumented immigrants in the U.S. is not fun when it comes to becoming documented. There are many ups and downs. Time, dedication, and emotional maturity are an integral part of successfully becoming documented. Immigrants need to be heard and not looked at as an outcast, but people who want a better life for themselves that they couldn’t get in their native country. Research supports that more educators need to make sure undocumented students are getting the proper education they deserve and are granted under federal law without judgement.

Forbis, Hal

Automating Specific Leaf Area Measurements through Image Processing

Specific Leaf Area (SLA) is a widely used trait in plant biology, representing the ratio of leaf surface area to oven-dry mass. It serves as an indicator of photosynthetic efficiency, resource use, and plant responses to environmental conditions such as drought or nutrient stress. Traditional SLA measurement requires researchers to manually trace, scan, and weigh leaves, which is time-intensive and restricts the number of samples that can be processed in a study.

This project proposes an automated, image-based workflow to streamline the process of obtaining leaf area measurements from standard lab photographs. Each image includes a single leaf placed on a white background alongside a red 1 cm^2 calibration square and a handwritten plant ID. The proposed pipeline first converts the image to HSV color space and applies color thresholding to identify the calibration square and leaf regions. Morphological operations such as closing and filling are used to refine the leaf mask and eliminate background noise. A projective transformation step ensures that the calibration square is orthogonal to the image plane, minimizing geometric distortion and enabling accurate area calculation. The leaf's pixel area is then compared to the known calibration area to produce an output in cm^2, which can be combined with oven-dry mass to determine SLA.

This approach aims to reduce the manual labor associated with leaf measurement and improve the consistency of SLA data across experiments. Once implemented as a web-based application, the tool could enable researchers to upload images directly for automated analysis, greatly increasing throughput and accessibility in field and laboratory studies.

Forniss, Sasha; Kliebert, Mackenzie

Protein Interactions in Alzheimer's Disease: A Cluster Analysis of Molecular Similarities

Alzheimer's disease is a progressive neurodegenerative disorder characterized by memory loss, gradual cognitive decline, and behavioral changes. It is associated with the accumulation of amyloid beta plaques and tau protein tangles in the brain, which can disrupt neural communication and lead to apoptosis. It is the result of misfolded proteins that disrupt normal cellular function and is the leading cause of dementia. Other key proteins include beta-secretase (BACE), beta secretase inhibitors and mutants, and proteins used in the treatment of neuropathy. The proteins involved in the development of Alzheimer's have been identified; however, their molecular similarities remain under-researched. This study investigated the structural relationships between Alzheimer's disease-related proteins using a cluster map and similarity analysis generated by a high-performance supercomputer. An enzyme in the human body removes a sugar molecule (called O- GlcNAc) from proteins. In Alzheimer's, excessive OGlcNAcase activity means less sugar on tau. Without the sugar, tau gets over-phosphorylated, sticks together, and forms toxic tangles within the brain. Amyloid-β accumulates outside of the cell due to the precursor by amyloid beta secretase (BACE 1). The dataset tested included 29 human proteins obtained from the Protein Data Bank (PDB) including: GMP, amyloid beta, beta secretase (BACE), beta secretase inhibitors, BACE-bound complexes, and mutated forms of BACE. Protein similarity values were quantified to measure relationships between their molecular structures. The produced cluster map revealed some distinct grouping patterns: BACE-bound proteins exhibited high similarity to one another, as did the BACE mutants. It was also noted that the beta secretase inhibitors showed close association with BACE-bound structures. In contrast, amyloid beta, GMP, and non-BACE inhibitors displayed low similarity to any other protein types. The highest structural similarity (97.32%) was observed between PDB proteins 4DJV and 4DJW, both BACE-bound proteins. The lowest structural similarity (0.009%)

was observed between 6DR5 and 4BCB. These findings suggest that Alzheimer's-related proteins cluster primarily according to their association with beta secretase. This highlights BACE as a structurally conserved and central component in the disease's molecular network. Together, these processes disrupt neurological signaling, causing cognitive decline in the brain. As hypothesized, the cluster map showed a high degree of molecular similarity due to the shared domain processes and interaction involving amyloid processing, tau phosphorylation, and neuronal signaling. The analysis showed that Alzheimer's disease is the result of multiple disruptions among several proteins rather than one singular isolated molecular defect. Further analysis and identification of these interactions could guide the development of therapeutic mechanisms and provide computational insights for future biomedical treatments.

Foulkes, Lauren

Morphometric Variation of the Aortic Arch

Objective: This study aimed to examine how demographic characteristics and aortic arch (AA) type influence the angulation of the AA's three major branches: the brachiocephalic trunk (BCT), left common carotid artery (LCC), and left subclavian artery (LSC). Given that age and the angle at which the three arteries branch from the AA are associated with procedural challenges, better characterization of AA morphology may support improved surgical planning.

Materials and Methods: 35 formalin-phenol embalmed cadaveric specimens aged 61 to 105 years were dissected and classified into Type I, II, or III arches using Madhwal et al's (2008) method [1]. Take-off angle was measured using a goniometer, and statistical comparisons across arch types were performed using one-way ANOVA with Tukey's post-hoc tests. Relationships between demographic factors and arterial morphology were analyzed using Pearson correlations and linear regression models.

Results: The BCT showed the most obtuse branching angle (M = 93.03°), while the LCC was most acute (M = 62.69°). Type I AA was most prevalent in the sample (54.29%). Take-off angle of all three arteries decreased from Type I to Type III, with significant differences found across AA types. LCC and LSC take-off angle was significantly associated with age ($p < 0.001$).

Conclusion: Variations in arterial angulation by AA type, along with demographic influences on morphology, may have important implications for endovascular access and risk assessment. These findings support increased integration of AA morphology into preoperative assessments and highlight the need for further investigation in larger, more diverse populations.

Keywords: aortic arch, arterial morphology, take-off angle, cadaveric study, endovascular surgery.

Fuentas, Daniel

S. elegans

No abstract provided.

Garza, Gabriella

The Dangers of Mental Health Stigma

The purpose of this research is to examine how previous studies related to the dangers of mental health stigma in people of all ages. Of the U.S. adults surveyed, 56 percent agreed that stigma against people with mental illness has decreased over the last ten years. Research from *Statista* shows the percentage of U.S. adults who agreed or disagreed with the statement "there is less stigma against people with mental illness than there was 10 years ago" as of 2021. Common signs of mental health stigma include using derogatory language, dismissing or trivializing someone's condition, and viewing individuals as weak or attention-seeking for seeking help. It also appears in social situations like gossip, avoidance, and family or friends making unhelpful judgments, as well as in structural discrimination in areas like employment. In conclusion, mental health stigma is not only dangerous for the person going through the illness(es) but also the person experiencing the stigma. Having stigma towards a friend, family member, co-worker, or even yourself can worsen your illness and potentially end a life. It’s not hard or expensive to be kind and understanding. This research seeks to further explore how to reduce mental health stigma.

Gaspard, Lana

Recreating Heatwaves: How Extreme Temperatures Impact Maternal Provisioning and Future Evolution

Changing climates are leading to more frequent and severe heatwaves, and organisms likely need to adapt, acclimate, or move to maintain adequate population growth. While observational studies of organismal responses to heatwaves are common, few studies dissect how the timing of heatwaves within the growing season differentially impacts population dynamics. We hypothesized that early season heatwaves (pre-reproduction) may have strong evolutionary consequences and affect later phenotypes, while later season heatwaves (post-fertilization) may have effects on maternal provisioning as mother plants may have less resources to provide to their offspring. Here we recreate heatwave events occurring early and late within a growing season using a manipulative growth chamber experiment and seeds from two divergent populations. We measured parent phenotypes, offspring seed mass, and germination rates to assess the influence of varying heatwaves on maternal provisioning. The timing of heatwaves impacted the seed mass of both populations in similar ways. Plants experiencing a late season heatwave had the greater seed mass. However, heatwave timing influenced offspring germination rates in different ways in each population. Offspring from the late season heatwave treatment germinated for both populations, but one population also had earlier germination within the early season heatwave treatment. These results contradict patterns observed in natural populations, where plants experiencing a late season heatwave had small seeds that germinated later. Rapid germination is critical for annual plants that need to avoid increasingly earlier terminal droughts in Mediterranean climates. Thus, our results suggest that maternal provisioning associated with heatwaves may benefit offspring in the next generation.

Gautreaux, Jacob

Effects of Non-Leisure Physical Activity on Levels of Arthritis in Adult Populations

Background: Arthritis is a leading cause of disability among adults in the United States, often limiting their ability to engage in physical activity. This reduction in mobility can be particularly harmful for working-class individuals whose jobs depend on physical capability. Previous research has primarily focused on the role of leisure-time physical activity in managing arthritis symptoms; however, non-leisure physical activity—including occupational, household, and transportation-related movement—constitutes a substantial portion of daily energy expenditure for many adults. Non-leisure physical activity encompasses activities such as lifting or carrying objects at work, walking or cycling for commuting, cleaning, gardening for maintenance (non-recreational), or performing physically demanding job tasks. The purpose of this study was to investigate the relationship between non-leisure physical activity and arthritis prevalence among adults in the United States at the county level.

Methods: Data for this study were obtained from the Centers for Disease Control and Prevention's National Environmental Public Health Tracking Network Query Tool, which compiles information from state and local agencies and national surveys. These datasets include hospitalizations, emergency department visits, birth defects, and environmental monitoring data relevant to public health. Additional data were incorporated from Form Data.gov databases.

County-level indicators of arthritis prevalence were analyzed in relation to measures of non-leisure physical activity, along with socioeconomic and demographic covariates, to assess potential associations between physical activity patterns and arthritis levels across adult populations.

Results: Summary statistics indicated meaningful variation in arthritis prevalence and non-leisure physical activity across U.S. counties. Regression analyses revealed significant relationships between selected measures of non-leisure activity and arthritis levels. Specifically, coefficients for employment-related physical activity measures demonstrated both positive and negative associations with arthritis prevalence depending on occupational category, suggesting that while moderate levels of occupational activity may confer protective effects, excessive or repetitive work-related physical demands could contribute to higher arthritis rates. Additional control variables, including income, education, and environmental exposures, showed expected associations consistent with prior literature. The inclusion of variables representing age distribution and population density improved model precision, accounting for regional and demographic variability.

Conclusion: These findings highlight the importance of distinguishing between leisure and non-leisure domains of physical activity when examining arthritis outcomes. Non-leisure activity, often underexamined in health research, represents a significant determinant of musculoskeletal health for working adults. Understanding how occupational and routine physical tasks contribute to arthritis risk can inform workplace health policies and targeted prevention strategies for populations most affected by physically demanding labor.

Guidry, Megan; Soileau, Taylor; Mincey, Madison

Self-efficacy as a Correlate of Depression, Anxiety, and Stress in Direct Support Professionals

INTRODUCTION

Direct Support Professionals (DSPs) play a vital role in caring for individuals with developmental disabilities, often working in environments that are both emotionally and physically demanding. These challenging conditions can contribute to elevated levels of psychological distress, including symptoms of depression, anxiety, and stress (Tei & Fujino, 2024). Self-efficacy, defined as the belief in one's ability to manage and succeed in difficult situations has been shown to serve as a protective factor against such distress (Bandura, 1977). This study explores the relationship between self-efficacy and psychological symptoms among DSPs, aiming to inform strategies that support mental health and enhance job satisfaction within this essential workforce.

METHOD

A sample of 133 Direct Support Professionals (DSPs) were recruited from a Southern USA facility serving long-term residents with developmental disabilities. Participants were predominantly female (78%) and African American (74%), with a mean age of 35.03 (SD = 11.68) and approximately four years of tenure (SD = 1.35). Self-efficacy was assessed by the General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995), and distress symptoms and stress were measured using the Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995).

RESULTS

Preliminary analyses revealed that female DSPs reported significantly lower self-efficacy (M = 30.52, SD = 6.71) than males (M = 34.87, SD = 4.49), $t(72)$ = -3.15, p = .002. No other demographic variables showed significant associations with study variables. Mean scores for the DASS sub-scales were: Depression M = 5.67 (SD = 7.50), Anxiety M = 5.29 (SD = 5.20), and Stress M = 8.15 (SD = 7.13). These scores were below clinical significance thresholds and comparable to or lower than published norms (Lovibond & Lovibond, 1995). The mean self-efficacy score was M = 31.49 (SD = 6.50), slightly above published norms of M = 29.48 (SD = 5.13) (Schwarzer & Jerusalem, 1995). The results indicated that GSE was significantly *negatively* correlated with depression (r= −.38, p < .001), anxiety (r = −.28, p =.010), and stress (r = −.31, p = .004). The findings suggest

that higher self-efficacy is associated with lower levels of depression, anxiety, and stress, with the strongest inverse correlation for depressive symptoms.

DISCUSSION

The negative correlations indicate that DSPs who have greater confidence in their ability to handle difficult situations and overcome challenges may serve as a psychological resource that buffers against psychological distress burden. These findings imply that interventions aimed at boosting self-efficacy in Direct Support Professionals could be a valuable strategy for mitigating symptoms of depression, anxiety, and stress. By enhancing DSPs' sense of confidence in their capabilities, such interventions could lead to improved mental

well-being for staff, which in turn may translate into higher quality of care and support for the clients with developmental disabilities they serve.

Guillory, Riley

Fabrication Strategies for Conductive Hydrogel-Based Wearable Sensors

This project proposes a literature-driven design for a non-invasive wearable sensor that uses a dual-network conductive hydrogel as its active sensing material. The goal of this work is to outline a fabrication strategy informed by current research on conductive polymers and hydrogel-based sensors. The proposed sensor design incorporates a chitosan-based hydrogel matrix for structural stability and biocompatibility, combined with a conductive polymer such as poly(3,4-ethylenedioxythiophene) (PEDOT) or poly(vinyl alcohol) (PVA) to enable electrical responsiveness. Conductive MXene nanoparticles are incorporated to enhance mechanical strength, electroconductivity, and long-term stability. To fabricate the hydrogel component, digital light processing (DLP) 3D printing and electrospinning will be used to achieve precise geometry and fibrous reinforcement within the sensor. The literature review supporting this proposal highlights how these techniques have been applied in recent scaffold and hydrogel systems to control structure, porosity, and conductivity. The outcome is a conceptual roadmap detailing materials selection, fabrication steps, and testing plans for future experimental validation. Future work will focus on evaluating mechanical robustness, conductivity, and self-healing properties once prototypes are produced. This design proposal represents an early-stage framework for developing flexible, conductive hydrogel-based wearable sensors guided by current literature and fabrication experience.

Hackett, Ramie

Understanding Why Some Schools Have Higher Discipline Rates Than Others

This study examines how environmental, socioeconomic, and health-related community characteristics affect school discipline rates across different regions. The independent variables include distance to the nearest park, prevalence of single-parent households, rural versus urban location, distance from major highways, food access, median income, adult smoking rates, and community mental health indicators. The dependent variable is the rate of school disciplinary actions such as suspensions or expulsions. Data will be collected using public datasets from sources such as the U.S. Census Bureau, County Health Rankings, and local school district reports. Correlation and regression analyses will be used to identify which community factors are most strongly associated with higher or lower discipline rates. Understanding these relationships can help educators, policymakers, and community planners target interventions that reduce disparities in school discipline. The findings will be particularly important for schools in low-resource or rural areas, where broader community challenges may contribute to student behavioral outcomes.

Hambrice, Katie

Geospatial Analysis of Disparities in Access to Long-Acting Reversible Contraceptives (LARCs)

Equal access to reproductive healthcare is crucial to improving public health, but many women, especially those residing in rural and low-income communities, continue to face challenges in accessing contraception. Long-acting reversible contraceptives (LARCs), such as intrauterine devices (IUDs) and subdermal implants, are among the most effective methods of preventing unintended pregnancy, but they are disproportionately available across Louisiana. This study, supported by the TExBioMed Summer Institute, applies public health informatics to identify and visualize geographic and demographic disparities in LARC provider availability across the state.

Datasets from existing public sources, including PolicyMap, the Louisiana Department of Health, and the U.S. Census Bureau, were gathered. Using RStudio, PolicyMap, and Datawrapper, spatial and demographic measures were combined to produce a set of choropleth maps. Provider-to-population ratios, Medicaid enrollment rates, and rurality by parish were calculated for these maps. Three interactive maps, which were made accessible through a QR code, were developed to publicly share the findings and allow for interaction with healthcare providers, policymakers, and community stakeholders.

Results indicate significant geographic clustering of LARC providers in urban parishes such as Orleans, East Baton Rouge, Lafayette, and Shreveport, with notable provider shortages in more rural parishes throughout northern and central Louisiana. Several high-need areas exhibit low provider density despite high concentrations of Medicaid-eligible people, reflecting a mismatch between service availability and population need. Such inequities highlight how both geography and socioeconomic status intersect to define disparities in reproductive healthcare access.

The study demonstrates how geospatial informatics can be a valuable resource in healthcare gap identification and informing data-driven policy interventions. Policy recommendations based on this analysis involve expanding provider networks within underserved areas, creating mobile or telehealth-based reproductive services, and encouraging providers to provide more accessible LARC methods to rural communities.

By integrating publicly available datasets, spatial analysis, and interactive visualization, this project offers a replicable framework for mapping healthcare disparities and informing equitable resource allocation. Ultimately, this project underscores the imperative to harness public health informatics for the purposes of promoting reproductive autonomy, accessibility, and equity for all women of Louisiana.

Harrison, Kirsten

An Exploration of Students' Utilization of Generative Artificial Intelligence (GenAI) in Higher Education

Generative Artificial Intelligence (GenAI) is increasingly integrated into everyday life, and college students are among its most active adopters. This study examines how higher education students utilize GenAI through a quantitative design employing convenience sampling in the Southeastern United States (n = 76). Results indicate that over 90% of participants (n = 69) use free versions of GenAI tools, with ChatGPT (78.9%) being the most preferred platform, followed by Grammarly (63.2%). Over half of the participants (n=40, 52.6%)

reported using GenAI technologies for less than 1 hour per day. The primary applications include academic writing or research (44.7%) and studying or tutoring support (31.6%). ANOVA results ($F = 3.90$, $p = 0.05$) suggest that traditional students ($M = 4.71$) are more likely to use ChatGPT than non-traditional students ($M = 3.45$) on a 7-point Likert scale. MANOVA results (Wilks' Lambda: $F = 4.03$, $p = 0.01$) reveal that while students value accessibility and ease of use, they also express concerns that GenAI may hinder interpersonal and transferable skills, such as leadership and teamwork. Many participants voiced apprehension about overreliance on GenAI technologies. Nevertheless, students demonstrated a strong willingness to continue using GenAI as an educational support tool in the future. Notably, traditional students ($M = 5.62$) demonstrated greater awareness of both benefits and drawbacks compared to non-traditional students ($M = 4.00$). These findings suggest that higher education institutions should proactively integrate GenAI technologies into teaching and learning to enhance student outcomes and prepare graduates for an AI-driven workforce.

Hays, Andrew

Socioeconomic Factors Influencing Overall Health in U.S. Counties

Ensuring healthy populations is important for its own sake, as it helps improve people's enjoyment and quality of life, but it is also important economically as it can ensure workers reduce the number of days they are out of work due to illness, increases people's working lifespans (forestalling retirement), helps people be more productive at work, and reduces the burden on the health care system. Therefore, it is important to understand the factors that contribute to healthy populations, which can be used to maximize health. Using regression to examine county-level data with a dependent variable of "overall health," several independent variables are examined, focusing on socioeconomic factors that may contribute to overall health in U.S. counties. Some of these variables include the prevalence of a lack of leisure time physical activity, nutritional constraints (e.g., food access), pollution, and transportation. This information can be useful to a variety of people throughout society, including voters and policy makers who want to ensure the health and economic viability of their fellow citizens and can address issues like disparities in food access and pollution, people who want to live longer and healthier lives, and employers considering starting/relocating businesses in certain regions.

Hebert, Cye

The Body Farms of Horror: A Literary Analysis on the Importance of the Establishment of Human Taphonomy Facilities Worldwide

Human Taphonomy Facilities (HTFs) at their core are facilities where research is conducted using donated human remains in order to fully understand the process of decomposition and postmortem interval (PMI). The first HTF was established in 1980 at the University of Tennessee in Knoxville by Dr. William Bass, which set the precedent for these facilities. While human taphonomy facilities produce invaluable research on human decomposition, the practice is not as widespread as it should be. As decomposition is affected by many environmental variables such as climate, soil composition, and other similar factors, the research produced by the HTFs is generally only applicable to the immediate eco-region that the facilities are located in. This expresses a need for HTFs located worldwide, however, there are currently only 12 operating facilities in the world, with one located in Canada and Europe respectively, while the other ten are within the United States. This can be attributed to the overall concept of human taphonomy facilities being very nuanced, thus lacking standardized guidelines and established ethical standards. The obstacles faced during the establishment of a HTF is showcased through the failed efforts of researchers in the United Kingdom in their attempt to establish their very own human taphonomy facility.

This research aims to emphasize the importance of establishing human taphonomy facilities worldwide, as well as the obstacles faced when establishing such a facility, while providing an overview on the concept through a literary analysis of existing scholarly literature. Also, through this research, the importance of using ethical human body donations in forensic anthropology research instead of animal analogues, such as pigs and rabbits, will be highlighted. The findings of this literary analysis will display the application and usefulness of the research produced by HTFs in criminal investigations and other fields of related study. Human taphonomy facilities produce invaluable research that has advanced the field of forensic anthropology greatly. However, existing stigma and a lack of understanding of the facilities prevent further advancement within the field. By spreading awareness of the importance of these facilities, their benefits in professional training and death investigation can be experienced worldwide.

Herkender, Nicholas

Expanding Molecular Ballistics: Advancing Forensic DNA Profiling through STR Innovation

Advancements in forensic genetics have significantly improved the ability to identify individuals from trace and degraded biological evidence. In the emerging field of molecular ballistics, where biological material is recovered from firearms, ammunition, or ballistic trajectories, the challenges of degradation, inhibition, and low DNA quantity are especially acute. This paper explores the expansion of short tandem repeat (STR) amplicon length and locus count as a strategy to enhance forensic discrimination in such contexts. Building on foundational studies by Butler et al. (2013), Ionita et al. (2013), Kim et al. (2016), Latham and Miller (2019), and Planz et al. (2012), this research synthesizes how molecular and technological innovations strengthen DNA recovery, profiling success, and statistical power in firearm-related investigations.

Butler and colleagues' development of a 27-locus multiplex STR assay represents a key step toward globally standardized and highly discriminating forensic profiling. By integrating both U.S. CODIS and European ESS loci, along with additional variable markers, this expanded multiplex increases the probability of successful amplification even in compromised samples, an essential capability for ballistic evidence often exposed to heat or pressure. Complementing this, Ionita et al. demonstrated that optimized purification methods, such as AMPure XP bead-based recovery, substantially improve the amplification of longer STR amplicons from degraded samples, reducing allelic dropout and preserving critical loci that enhance match reliability.

Further advancing this field, Kim and colleagues applied Massively Parallel Sequencing (MPS) to redesign core STR loci with shorter amplicons, achieving higher recovery rates and full-profile generation from environmentally damaged or low-template DNA. The ability of MPS to resolve alleles with identical fragment lengths but different sequences significantly improves mixture interpretation, an important advantage in ballistic contexts involving multiple contributors. Similarly, Planz and other researchers introduced electrospray ionization mass spectrometry (ESI-MS) as a sequence-based STR analysis method, offering automation, speed, and enhanced resolution through detection of internal allele polymorphisms. Meanwhile, Latham and Miller's insights into DNA recovery from degraded skeletal remains reinforce the importance of optimized extraction and sequencing approaches, paralleling the degradation challenges found in molecular ballistics.

Together, these studies and more illustrate a cohesive progression toward high-resolution, degradation-tolerant, and globally compatible STR systems. Expanding STR locus count, refining purification for long amplicons, and integrating small-amplicon and sequence-based technologies collectively enhance the discrimination power, sensitivity, and reliability of forensic DNA profiling. For molecular ballistics, these advances translate directly into greater success in identifying contributors from trace backspatter or touch DNA, improving evidentiary strength in firearm-related cases. Ultimately, this synthesis underscores how molecular innovations in STR analysis are redefining the precision and reach of forensic science in one of its most challenging applications.

Himel, Natalie; Hernandez, Andrea; Thibodeaux, Aidan

The Role of Religious Identification in Emotion Regulation Among College Students

Introduction

Emotion regulation is a critical component of psychological well-being, influencing how individuals manage emotional responses in daily life (McRae & Gross, 2020). Difficulties in emotion regulation have been linked to stress, anxiety, and impaired functioning (Aldao et al., 2009). Prior research suggests that religiosity may provide coping resources and structured frameworks that enhance regulatory processes for managing emotions, particularly under psychological stress (Vishkin, 2021; Dubey et al., 2024). This study sought to examine the differences in emotional regulation based on religious identification. We believe these two factors play an important role in healthy functioning, and further research could provide valuable insight into increased emotional regulation of an individual. Based on previous literature, we predicted that emotional regulation differed by religious identification, with people who were religious having fewer difficulties in emotion regulation.

Method

A sample of 441 participants were recruited from SONA at UL Lafayette and the Prolific participant recruitment platform. All participants were college students within the age range of 18-51 years old, with a mean of 23.2 years (SD = 6.8). Emotion regulation was assessed by the 36-item *Difficulties in Emotional Regulation Scale (DERS;* Gratz & Roemer, 2004) on a 5-point Likert scale. Religious identification was assessed by a self-report item, which included the following response categories: Christian, Atheist/Agnostic, Judaism, and Muslim. The Chrisitan, Judaism, and Muslim categories were recoded into "Religious," and the Atheist/Agnostic category was recoded as "Non-religious." Over half of the sample was identified as Religious (60.3%) and the remainder identified as "Non-religious" (34.5%). We used a one-way ANOVA to test potential differences in emotion regulation by religious identification.

Results

Analysis revealed a significant main effect of religion on DERS scores, $F(1, 393) = 5.31$, $p = .02$. Specifically, non-religious participants (M = 95.8, SD = 24.7) reported significantly greater difficulties in emotion regulation than religious participants (M = 89.4, SD = 27.4), $t(393) = 2.31$, $p = .02$. These findings suggest that emotional regulation may vary by religiosity, supporting the hypothesis.

Discussion

As predicted, the findings indicated that religious individuals reported fewer difficulties in emotional regulation. The findings align with reports by Dubey et al. (2024), suggesting that religiosity may foster emotion regulation through a belief in a higher power, a routine of prayers, and a religious community. These factors could provide a sense of safety, familiarity, or community which could lead to better emotional regulation (Dubey et al., 2024). Future research should examine how variations in religious commitment and practices, such as strength of belief, frequency of prayer, and community involvement, relate to emotion regulation. This approach would provide a more nuanced understanding of the elements connecting religiosity and emotional regulatory

functioning. This information is important to providing insights into culturally sensitive interventions that leverage spiritual resources to enhance emotional regulation.

Haylee, Holt

When Seconds Matter: Improving Emergency Medical Response for Children with Rare Diseases

Rare diseases in pediatric patients remain critically underrepresented in emergency medicine research, despite their potential for rapid, life-threatening deterioration. Current U.S. emergency medical services (EMS) protocols and formularies are primarily designed for “typical” emergencies and often exclude interventions for rare conditions — for example, the absence of hydrocortisone sodium succinate (Solu-Cortef) in adrenal crisis protocols. This study asks: How can EMS protocols and digital tools be improved to ensure timely, life-saving care for pediatric patients with rare diseases?

To address this question, researchers conduct a structured review of EMS protocols, policy documents, and published case reports to examine how protocol gaps, policy ambiguity, and provider hesitation impact prehospital care. Three hypotheses guide this work: (H1) EMS formularies rarely permit field administration of disease-specific medications; (H2) unclear policies and fear of legal liability restrict EMS staff and caregivers from delivering timely care; and (H3) standardized digital tools, such as automated dispatch alerts or wearable IDs, may reduce treatment delays and improve outcomes.

Expected findings include evidence that protocol flexibility and digital notification systems could improve response times and patient outcomes. These results will be discussed in the context of policy change, EMS training, and caregiver empowerment to strengthen rare-disease emergency care.

Howard, William; Hardy, Camren

Columbia Sportswear: 10-year Profitability Analysis

No abstract provided.

James, Kennedy

Rent-to-Own Housing and the HOEPA Blind Spot: Modernizing Federal Consumer Finance Protections for Seller-Financed Home Purchases

The aspiration of homeownership, a cornerstone of the American Dream, is increasingly unattainable due to record high gaps between income and home prices, restrictive lending standards, and heightened interest rates. This modern affordability crisis compels many prospective buyers, particularly those unable to qualify for a traditional mortgage, to seek alternative financing, primarily through seller financed agreements such as rent to own and contract for deed arrangements.

THE REGULATORY GAP: AN AMERICAN NIGHTMARE

While these agreements are often presented as pathways to homeownership, their unique structure frequently drafted as leases or installment contracts allows them to evade the core protections of the federal **Truth in Lending Act (TILA)** and the **Home Ownership and Equity Protection Act (HOEPA)**. This regulatory **HOEPA blind spot** is significant because, in substance, these transactions function as high cost extensions of credit.

By operating outside of federal oversight, seller financed buyers are exposed to the very predatory practices TILA and HOEPA were designed to eliminate. These practices include:

● **Forfeiture of Equity:** Buyers lose down payments, investments, and accumulated equity following minor default.

● **High Risk Terms:** Buyers face unforeseen pitfalls like undisclosed title issues, property defects, high interest rates, and balloon payments.

● **Lack of Due Process:** Buyers can be removed through eviction rather than judicial foreclosure, even after years of payments have been made.

CALL FOR LEGISLATIVE AND REGULATORY REFORM

This research argues that by excluding seller financed and installment sale housing from the definitions of "credit" and "high cost mortgage," Congress and the Consumer Financial Protection Bureau (CFPB) have perpetuated this critical regulatory gap.

The solution requires coordinated action to align legal doctrine with economic reality, as courts have already affirmed a "substance over form" approach, treating these long term, non terminable obligations as credit sales.

We propose a two pronged reform strategy:

1. **Congressional Amendment: Modernize HOEPA** to explicitly extend its disclosure, cost cap, and enforcement protections to any seller financed or rent to own arrangement that creates a long term payment obligation tied to a residence.

2. **CFPB Regulatory Clarification:** Amend Regulation Z to **presumptively deem any transaction involving deferred payment for residential property as "credit"** when termination forfeits accrued equity.

Closing the HOEPA blind spot will not solve the affordability crisis, but it will ensure that alternative paths to ownership are transparent, fair, and safe, legitimizing seller financing by requiring it to adhere to the core consumer protections that define fair credit

Jones, Elijah

Cannabinoid Use in Professional U.S. Sports

This research aims to analyze the reasons for cannabinoid use in professional athletes (particularly in the U.S.) in addition to highlighting recent disciplines placed on competitors in weightlifting. The world of professional sports warrants several stressors including performance pressure, chronic pains, injuries, mental fatigue, and a variety of other physical and mental strains. Naturally, athletes look for means of treatment or relief tactics, and often cannabinoids are sought after given their many benefits—especially being that the product is naturally developed through agriculture. Through archival data, studies have found that athletes in pro sports rely on cannabinols to manage various factors (physiological and psychological) surrounding their careers. A variety of interviews from athletes across leagues such as the NFL and MLB have proclaimed that well over half the players regularly use some form of cannabinoids. This substance is mainly known by two types: tetrahydrocannabinol (THC) and cannabidiol (CBD). Although they share many characteristics regarding their effects, CBD differs from THC because it doesn't affect a person's mood. Furthermore, THC is still regulated by the World Anti-Doping Agency (WADA); however, CBD has become more widely accepted for pro athletes to consume and thus has fewer restrictions placed on its consumption. The conversation surrounding cannabinoid use has drastically shifted in the last 20 years, and within the past five, major sport leagues including the MLB, NFL, UFC, and NBA have changed their policies on substance abuse to exclude cannabinoids as a banned material. Furthermore, recreational cannabis has become more accepted and legalized across the country, possibly influencing the perspective for use in pro sports. In fact, over 90% of cities where athletes play have legalized recreational cannabis use (Baynum, 2025). Additionally, the increasing awareness of the dangers of drugs such as opioids and narcotics has pushed athletes away from harsher methods of recovery. Despite the changing image of cannabis, athletes can still face punishment for using the product, hence the sanctions listed in the table below.

Jose, Alejandro

The Impact of Polyethylene Nanoplastics on Antibiotic Performance Against Three Common Bacteria: *E. coli, B. subtilis, & P. aeruginosa*

After the discovery of plastics and their inexpensive production, plastics gained widespread use due to their versatility and convenience; however, improper disposal has led to their accumulation in ecosystems worldwide. The presence of nanoplastics (and other types of plastics) in both aquatic and terrestrial environments has raised concerns about their potential to alter microbial behavior and antibiotic susceptibility. Our study investigated the impact of polyethylene nanoplastics on the antimicrobial activity of common antimicrobial drugs against *Escherichia coli*, *Bacillus subtilis*, and *Pseudomonas aeruginosa*. Kanamycin was impregnated with aqueous nanoplastic suspensions containing 10% polyethylene nanoplastics dispersed evenly using 1% Tween 20. Each disk was applied to Muller-Hinton agar plates inoculated with standardized bacterial cultures, which were incubated at 37° C for 24 hours. All zones of inhibition (ZOI) were measured with a digital caliper to assess antibiotic performance in the presence of NPs. Our results indicated a (concentration-dependent) decrease in ZOI diameter across all tested species, suggesting that increased nanoplastic exposure may absorb or sequester antibiotic molecules, thereby reducing their bioavailability. Our findings supported emerging evidence that nanoplastics could continue the spread of antibiotic resistance by modulating drug-microbe interactions. Our future plans of research and ongoing analyses include particle characterization (at LSU), statistical evaluation of inhibition zone variance (µL of solution per disk), and assessment of physicochemical interactions between polyethylene nanoplastics and antibiotic compounds.

Kumar, Darshan; Dauphiney, Chad; Tran, Duy

Experimental Smart Ground-Station Grid

Conventional ground stations or networks of ground stations working with LEOSAT(s) and/or CubeSat(s) do not offer sufficient flexibility or globally scalable transparent coordination of communications, instrumentation, and/or functional or physical actuation at satellites or ground stations to fully exploit these systems so as to operate practically, experimental missions anywhere on Earth, or to achieve highly desirable globally scalable experimentation missions in general. Fortunately, UL Lafayette researchers have invented the ESG-Grid to overcome these limitations. The ESG-Grid is an Internet-cloud coordinated network of one or more LEOSAT(s)/CubeSat(s) combined with a plurality of Terrestrial Participant Devices (TPDs) (i.e. simple portable or mobile smartphone-based ground stations, or same functionality installed in automobiles, boats, planes, drones, tanks, missiles and/or instrumented robots to name a few) where the collective resources and functionality of both satellites and TPDs may be coordinated to achieve novel capabilities, including choreographed and highly economical, automated, transparent, and globally scalable exploration, instrumentation, and experimentation missions, in orbit or anywhere on Earth.

Currently, ESG-Grid is being developed by a team of undergraduate students who are developing and implementing the ESG-Grid via building the LoRa packet schema, RF ground-stations, and the web app utilized to communicate and view information to and from the satellites in orbit. The undergraduate team consists of an embedded system, front-end, back-end, cyber security, operations, and management team. The team expects to have a minimal viable product (MVP) by December of 2025 and hopes to complete their “Phase I” plans by May of 2026. In the MVP, the team plans to be able to receive communication from a mock satellite, decode packets, upload the information to the backend servers, and display the information to logged-in users on the front-end application. The ESG-Grid will also be used as an educational outreach platform where teachers will be able to create lesson plans around satellite information and can receive live data from active mission via lite ground-stations located at their schools.

LaBove, Jaiden

The Effects of N-acetylcysteine on Nicotine Addiction in Zebrafish

Due to their comparable mesolimbic systems and related behaviors regarding substances, Zebrafish have become a popular animal model for addiction research. The related behaviors often studied are as follows: tolerance, withdrawal, and relapse (Fuster et al., 2021). For the proposed experiment we will be investigating the effects of N-acetylcysteine (NAC) in congregation of nicotine addiction. According to the 2022 CDC report, the usage of nicotine is the leading cause of preventable death, disability, and disease. This is why finding a viable option for preventative measurements is crucial to society (CDC, 2022). Glutamate has been found to reduce. Glutamate has been found to reduce drug seeking behaviors, due to being a positive reinforcer for addiction. Consequently, NAC may be used as a preventative treatment for nicotine addiction due to increasing the amount of glutamate within the brain (Tenorio et al., 2021). For the proposed experiment we will be using zebrafish due to the following: lower space required, easier to care for and house than other animal models often used and cost effective. To conduct this experiment, we will be using a conditioned place preference (CPP) test to measure the effects NAC has on nicotinic seeking behaviors. A CPP test is a form of classical conditioning behavioral test that utilizes distinct designs on two sides of a tank. In a previous CPP experiment ran on a mice model, those who were pretreated with the NAC had been found to have reduced nicotine self-administrative behaviors compared to those who were treated with saline (Bowers et al., 2016). For our CPP test, we will be differing our sides by lining the entire tank with white shelf liner and having black polka dots on one side and black stripes on the other. The visual differences will serve as an association cue to the zebrafish for the retrieval of nicotine. For this experiment the testing period will last five days, with day one recording baseline side preferences and day five confirming any changes in behavior. There will be three groups of fifteen. Group one will be the control group which will only receive saline. Group two, experiment, will receive saline and nicotine on their least preferred side. The final group, treatment, will receive pretreatment of NAC in a plain white tank, and nicotine will be administered on their least preferred side. We hypothesize one: the control group will have no significant changes from baseline preferences when compared to the other two groups. Two: the experimental group will have significant changes to baseline preferences due to the association of administration of the nicotine receiving side. Three: the treatment group will have no significant changes to baseline preferences due to the pretreatment of NAC reducing nicotinic self-administrative behaviors. The reduction of these behaviors will be compared to the experimental group. Finally, if there is significant reduction in nicotine seeking behaviors due to the administration of NAC then it could implicate that NAC could be used as a potential treatment for nicotine addiction.

Landry, Samuel

Exploring GeoAI Capabilities for Timely and Accurate Post Hurricane Damage Assessment

No abstract provided.

Lara, Izamary; Vincent, Clinton

Mother Tree Resilience: Tracking Plant Stress Assimilation

Stable carbon isotopes can be used to evaluate plant stress and track carbon resources between trees and fungi. Here we use stable carbon isotope measurements of leaves from iconic southern live oaks (*Quercus virginiana*) growing at the University of Louisiana at Lafayette to assess variations in tree water stress for five sections of campus. We then test if these oaks serve as “Mother Trees,” sharing resources through underground fungal communities. Using the carbon isotopic value, we can test the hypothesis that certain environmental factors should show a change of stress in live oaks which can affect the intrinsic water-use efficiency. We will also test the carbon sources of associated fungi to see where they most commonly source their nutrients. Using this number of carbon isotope values, we can test and correlate certain factors that stress the live oaks. The carbon isotope values that are derived from the trees come from their leaves, the soil, tree bark, and fungi found on or near the live oak that are then processed. Being able to analyze the oaks stress in various parts of ULs campus can give insightful data on those most prevalent stress factors. In the past, results have indicated that the carbon isotope values have been used as stress markers while recognizing changes in rainfall these have also helped identify if the isotopic values are high, it is reflective of fungi deriving their sources from C4 plants and if values are low, they derive their sources from C3 plants. Future research includes understanding the correlation between environmental factors and plant stress that is tracked through carbon isotopic values. In addition, we will also explore the effects of rising CO2 on plant photorespiration and intrinsic water-use efficiency, as reflected in the carbon isotopic values in hopes of highlighting the longevity, resilience, and interconnectedness of these trees with our changing climate.

Laughlin, Jacques

Childhood Maltreatment, Trauma, and Working Memory

The current study intends to study Childhood Maltreatment, Trauma, and Working Memory. The main focus of the study are the effects of ACEs and traumatic experiences during childhood and adolescence on working memory performance. The current study aims to understand effects of subjective traumatic experience and frequency of maltreatment and trauma on working memory performance in isolation. Both Childhood Maltreatment and Childhood Trauma have been associated with impaired working memory performance. Current methods tend to categorize concepts together or use the same measure for both interchangeably. The current study aims to apply new methods to examine a potential gap in current research. To examine childhood maltreatment and frequency of trauma in childhood and adolescence, the Adverse Childhood Experiences Questionnaire (Felitti et al., 1998) will be administered. For childhood trauma and subjective experience of traumatic events in childhood and adolescence, the Childhood Trauma Questionnaire (Pennebaker & Susman, 1998) will be administered. For working memory performance, the Automated Operation Span Task (Unsworth & Heitz et al., 2005) will be administered. The current study has 139 participants. Preliminary data analysis shows a mean AOSPAN score 39.70 and a standard deviation was 17.37, which passes the Shapiro-Wick Normality Scale (1965). There are no current significant findings regarding the AOSPAN scores and CM and CT. However, the current study found that low confiding in others is significantly associated with a traumatic death of a family member or close friend. Data analysis is still ongoing.

Leger, Lexy; Songy, William

Comparing 3D Protein Structures of Traumatic Brain Biomarkers

Traumatic brain injury is a sudden acquired injury that causes trauma or damage to the brain. The majority of nonlethal TBIs are caused by bumps/collisions with objects, falls, and motor vehicle accidents. The trauma caused by these injuries can be subdivided into two different forms of brain injury: primary brain damage and secondary brain damage. Primary brain damage consists of injuries that take place immediately after the accident whereas secondary brain damage consists of damage that occurs as a result of the primary injuries. Secondary brain damage can have long-lasting effects on the underlying molecular mechanisms if not promptly treated. During these molecular mechanisms, different types of biomarkers, including proteins and metabolites, are released into the bloodstream. This study analyzed the following proteins: Tau, AB42, TNFa, GFAP, TLR, BDNF, MBP, IL6, IL8, CCL2, IL10, UCHL1, S100B, NRF2, VEGF, NSE, NMDAR, and HSP70. Utilizing the RCSB Protein Data Bank (PDB) and FileZilla, these proteins were analyzed based upon the similarity in 3D structure using the TSR-based method. For each protein, approximately five sequences were implemented with some variation based upon the availability of sequences. Upon finishing the job, a generalized cluster map was generated. Almost all of the proteins' analyzed are grouped with their own sequences except for Tau and BDNF. The map indicated a stronger relationship between three Tau protein sequences and three BDNF protein sequences. To conclude, this study of 3D structural similarity between eighteen differentiating proteins provides new information for identification of TBI biomarkers.

Lorio, Laura

A Forest in Autumn

Through experimental methods involving trial and error, I embarked on a journey to fill the largest canvas I have used so far in a style reminiscent of the current season and using warm colors that I tend to shy away from. The use of impressionism in my featured work opposes the perfectionist tendencies that can lead to burning out while pursuing my major. Artistic endeavors allow for low stress application of experimental methods, training of fine motor skills in anticipation of future classes, and the opportunity to improve focus.

By establishing and testing multiple different hypotheses in terms of methodology and craft, I learned new ways to express form and color. I made miniature paintings to practice these new techniques and color palettes. To imply scale, I strategically placed minor details. Even though I had an end goal in mind, by the time my brush hit the canvas, I had experienced many epiphanies. Only by being flexible, to accommodate these discoveries, was I able to combine colors I previously never would have tried together. Using the contrast of muted versus clear tones as well as brush stroke order, texture, and layering helped achieve a sense of depth in my work. I applied knowledge of artistic color theory and color psychology to invoke the desired emotions when viewing my piece. The warm tones in this color palette serve as a visual oasis and a reminder of the mindset I wish to maintain. The wind flowing through the grass and sunlight filtering through the leaves encourage viewers to take a deep breath and notice the details of life as it is now rather than stress over the encroaching future.

McCullough, Madison

Beta Blockers Metoprolol

No abstract provided.

Mincey, Madeleine; Brandon, Akiyah; Fatayo, Samuel; Guidry, Megan; Soileau, Taylor

The Association Between Empathy and Job Satisfaction in Direct Support Professionals

Introduction

Previous research has shown a significant correlation between levels of empathy and job satisfaction in nurses (Sal Santa et al., 2014). However, there are significant gaps in the literature exploring the relation between empathy and job satisfaction among Direct Support Professionals (DSPs). DSPs provide personal care for individuals with Developmental Disorders (DDs) in a variety of ways, such as administering medicine or personal grooming (Grey-Stanley et al., 2010). Low levels of job satisfaction in DSPs are associated with factors such as inadequate training and limited supervision, yielding high turnover rates. (Grey-Stanley et al., 2010). While these structural and organizational factors are well-documented, less is known about how personal dispositions - such as empathy - may influence job satisfaction. This study aims to explore the relation between empathy and job satisfaction in DSPs.

Method

Participants included 133 DSPs from a governmental supported services center located in a small-sized town in Southern USA. Employee job satisfaction was assessed using the *Minnesota Satisfaction Questionnaire - Short Form* (Weiss et al., 1967), which includes three subscales: Intrinsic Satisfaction, Extrinsic Satisfaction, and General Satisfaction. Participants' empathy was measured using the *Interpersonal Reactivity Index* (Davis, 1980), which includes four 7-item subscales: Perspective-Taking (PT), Fantasy (F), Empathic Concern (EC), and Personal Distress (PD). PT refers to the ability to understand another person's point of view or mental state. EC involves feelings of compassion, sympathy, and care for others who are experiencing hardship; it reflects an emotional response oriented toward helping or comforting others. PD is a self-focused emotional reaction to another's suffering that motivates a desire to reduce one's own negative emotions rather than assist the other person. For the purposes of this study, only PT, EC, and PD were used.

Results

The results indicated that none of the IRI subscales were significantly associated with general or extrinsic satisfaction. However, EC ($M = 24.7$, $SD = 4.3$) is associated with intrinsic satisfaction ($M = 42.2$, $SD = 10.1$), $r = 0.228$, $p = 0.042$, suggesting that DSPs who tend to show compassion toward others may derive more personal meaning and internal fulfillment from their work. PT ($M = 24.7$, $SD = 5.5$) is associated with intrinsic satisfaction ($M = 42.3$, $SD = 10.1$), $r = 0.22$, $p = 0.048$, suggesting that DSPs who are more capable of understanding others' viewpoints may experience greater personal fulfillment and intrinsic enjoyment in their work.

Discussion

The findings suggest that DSPs with stronger dispositions to show warmth and compassion towards others (reflecting empathic concern) may find their work personally

meaningful because caregiving allows them to express these emotional tendencies, reinforcing a sense of purpose and fulfillment. Similarly, DSPs with stronger propensities for understanding clients' experiences (reflecting perspective taking) can enhance effectiveness, connection, and professional growth. However, neither EC nor PT was related to extrinsic job satisfaction, likely because extrinsic job satisfaction depends more on external conditions such as pay, workload, or supervision, which are factors unrelated to personal dispositions. While improving organizational conditions remain essential for boosting overall job satisfaction and retention, fostering EC and PT through training may enhance DSPs' intrinsic sense of meaning and satisfaction at work.

Morris, Montrell; Martin, Alex

Banned Substances in Athletes Stimulants, Amphetamine

A type of drug that speeds up your body's systems. They can be extremely helpful for certain health issues, and if you follow your doctor's instructions, the chances of experiencing negative side effects are quite small, although they have a reputation for being misused. For example, imagine your brain is like a busy city. The amphetamines are like a traffic controller that makes the cars (messages) move around the city a lot faster.

Muthana, Shahd

Lean Hyperglycemia Affects the Uropathogenesis of Uropathogenic *E. Coli* in a Sex-dependent Manner

Uropathogenic *Escherichia coli* (UPEC) is the most common etiology of urinary tract infections (UTI) in humans. Diabetes mellitus (DM), a chronic metabolic illness marked by increased hyperglycemia, is known to significantly increase susceptibility to UPEC-UTI although the underlying molecular mechanisms have not been fully defined. Whether DM differentially affects pathogenesis of UPEC in male and female urinary tracts is also not known. During Fall 2025, I worked on a project with a central hypothesis that DM and male sex significantly increase susceptibility to exacerbations of UPEC-UTI including kidney infection (pyelonephritis) and bloodstream infection to secondary to UTI. My work was a part of PhD dissertation project of Ms. Gita Nepal in Biology. To address this hypothesis, we studied UPEC-UTI in male and female, diabetic and non-diabetic littermates from *Akita* background, The *Akita* miceare lean yet hyperglycemic due to endoplasmic stress mediated destruction of insulin-producing pancreatic beta cells. We inoculated UPEC via transurethral catheterization into the urinary bladders of male/female, diabetic/non-diabetic *Akita* mice. At 24 h (represents acute infection) and 28 days (represents chronic infection) mice were sacrificed, and bacterial burden (dilution plating), immune cell recruitment (flow cytometry) were examined.

The acute infection results indicated that cystitis and kidney infection were more common in female mice than in male mice at 24 h after the induction of infection. In contrast, male mice, irrespective of whether they were diabetic or not, exhibited greater bacterial spread to the spleen than female mice. Neither sex not DM seemed to affect immune cell recruitment to the urinary tract in response to UPEC infection.

In this project, I independently performed PCR and agarose gel analysis to determine genotypes of littermates from heterozygous *Akita* x WT mouse cross. I also helped in determining the bacterial organ burden by dilution plating and preparing tissues for flow cytometry.

Nasution, Cantika; Landry, Emma; Walters, Olivia

Gender Differences in Perceived Parental Bonding in College Students

Introduction/Background

Perceived parental bonding has significant implications for adult mental health outcomes, yet whether these effects differ by gender remains mixed. For example, Enns et al. (2002) did not find gender differences in the effect of parental care on psychopathology but reported overprotection served as a protective factor for males against externalized disorders such as substance abuse. In a meta-analysis, however, Endendijk et al. (2016) report that the gender-differentiated parenting of boys versus girls is minimal.

Understanding gender-differentiated parenting has important implications for tailoring family-based interventions to promote psychological outcomes. Given the mixed findings, the present study examines whether college students' retrospective reports of parental care and overprotection differ by gender. We hypothesized that females would report higher perceived parental care and overprotection, reflecting traditional gender socialization patterns of protective attitudes being particularly pronounced toward daughters than sons (Endendijk et al., 2016).

Method

Participants included 891 undergraduate students recruited through the SONA responded to an online survey. The variable gender originally included seven categories: cisgendered male, cisgendered female, transgender male, transgender female, non-binary, prefer not to say, and other. Due to small numbers of certain categories, gender was recoded into “Male,” “Female,” and “Other.” Our sample consisted of 73.3% females, 23.1% males, and 3.6% Other. Perceived parental bonding during the first 18 years of life was measured by the *Parental Bonding Inventory* (Parker et al.,1979).

Results

A one-way ANOVA indicated significant gender differences in parental care, F (2, 865) =12.95, p = <.001, η^2 = 0.029. Post-hoc comparisons using the Bonferroni correction revealed that males (M = 28.5, SD = 6.9) reported significantly higher levels of parental care than females (M = 26.8, SD = 9.0), t(865) = -2.43, p = .045). Participants identifying as “Other” (M = 19.6, SD = 9.8) reported significantly lower parental care than both females t(865) = 4.21, p < .001) and males, t(865) = 4.99, p <.001).

There were also significant gender differences in overprotection, F (2, 861) =9.95, p = <.001, η^2 = 0.023. Post hoc comparisons using the Bonferroni correction showed that ”Other” (M = 21.1, SD = 8.2) reported significantly higher levels of parental overprotection compared to males (M = 14.3, SD = 6.4), t = 4.46, p < .001) and females (M = 15.0, SD = 7.5), t = 4.16, p < .001). There was no significant difference in overprotection levels between males and females.

Discussion

The results did not support the hypothesis, with females reporting lower levels of perceived parental care, suggesting shifting norms where parents may emphasize emotional support for sons. Additionally, females’ lower scores could reflect higher expectations for closeness, resulting in more critical evaluation of their

parents. The lowest care and highest overprotection reported by gender minorities reflect parental uncertainty or anxiety toward nontraditional gender identities. No significant difference in overprotection between males and females indicates that protective attitudes may be less gendered than assumed. Overall, results highlight evolving parenting patterns and the need for further research on how gender identity shapes perceived parental behaviors.

Nichols, Laura

Multipiul

No abstract provided.

Noel, Madison

Proactive Hoof Care in *Giraffa camelopardalis*: Understanding the Importance of Hoof Care for Giraffe Wellbeing Using Early Training Techniques

The giraffe is the tallest terrestrial animal in the world, and typically one of the largest animals kept in captivity at zoos. Ranging from 4.3 m to 5.5 m in height, and with a weight of around 1814.5 kg, they remain sensitive to many health challenges. Lameness, which is the inability to walk or move normally due to injury or disease affecting the legs or feet, is a widespread issue among adult giraffes in zoos. Most cases of lameness are correlated with hoof overgrowth, and up to 80% of giraffe immobilizations are conducted to address hoof overgrowth and lameness (Dadone, 2018). With that being said, immobilizations can be tricky, as anesthesia in giraffes can be extremely risky, with a 10% mortality rate (Dadone, 2018).

To prevent lameness and the risk of immobilization, many zoos participate in voluntary hoof care, a method that provides regular maintenance for the hooves of giraffes. One form of training includes operant-based training for foot presentations. The giraffe voluntarily offers the hoof to a caretaker, usually on a block, and then the caretaker can assess the hoof, trim if necessary, or even take radiographs (Dadone, 2016). Early introduction to desensitization and training that can be used to build up to voluntary hoof care can provide a safer environment for both animal and caretaker. It's also important to train giraffes early on, as it will typically be more difficult to train an adult giraffe who has never been exposed to any training behaviors. In turn, this will help prevent future health issues in giraffes that require immobilization.

Immobilization in these cases is generally only necessary if there is a lack of training for hoof presentation, radiographs, and hoof maintenance, since it would be deemed dangerous and overly stressful for the giraffe to be alert during procedures and hoof corrections. The goal of this research is to review as much literature as possible on the topic of giraffe hooves, hoof care, and highlight the importance of early juvenile training for those in zoo fields, and even include the consequences of not being proactive in hoof care. This is especially important since there is a lack of resources that are accessible to those in the zoo field on giraffe hoof care.

This topic will be reviewed using a variety of papers found through Google Scholar and the Web of Science database. Literature will be sourced by searching terms such as: "giraffe hoof care," "hoof training for giraffes," "giraffe hoof anatomy," and "ungulate hoof management." From there, a handful of literature will be selected. Most of the literature included authors who specialize in giraffe care, such as Dr. Liza Dadone, a DVM and expert on giraffes and hoof care management.

Notto, Leah

Site-specific Elastic Biomechanical Properties of Articular Cartilage Degraded with MMPs Representing Different Stages to Osteoarthritis

Osteoarthritis (OA) is a common form of arthritis, caused by the degradation of the articular cartilage at joints. The degraded cartilage leads to joint pain and inflammation, joint stiffness, and limited mobility. Prevalence of OA is mostly observed in elderly, obese, and physically active people such as athlete, players, service members due to the repeated joint loading, impact and large weights that are inflicted upon their joints Matrix metalloproteinases (MMPs) are enzymes that degrade cartilage extracellular matrix (ECM), a normal process cartilage tissue remodeling, but the elevated levels of certain MMPs lead to the breakdown of collagen fibrils type II and proteoglycan (PG)—the major macromolecules of ECM . However, no study reported how unregulated MMPs compromise the morpho mechanical properties of cartilage in different sites of cartilage in the knee joint. This knowledge is crucial to design therapeutic intervention of OA management and rehabilitation. Therefore, this research focuses on understanding the degradation pathomechanism of femoral and tibial cartilage of knee joints when exposed to MMPs-13 and 9 at different stages of OA. Primarily, MMP-13 and MMP-9 synergistically contribute to irreversible collagen damage during enzyme mediation. The primary objective of this work was to determine the extent of enzymatic degradation and its impact variations between femoral and tibial cartilages via histo-mechanical analysis. The femoral and tibial cartilage samples were analyzed in three groups: early osteoarthritis (EOA), moderate osteoarthritis (MOA), and advanced osteoarthritis (AOA) where different amounts of MMPs were used based on prior *in vivo* and *in vitro* analyses. A 20% compressive strain (indentation) was applied with 1 mm dia. indenter using Mach-1 v500c (Biomomentum Inc.) micromechanical tester to each sample prior to and following enzymatic degeneration. Samples were treated with MMPs-13 and -9 and incubated in 37 ºC at 5% CO2 for 44 hrs. Result showed tibial cartilage lost more elastic properties after enzymatic degeneration in EOA and MOA compared to femoral cartilages in EOA and MOA , respectively. However, the mean change of elastic modulus of tibia and femur was close during AOA. We therefore hypothesized that a higher level of degradation is observed in the tibial cartilage as it experiences higher loads than femoral cartilage. Histological observation also supported the mechanistic observations. The results of the study suggest that a different treatment/inhibition plan should be designed to delay the progression of knee OA.

Raafey, Abdur

Development of a Self-Healing Polyimide Coating Incorporating Inhibitor-Loaded Zn–Al LDH-Nanocontainers for Corrosion Protection in Oil & Gas Environments

Corrosion of steel pipelines and equipment in the oil and gas industry particularly in sour environments containing CO_2 and H_2S continues to be a major and ongoing issue. Traditional coatings often fail due to microcracks, physical damage, or adhesion loss under high temperatures and chemical exposure, resulting in continual deterioration and expensive upkeep. To tackle this, the research aims to create a smart, self-healing polymer coating that offers long-lasting, active protection to steel surfaces in harsh conditions.

This system uses a high-temperature-resistant polyimide (PI) matrix embedded with Zn–Al layered double hydroxide (LDH) nanoparticles loaded with an imidazoline corrosion inhibitor. These LDH nanoparticles serve as nanocontainers, releasing the inhibitor when corrosion starts triggered by localized pH changes or the penetration of chloride or sulfide ions thereby forming a protective barrier that stops further corrosion. The study will focus on synthesizing and modifying the surface of the LDH–inhibitor particles, evenly dispersing them into the polyimide precursor, and developing a stable coating formulation. The goal is to produce a durable, thermally stable, and pH-responsive self-healing coating that significantly prolongs the lifespan of steel structures in oil and gas environments.

Reulet, Michael

The Louisiana Freshwater Sponge Project: A Comprehensive Analysis of the Freshwater Sponge Population and Its Shift in Species Richness

The diverse range of Louisiana water systems provides myriad habitats for freshwater sponges. However, the last documented survey of freshwater sponges was over 50 years ago. Since then, Louisiana's freshwater systems have undergone deterioration in water quality, habitat loss through saltwater intrusion, and habitat creation through river diversions and flood control measures. In 2019, the Louisiana Freshwater Sponge Project was established to provide community college students with invaluable hands-on research experience. This longitudinal project has trained 50 undergraduates as they compare the species richness between the past and present ecological studies. At each survey site, substrates are retrieved and examined. When sponges are observed, sponge body and gemmules (if present) are collected. Water is collected for water quality analysis, and sediment is collected for spicule analysis. Sponges are identified via spicule morphology, or either COI or ITS sequencing. To date, 315 sites in Louisiana have been surveyed with 65% having sponges present. Species richness at sites ranges from 0 to 6 species (mean = 1.2). As with the previous study, *Eunapius fragilis* and *Trochospongilla horrida* are still the most abundant. This study documents shifts in Louisiana's freshwater populations and now questions the recording of new species. Over the 2,000 sponge samples collected, numerous malformations have been recorded which could indicate some novel species but demonstrate no significant differences in gene sequences. This prompts the re-evaluation of current taxonomic methods of freshwater sponges and emphasizes the importance of exploring additional genetic markers for novel species.

Rhymer, Mallory; Curl, Abigail; Vi, Tran

The Role of Pneumatic Layer Thickness in Gemmule Gemmulosclere Formation

Freshwater sponges are filter-feeding organisms that shape our water systems by filtering out bacteria and other small particles. *Ephydatia fluviatilis* is a species of freshwater sponge that is found in a wide range of brackish and freshwater habitats. This species, like other freshwater sponges, form dormant gemmules that are covered with spicules. But this species has been observed to have malformed spicules. Very little is known about the composition of gemmules; there is a pneumatic layer, which is a protective layer that varies in thickness. There may be a correlation between the thickness of the pneumatic layer and the spicule malformations found in *Ephydatia fluviatilis* in sites with a presence of heavy metals. A malformation grading scale has been developed to quantify the severity of each spicule, ranging from grade zero, having no malformations, to grade three, being unrecognizable. Using light microscope, one hundred spicules were counted, individually graded, and recorded. Ten gemmules are gathered and cut in half and undergo a preserving a drying procedure to be ready for scanning electron microscopy. During SEM measurements, data are collected and then compared to the presence of malformations in each sponge sample. After observing these data, there is no clear relationship between the presence of malformations and the thickness of the pneumatic layer. While gathering data from SEM, visual observations were made of differences in the composition of the pneumatic layer; whether this is a result of spicule malformation is unknown. One limitation of our research is the limited data set, in the future more samples of *Ephydatia fluviatilis* will be collected and compared to reach a conclusion. Based on the findings of this study, a deeper investigation can begin to explore the relationship between gemmules and survival under adverse water conditions. Changes to the procedure will be implemented to gather more consistent and accurate data.

Rivette, Bryant

How Does School Start Time Affect Test Scores

This study will examine the relationship between school start times and student academic performance across the US states. The goal of this study is to determine whether students in states with later average start times tend to perform better on standardized tests compared to those in states with earlier start times. We can find this out by using national data. This will allow us to get a large, diverse sample representing multiple geographic regions

The main data used for this research is from the National Assessment of Educational Progress (NAEP) and the National Teacher and Principal Survey (NTPS). This data provides test scores for mathematics and reading for fourth graders as well as eighth graders. The data will be collected from the years 2011, 2017, and 2021. This data would show us a percentage of the students who are below the basic, at the basic, at proficiency, and above proficiency in these subjects. NTPS gives us the average school start times for each state over several years.

The independent variable for the study will be the average school start time, while the dependent variables will be how well students perform on these standardized tests. The result of this research can show educators and policymakers who determine school schedules a potentially appropriate start time. This study will provide data on how start times may possibly impact educational performance nationwide.

Robinson, Liam; Eschette, Ty

Stanazolol

Stanozolol is a synthetic anabolic-androgenic steroid (AAS) derived from dihydrotestosterone (DHT). Originally developed by Winthrop Laboratories in 1962, it was approved for medical use to treat conditions such as hereditary angioedema, osteoporosis, and anemia because of its ability to stimulate erythropoiesis and enhance nitrogen retention in the body. Aside from its medical approval, it became misused as a PED due to its anabolic properties and low androgenic effects. The drug increases protein synthesis, reduces body fat percentages, and enhances strength and endurance without having significant water retention.

Romero, Michael

Medieval Arms and Armor: A Holistic Anthropological Examination of Medieval Material Culture

The following research investigates Medieval armament and armor through a holistic approach utilizing archaeology, architecture and art. Prior to the 1970's analysis of material culture of arms and armor of the Medieval world has remained mainly as interpretation of historical documentation, such as eyewitness accounts, leading to misinterpretations of armor application in the medieval world from ceremony to battle. This research will employ peer reviewed scholarship across Medieval Archaeology adjacent fields, including specialized work examining skeletal remains tracing intentional trauma from weapons utilized in combat. Medieval skeletal remains and reported sharp and blunt trauma were bioculturally contextualized through the incorporation of multiple complementary data sources including: archaeological surveys of Medieval battlefields to provide spatial and material evidence of combat contexts; architectural and forensic engineering analyses of armaments to reveal the mechanical properties and damage potential of weapons; and examinations of artistic designs to illuminate both the functional specifications and symbolic significance of depicted armor and armaments. The results are the introduction of broad patterns not previously interpreted through the sole utilization of historical documentation. Further contextualizing historical documentation with identified intentional battlefield trauma and a biocultural framework from Medieval combat allows for a far more dynamic and accurate assessment of the arms chosen and armor worn. This investigation of Medieval Material culture uncovers not only the practical applications and developmental history of armaments and armor, but also their deeper significance as markers of social status, cultural identity, and technological innovation within Medieval societies. Through this research historical documentation is proven to be unable to accurately assess Medieval arms and armor without the help of material contextualization.

Sadou, Nadia

Finish Line Inc

No abstract provided.

Savoy, Abigail

Will It Tear? Creating a Collegiate Athlete Cutting Mechanics Grading Process

Collegiate athletes push their bodies to compete at the top level of their sport. Through 5 years collegiate athletes had 729 ACL tears. To aid in training and reduction of injury risk there are several procedures for grading the ability of an athlete to make a cut or change-of direction motion. Through this research project we defined a procedure for video and data analysis of the cutting mechanics of collegiate athletes to identify which athletes have a higher or lower risk of an ACL injury by comparing knee valgus of the planting leg. Athletes were assessed through a 0-7-0 meter sprint and 180 degree angle cut on each leg connected to a 1080 Sprint and video recorded with OpenCap and two cameras 45 degrees from the direction of running. Video is then exported into Kinovea, where the cutting mechanics were analyzed according to the CMAS grading system. Indexes of kinematic data such as velocity, and angular velocity of the knee valgus motion. We have identified the relationship of these indices to the areas of biomechanical concern in each athlete's individual cutting patterns. This data will then be provided to LSU Athletics Sports Medicine and Athletic Training team consisting of physical therapists, doctors, athletic trainers, strength and conditioning coaches and coaches to implement preventative measures to reduce ACL injury.

Segura, Devin; Comeaux, Matthew

Zumiez

Aim - To perform a 10 year profitability analysis of Zumiez using 6 profitability indicators.

Research Design- archival data analysis from company websites Google Finance and Yahoo Finance.

Case Study Approach- a single case study of Zumiez, a publicly traded sports apparel company in Washington

Profitability Indicators:

- Return on Assets (ROA) = Net Income/Total Assets x 100
- Return on Capital (ROC) = EBIT/Capital Employed
- Return on Equity (ROE) = Net Income/Equity
- Net Profit Margin (NPM) = Net Profit/Total Revenue x 100
- Earnings before Interest, Taxes, & Depreciations (EBITD)
- Gross Profit Margin (GPM) = (Revenue – Cost of Goods Sold)/ Revenue

Smith, Samantha; Fontenot, Allison; Bergeron, Caroline

Oxford Industries: A 10 year Probability Analysis

Aim: To perform a 10 year (2015-2024) profitability analysis of Oxford Industries using 6 probability indicators.

Research Design: Archival data analysis from company websites, Yahoo Finance & Google Finance.

Case Study Approach: A Single case study of Oxford Industries, a publicly traded high end clothing company in the New York Stock Exchange (NYSE), as OXM.

Profitability Indicators:

Return on Assets (ROA) = Net Income/Total Assets

Return on Capital (ROC) = EBIT/Capital Employed

Return on Equity (ROE) = Net Income/Equity

Net Profit Margin (NPM) = Net Profit/Total Revenue x 100

Earnings before Interest, taxes, & Depreciations (EBITD)

Gross Profit Margins (GPM) = (Revenue – Costs of Goods)/Revenue

Songy, William

The Forensic Significance of Oral Microbiome Variation in Human Remains

No abstract provided.

Soto Ortiz, Stephanie

Bomba Dance as Hidden Transcript in Puerto Rican Resistance

In this research I look at the history of Bomba dance in Puerto Rico and how the tradition has maintained its roots in rebellion in contemporary settings. The tradition of Bomba dance in Puerto Rico developed more than 400 years ago by African slaves as a practice of resilience and an assertion of autonomy. The dance is characterized by the use of drums and a communication between the dancer and the music. The unpredictable nature of the dance represents freedom of expression. Recently Bomba dancing has been appearing in political protests in Puerto Rico and even in the Black Lives Matter movement. Even Bad Bunny's newest song features Bomba music. By using James Scott's theory of hidden transcripts, I examine how Bomba functioned as coded resistance during slavery and has transformed for the use of contemporary social. My goal is to explain the conditions that have caused Bomba to re-emerge as a tool of protest and not just a form of recreation. To do this I established a foundation of the current social and political state of Puerto Rico. By using James Scott's theory of hidden transcripts, I examine how Bomba functioned as coded resistance during slavery and has transformed for the use of contemporary social movements. I argue that Bomba's persistence reveals how cultural practices transmit political meaning across generations while maintaining their foundation in resilience.

Spencer, Ashley; Bundrick, Avery; Broussard, Madison

The Effects of Valproic Acid on ASD-related Behavior in the Zebrafish

Autism spectrum disorders (ASDs) are developmental disorders with a highly heterogeneous clinical presentation, as individuals fall within a spectrum of functional impairment based in two broad categories: deficits in social communication; and restricted, repetitive patterns of behavior, interests, or activities. ASDs frequently co-present with other physiological and psychological disorders, such as sleep, gastrointestinal and immune disorders, ADHD, depression, and anxiety. Mutations in genes that mediate synaptic functioning and gene expression, in combination with environmental risk factors, result in a neurological state characterized by an imbalance between inhibitory and excitatory circuits in the cortex. Specifically, the heat shock protein 70 (Hsp70), a protein moderator, protects cells from stress and helps maintain their shape and function. Because of its role in preventing misfolding in proteins and the associated dysfunctions in neural firing, Hsp70, in conjunction with chemicals such as valproic acid (VPA), has been used as a mechanism to develop our understanding of ASD. VPA, commonly utilized as an anticonvulsant, employs its therapeutic effect primarily in the treatment of seizure disorders, a condition characterized by an overfiring of neurons. Given that Hsp70 activity increases during a seizure, it is thought to be involved in the pathophysiological process: first to protect from neuroinflammation but later it degrades synaptic stability. Significantly, VPA is known to target Hsp70 by inhibiting histone deacetylase (HDAC) activity, which leads to increased gene expression and upregulation of Hsp70 production, explaining its clinical efficacy. In a behavioral study on learning deficits, Yunkyoung et al. (2010) focused on the effects of VPA and how it affected Hsp70 in adult zebrafish. When the zebrafish were pretreated with VPA, elevated levels of Hsp70 were significantly reduced. While learning deficits can be associated with ASD, there is not a direct correlation. However, the methods used in the study of VPA are applicable to other behavioral research related to ASD, such as social behavior and anxiety. Currently, the majority of VPA zebrafish research utilizes larva, so this study will be exploratory, and aims to provide a more efficient way of learning about this disorder using zebrafish as compared to gene knockout studies. The proposed study will use two behavioral assays to compare anxiety-like behaviors as well as social behaviors with control zebrafish versus the VPA induced group. In an open field test, a zebrafish is placed into an open tank with opaque white walls and shallow water, creating an environment where anxiety-like behaviors should predominate. Thigmotaxis is the most obvious of these behaviors. Over time, the degree of thigmotaxis should decrease as the zebrafish acclimate. In a social interaction assay, a test fish is placed alone in one half of a tank, where through a transparent wall the fish can see a shoal of conspecifics. We expect VPA exposed zebrafish to exhibit heightened anxiety-like behaviors, or increased thigmotaxis, in the first test and a decrease in social behavior in the second test.

Stewart, Christopher

Head Coaches

No abstract provided.

Tate, Brittany

App Development for Data Validation of Scientific Collection Processes in the Louisiana Freshwater Sponge Project

The goal of this project is to advocate for natural science research labs to understand the importance of accurate data collection and encourage more interdisciplinary collaboration with computer science students interested in programming and data science. The project focuses on a foundational part of research, data collection. Data tells stories in “data language” and data scientists interpret and translate that language using computer programming. The Louisiana Freshwater Sponge Project was established in 2019 to monitor the freshwater sponge populations in and around Louisiana. The project has collected data from over 400 sites including Louisiana, Texas, and Arkansas. As the project continues to expand, a more streamlined approach is needed to address the accumulation of data. This project aimed to investigate ways to create and implement an application/program and database from existing data and ensure new data are accurate. This was accomplished using a programming language, Python, and a graphical user interface (GUI) Tkinter, to supplement the programming skills acquired at the undergraduate level. This research showed that there are ways to ensure data validation and address large datasets using undergraduate level material and independent research on professional level programs/software (Python, Tkinter, Power BI, MySQL). The biggest obstacles to the completion of the project were debugging and cleaning the data in preparation for migration to the database. Data stored in multiple formats are still being migrated into the main database and will continue until completed. The Python program is fully functional and ready for user acceptance testing (UAT).

Tewelde, Balseba

Impact of Chronic Binge Alcohol on Hepatic Immune Infiltration in SIV-Infected Rhesus Macaques

BACKGROUND: Liver disease is a leading cause of death in individuals with HIV, particularly among those who misuse alcohol. Chronic alcohol use and SIV/HIV infection disrupt liver immune regulation, leading to hepatocyte injury and inflammation. While T cells, like CD4+ and CD8+, play a role in liver pathology, the broader contribution of adaptive immune cells and inflammatory cytokines in alcohol-related liver disease remains understudied. Chronic alcohol and HIV exposure increase pro-inflammatory Th1 CD4+ T cells and cytokines such as IFN-γ and TNF-α, which are hepatotoxic. Furthermore, alterations in the balance of proinflammatory to anti-inflammatory cytokines, like IL-10, from combined alcohol misuse and HIV infection may additionally contribute to liver pathology. Therefore, we hypothesize that chronic binge alcohol will increase immune cell infiltration and inflammation in a model of SIV infected rhesus macaques.

OBJECTIVES: This preliminary study aims to identify the contribution of alcohol to immune cell infiltration and inflammation in the livers of SIV-infected rhesus macaques and its role in the progression of alcohol-related liver disease.

METHODS: Female rhesus macaques received either chronic binge alcohol or vehicle control (water) for 14 months via infusion pumps. After 3 months, all animals were intravaginally infected with SIVmac251. Antiretroviral therapy was initiated 2.5 months post-infection and continued for 9 months. At study endpoint, liver tissue was collected and homogenized for RNA extraction. RNA was reverse transcribed to cDNA, then SYBR-based qPCR was conducted to quantify gene expression and mRNA levels were normalized to RPS13.

RESULTS: A significant decrease in IL-10 mRNA expression was observed in CBA-treated macaques compared to vehicle controls, suggesting reduced anti-inflammatory signaling. No significant differences were detected in expression of IL-1β, TNF-α, IFN-γ, IFN-γ receptor, CD4, CD8, or the CD4/CD8 ratio. We will further examine additional inflammatory markers including CD38 (immune cell activation), CD25 (Tregs), MCP-1 (monocyte recruitment), CXCR4 and CCR5 (chemokine receptors involved in inflammation and SIV targeting).

CONCLUSIONS: Preliminary findings of diminished IL-10 may indicate an early shift of anti-inflammatory to pro-inflammatory signaling in the liver. Future directions may include evaluating additional acute markers of liver damage and considering the addition of dietary or metabolic stressors to enhance liver disease progression modeling. These studies will help elucidate how immune cell signaling contributes to the development and progression of alcohol-associated liver disease in people living with HIV.

Theriot, Banyon; Waldon, Logan; Jacobs, Colin

Wolverine Worldwide

Aim- To perform a 10-year (2014-2024) profitability analysis of Wolverine Worldwide using 6 profitability indicators.

Research Design- archival data analysis from company websites, Yahoo Finance & Google Finance.

Case Study Approach- a single case study of Wolverine Worldwide, a publicly traded American footwear manufacturer trading in the New York Stock Exchange (NYSE), as WWW.

Profitability Indicators:

- Return on Assets (ROA)= Net Income/Total Assets
- Return on Capital (ROC)= EBIT/Capital Employed
- Return on Equity (ROE)= Net Income/Equity
- Net Profit Margin (NPM)= Net Profit/Total Revenue x100
- Earnings before interest, Taxes, & Depreciations (EBITD)
- Gross Profit Margin (GPM)= (Revenue – Cost of Goods Sold)/ Revenue

Theriot, Caroline

Anaerobic Digestion of Chicken Manure and Sugarcane Bagasse for Methane Production

Anaerobic digestion is a series of biochemical reactions by which organic materials are converted into a mixture of methane and CO_2 by bacteria in the absence of oxygen. The process includes different stages including hydrolysis, acidogenesis, acetogenesis, and methanogenesis. The two common agricultural wastes produced in the state of Louisiana include chicken manure and sugarcane bagasse. These two wastes are produced in abundance and they cause a safe disposal problem to farmers. The purpose of this research was to produce a value-added product in the form of methane using these wastes by anaerobic digestion process. An optimization study was conducted with chicken manure at various solid loadings including 3, 6, and 9% total solids to find the optimum total solid concentration for maximum methane yield. The study was conducted in duplicates with 160 ml mini bioreactors at ambient temperature of 22°C. The results showed the bioreactor operated with 6% total solids produced maximum gas production with a methane concentration of 60% within 14 days. In another experiment, co-digestion was performed using 6% chicken manure along with sugarcane bagasse at various solid concentrations, namely 1, 2, and 3%. The optimum co-digestion was achieved in the bioreactor with 6% chicken manure and 2% bagasse with 65% methane. Gas chromatography showed the presence of methane only in the bioreactor with 6% chicken manure after two months. This shift in methane production across treatments could be attributed to a change in bacterial consortium within the bioreactor over time. This study is promising and the research should be scaled up with a larger fermenter to optimize further for a commercial digestion process.

Thomas, Emma

The History of Chess in New Orleans

My initiative to create both an interactive Google My Map and a physical poster tracing the historic and cultural significance of chess in New Orleans represents a significant contribution to public history. Produced through a variety of research methods and community outreach through a partnership with the Historic New Orleans Collection, this project aims to illuminate the rich chess heritage of the city by mapping key locations and people associated with its storied past. By integrating images, articles, links, and historical data into a dynamic digital platform, I have crafted an invaluable resource for both local residents and a broader audience keen on exploring the intricate relationship between New Orleans and chess. Although the digital interactive map includes dozens of names and places, I have also condensed my research into a physical map that displays nine individual people and eight buildings that have been of utmost importance to the subject at hand. This portable poster is designed to be presented at community chess events to teach chess players about the history of the game in New Orleans up close. As more people become fascinated with the game, through both popular media and the continuous cultivation of the chess community, the map serves as an educational tool that bridges gaps between history and contemporary play. It allows historians, players, educators, and curious tourists alike to discover significant landmarks associated with chess while also providing context about their relevance within New Orleans’s broader historical narrative.

Thomas, Talyn

Effects of Visual Complexity on Attention and Mental Rotation Performance

This study investigates how object complexity influences accuracy in a mental rotation task. Participants view pairs of objects and determine whether the two objects are the same, differing only by orientation. The variable of interest in this study is shape complexity. Some objects are simple, while others are complex. Attentional demands increase with visual complexity. Therefore, this study explores whether the demand for increased attention leads to improved or impaired performance. Accuracy rates across both conditions (simple vs. complex) are compared to assess whether more complex stimuli result in greater cognitive engagement and stimulation and thus better task performance, or if the complexity increases error due to an inability to recognize the objects. Findings contribute to understanding the relationship between attention and cognitive processing through mental rotation, specifically when presented with visually demanding stimulation. This research has broader implications for how complexity in everyday situations may impact attention and thus decision-making.

Tucker, Shenell

Narcotics

No abstract provided.

Turner, Cole; Peyton, Christopher

Dick's Sporting Goods 10 Year Profitability Study

DICK’S Sporting Goods is one of the leading sports retailers in the U.S., known for its wide range of athletic gear, apparel, and equipment. This project analyzes DICK’S financial performance from 2014 to 2024 using six profitability ratios: Return on Assets (ROA), Return on Capital (ROC), Return on Equity (ROE), Net Profit Margin (NPM), Earnings Before Interest, Taxes, and Depreciation (EBITD), and Gross Profit Margin (GPM). The goal is to understand how effectively the company turns its resources into profit. Data was collected from Google Finance, MacroTrends, and DICK’S annual reports. Overall, DICK’S has remained strong in profitability, with consistent growth, solid asset management, and strong shareholder returns, even through changing market conditions.

Turner, Cole; Collins, Vincent; Williams, Clea

Career Trajectory of Nick Saban

This study looks at the career trajectory of Nick Saban, one of the most accomplished coaches in college football history. Over the past five decades, Saban has built a legendary reputation for leadership, discipline, and consistent success. From his early days as a graduate assistant at Kent State to his historic run at Alabama, Saban's journey shows how dedication and a strong coaching philosophy can create long-term excellence. Using a career case study approach, this project examines his major career milestones, leadership methods, and overall impact on college athletics. The findings highlight how Saban's "Process" is a focus on preparation, consistency, and accountability has redefined what it means to lead and succeed in competitive sports.

Van Eaton, Andrew

Local (Mal)adaptation in *Panicum virgatum* Resistance to *Puccinia spp.*

Populations often evolve local adaptation to pathogens, resulting in reduced infection rates and fitness costs in their home environments compared to nonlocal populations. Understanding these dynamics is critical for restoration and agriculture, where pathogen pressure can strongly influence plant performance. We used *Panicum virgatum* (switchgrass) and its fungal pathogen *Puccinia spp.* (switchgrass rust) as a model system to test whether populations are locally adapted to rust infection. If local adaptation occurs, we expect populations originating closer to our test site to show lower infection levels and experience smaller fitness reductions than populations from more distant climates. We evaluated rust infections weekly for the 2024 and 2025 growing seasons within a switchgrass common garden at the UL Ecology Center that included 462 accessions originally collected from across switchgrass' North American range. Rust severity declined with increasing temperature of origin, with plants from cooler climates exhibiting high levels of rust infection and plants from warmer climates displaying low to moderate infections. We found strong associations between rust and biomass, where individuals with more rust infection produced less biomass. However, rust infection was not associated with fecundity. Our findings suggest that local adaptation shapes rust resistance in switchgrass, with Louisiana and Texas native populations having low rust infection and higher biomass than more distant populations. Reduced biomass under infection may lower ecosystem services such as carbon sequestration and forage potential, raising concerns for restoration and bioenergy production. However, seed production was largely impacted only by abiotic variables, suggesting that biotic selection pressures play a reduced role in producing local adaptation. Together our results suggest that both abiotic and biotic factors must be used to guide restoration and cultivation strategies for this dominant prairie bunchgrass and a potential bioenergy crop.

Vidrine, Kinsey

Antimicrobial Properties of Herbal Oils Against *E. coli* and *S. aureus*

Herbs have been used to combat bacterial infections in medical settings for centuries due to the fact that they often contain novel antimicrobial compounds (1). The objective of this study was to evaluate the antimicrobial properties of seven herbal oils including oregano, garlic, peppermint, tea tree, eucalyptus, olive, and dandelion. The antimicrobial activity of these oils was assessed using Kirby-Bauer disk diffusion assays. During these assays, 20 microliters of oil was applied to sterile paper disks, which were placed onto Mueller Hinton agar plates inoculated with either *Escherichia coli* or *Staphylococcus aureus*. The resulting data revealed significant variation in efficacy among the oils that were tested. Tea tree oil produced the largest zones of inhibition against both *E. coli* and *S. aureus*. Oregano and peppermint oils also inhibited the growth of both bacteria, whereas eucalyptus only appeared to inhibit the growth of *S. aureus*. In contrast, olive oil demonstrated no inhibitory effects against either *E. coli* or *S. aureus*. The results of this work indicate that tea tree, oregano, peppermint, and eucalyptus oils possess antimicrobial compounds that are effective against *E. coli* and/or *S. aureus*. These findings are potentially important since numerous strains of these bacteria cause disease and are becoming notorious for displaying increased resistance to traditional antimicrobials.

Wasson, Hope

Examining the Impact of Aerobic Septic System Effluent on Local Water Bodies Using the Membrane Filtration Technique

Aerobic septic systems are commonly used to treat wastewater in rural areas of southwest Louisiana. In spite of their importance and widespread use, very li<le is known about environmental impacts of these systems. This lack of knowledge is concerning, since the effluent from these systems is discharged into ditches that are located near or flow directly into local recreational water bodies. In this study, water samples were collected from aerobic septic system effluent pipes, ditches that serve as disposal sites for aerobic septic system effluent, and recreational water bodies located near sites where aerobic septic system waste is discharged. *E. coli* and fecal coliform bacteria, which are commonly used as indicators of fecal pollution, were quantified in all the water samples that were collected using the membrane filtration method. The goal of this work was to examine the environmental impacts of aerobic septic system waste. The results of this work showed that aerobic septic effluent contained high concentrations of *E. coli* (between 1.1 x 104 and 4.4 x 106cfu/ml) and fecal coliform bacteria (between 8.3 x 104 and 2.9 x 106 cfu/100ml). The concentrations of *E. coli* decreased (ranged from BDL to 1.4 x 105 cfu/100 ml), but fecal coliform concentrations remained elevated (ranged from 1.8 x 105 and 6.2 x 105 cfu/100 ml) in ditches that served as disposal sites for aerobic septic system effluent. High concentrations of fecal coliform bacteria were also observed in recreational water bodies that were located near aerobic septic system disposal sites (ranged from 2.8 x 103 to 6.4 x 103 cfu/100 ml) relative to water bodies that were not located near aerobic septic system disposal sites (ranged from 1.4 x 103 to 1.8 x 103 cfu/100 ml). These observations suggest that the effluent from aerobic septic systems is negatively impacting the water quality of recreational water bodies.

White, Gabriel

Comparing Biodiversity Patterns of the Herpetofauna Community at the Nicholls State Farm

Environmental factors such as proximity to water may lead to differing patterns of biodiversity. Artificial cover objects (ACOs) such as plywood boards give herpetofauna a safe refuge and allows for local biodiversity to be assessed. Our study consists of two regions at the Nicholls State University farm that were historically used to produce cattle, a field that is infrequently mowed and bound by woody vegetation and a recently constructed wetland with an adjacent patch of hardwood trees. The field region has seven survey sites located along the woody vegetation edge habitat, while the wetland region has six sites within the patch of hardwood trees. Each survey site contains four individual pieces of 1 x 0.6m plywood boards. Data is collected once weekly and consists of measuring the above board (Ta) and below board (Tb) temperatures, individual species, and the number of individuals sighted under each board. Using the Shannon-Wiener Diversity Index we compared diversity by year, month, individual sites, and temperature. Beginning in 2021 species richness inclined but has begun to plateau indicating a maximum richness. The field sites have a higher diversity than the wetland sites with diversity peaking all-round in the cooler parts of the year. Diversity may be lower in the Spring and Summer due to more reproductive activity in species and less nesting or need for retreat. Our wetland sites were established in 2023, and their reduced diversity may be a result of their age compared to our field sites. Our species assemblage analysis shows distinct differences between our field and wetland sites, characterized by more reptiles in our field sites and amphibians in our wetland sites.

White, Taylor

Drawing A Blank: The Disappearance of Art from Children's Education

Imagine entering a kindergarten classroom and the wall is completely bare. None of the student's artwork is displayed. There are no stick figures, no scribble scratch, no finger paints, no chaotic coloring sheets. This is an extreme version of the future we are currently headed towards. As art in education is becoming increasingly devalued it is our children who are being deprived. They are missing out on exploring their creativity and imagination. Art in education consists of not only visual art like drawing and painting but also performing arts like dancing, music, and theatre. There is a concerning trend in Early Childhood of the removal of arts programs from school curriculums. If not the complete removal of arts programs then the program is being "undervalued and underfunded" (Borkert & Skinner, n.d.). The lack of resources for art subjects is even worse for schools that have a higher portion of black and brown students. Education is often referred to as the "great equalizer", if all schools do not have access to the same resources then this is no longer the case. When art programs are removed from schools, higher income families are able to provide their child with extracurricular arts activities like private piano lessons or ballet classes. Students with a lower economic status do not have these options. This is why providing access to the arts in public education is so important. Without art classes some students may never have another opportunity to experience art firsthand. This thesis serves to answer the question: is art valuable enough to be considered a necessary core subject of early childhood education?

White, Traniya

Metoprolol

No abstract provided.

Williams, London

Metandienone Doping and United States Athletes: Pharmacological & Legal Perspectives

Metandienone exists as dianabol invented during the 1950s for professional athletes to maximize performance and bodybuilding results.

- Used as a synthetic testosterone compound and gained extensive usage from athletes and bodybuilders because of its powerful anabolic effects.
- Effects on the body include elevated protein synthesis, nitrogen retention and glycogenolysis that generates fat muscle development alongside enhanced strength capabilities.
- Original developed for clinical use to treat severe muscle wasting, burns and trauma recovery, osteoporosis, hypogonadism.
- Banned in sports due to risks like liver toxicity, heart issues, and hormonal imbalance.

Williams, Ramiyah

Can Prior Experience in Visual-Physical Disciplines Improve Spatial Reasoning?

Spatial reasoning, such as mental rotation, is the ability to mentally manipulate objects (Moen et al., 2020). This ability is essential for navigating everyday tasks and achieving success in STEM fields. Mental rotation typically involves three phases: encoding, transforming, and comparison (Shepard & Metzler, 1971). Research has shown that targeted training can improve spatial reasoning skills. However, less is known about whether naturally occurring participation in activities like sports or the arts enhances mental rotation abilities.

We analyzed preexisting accuracy and response time data from 132 undergraduate participants who completed a mental rotation task as part of an ongoing NSF funded grant focused on improving STEM success (LSU Spatial STEM, n.d.). Participants also self-reported their prior experience in arts and sports using a detailed activity questionnaire. Based on this information, they were categorized into high or low experience groups for both sports and arts.

An independent samples t-test was conducted to assess whether levels of experience were associated with differences in task performance. Results showed that participants with high arts experience had significantly greater accuracy on the mental rotation task compared to those with low arts experience. However, there were no significant differences in response times. Additionally, no significant differences were found between high and low sports experience groups on either measure. These findings suggest that arts engagement may play a unique role in enhancing spatial reasoning performance, whereas sports experience may not have the same effect. This research provides insight into how everyday experiences, particularly in the arts, may influence cognitive skills related to STEM success and highlights the value of perceptual training in informal learning contexts.

Woods, Danny

Developing Remote Sensing Tools to Monitor Flotant along the LA Coast

Flotant marsh is an integral habitat of the marshes of Louisiana's continuum. It is composed of vegetation and roots supported by a mat made of organic material that floats above a layer of water. The flotant can be degraded as a result of herbivory, eutrophication, increased salinity, water level rise, and storms. While terrestrial marsh can be easily restored by adding sediment and plants, restoring the buoyant mat of a flotant has been found to be problematic if not impossible. Following Hurricane Ida, there were a substantial number of reports that flotant in the Barataria-Terrebonne Estuary System had been damaged, displaced, or transformed to open water. In our project, we are developing a system to characterize the strength of flotant and whether it is at risk for break-up. To survey the flotant we use LiDAR and hyperspectral sensors mounted to un-crewed aerial vehicles (UAV) supported by conventional ground-truthing. The LiDAR sensor records geomorphic data such as the height of the vegetation canopy, mud surface, and water line. This allows us to detect topographical features and structural fissures in the flotant mat which may not be visible using satellite imagery. The hyperspectral data has been used previously to document growth cycles and plant health along coastal marshes. It also allows us to classify signature wavelengths representing the species diversity present in the flotant. To date we have identified a large number of native plants including Bulltongue, Wapato, Cattail, Hibiscus, and Button Bush, but we have also found invasive plants such as Parrot feather, Water Hyacinth, Acacia, Purple Morning Glory, and Chinese Tallow Trees. In addition to UAV sensors, conventional faunal collections and eDNA analysis are also being conducted to document which species are present adjacent to the flotant. So far, we have identified a wide variety of fish from Mosquitofish and Sailfin Mollies, normally expected in intermediate marsh, to Bull Sharks and other species normally found in waters with higher salinity. Results from this study will aid in the development of tools for rapid assessment of flotant for project managers and policy makers helping to conserve this unique habitat of the Louisiana Coast.

Yeboah, Jada

Synthesis of aza-BODIPY Fluorophores for Conjugation with EGFR-targeting Molecules

Near-infrared (NIR) absorbing and emitting aza-BODIPY derivatives bearing two isothiocyanate groups will be synthesized to enable facile conjugation to the N-terminus of peptides and other biomolecules such as glucose. The structural and photophysical properties of these fluorophores will be investigated. Conjugation to epidermal growth factor receptor (EGFR)-targeting peptides and other molecules will be carried out, followed by purification and characterization of the resulting conjugates. The ability of the new conjugates for targeting the EGFR will be evaluated in collaboration with the LSU School of Veterinary Medicine, both in cells and in animal models.

Zeringue, Paige

Apple Snail Life History in Different Temperatures

An invasive species of apple snail, *Pomacea maculata*, is currently spreading throughout the Southeastern coast of the United States. Devastating ecological and economic pressures have been created in areas now inhabited by invasive apple snails. Since complete removal of these snails from the US is not an option, conservation efforts can instead focus on understanding how their range will continue to expand. We are conducting temperature-dependent life history trials that focuses on growth, survival, and fertility with captive bred apple snails. Three temperature treatments were set up in triplicates at 20, 25, and 30 ºC, each with 20 juvenile (5mm) snails. Spinach and collard greens are fed ad libitum to the snails thrice a week. A subset of snails from each tank are measured by shell length and recorded weekly. Number of egg clutches produced and mortalities are noted weekly to track fecundity and survivability. So far, the 30 ºC temperature treatments reproduced first, but they've also had the highest mortality rates, which have caused them to perish completely by week 72, suggesting a fitness trade-off. The 25 ºC treatments had the highest fertility rates and steady mortality rates. The 20 ºC temperature treatments have the highest survival rates, but they have yet to produce a single clutch. Our research suggests that the optimal temperatures for snail fitness may be intermediate. This research will allow us to produce an apple snail distribution map using a mechanistic model that incorporates temperature, survivability, growth, and fecundity.