The 22nd Annual

Scholars Expeaux

at

Nicholls State University

Monday March, 23rd - Thursday, March 26th

2026

PROGRAM

MAPS

SCAN HERE FOR:

Nicholls Campus Map &
Bollinger Student Union
Map

MONDAY, MARCH 23RD

22nd Annual Scholars Expeaux
Nicholls State University

OPENING OF DAY 1

7:30PM - 8:30PM

Performing Arts Showcase
-Mary & Al Danos Theater

CLOSING OF DAY 1

TUESDAY, MARCH 24TH

22nd Annual Scholars Expeaux
Nicholls State University

OPENING OF DAY 2

8:00AM - 10:00AM

High School Writing Contest
-Bollinger Sister Suites, Union

8:30AM - 5:00PM

Students and Faculty Poster set-up
-Bollinger Union Ballroom

10:30AM - 11:50AM

Humanities Symposium: Session #1
-Bollinger Sister Suites, Union

MaryGrace Ohler- "*All Quiet on the Western Front*: Finding Humanity and Connection in War,"
Lucy Gottschalk- "Private Sin and Public Shame,"
Morgan Wren- "Combatting Medical Misinformation Using Social Media,"

1:30PM - 2:50PM

Humanities Symposium: Session #2
-Bollinger Sister Suites, Union

Jennifer Chirchirillo- "The Effect of Orgon's Neurodivergency in Molière's *Tartuffe*," [recorded video]
Mia Crooks- "Carrie Mae Weems: Blending Media and Time in Storytelling,"

CLOSING OF DAY 2

WEDNESDAY, MARCH 25TH

22nd Annual Scholars Expeaux
Nicholls State University

OPENING OF DAY 3

8:00AM - 12:00PM

Student and Faculty Poster Viewing
-Bollinger Union Ballroom

9:30AM

Culinary Arts Demonstrations
-Ledet Culinary Arts Building

- Kellie Spivey & Chef Jana Billiot: *How to Improve Home Cooking by Growing a Garden*
- Emely Espinal & Chef Gregory Rosary: The Culinary Legacy of the Spanish Conquest

10:45AM - 12:00PM

Humanities Symposium: Session #3
-Bollinger Sister Suites, Union

Caleb Bagwell- "*Taxi Driver* and The Male Fantasy,"
Aiden Landry- "Closely Comparing Humans to Animals in Octavia Butler's *Dawn*,"
Sloan Duet- "Exploring the Lesbian Subtext in the Novel *Dracula*,"

1:00PM - 3:00PM

Student Poster Competition Judging
-Bollinger Union Ballroom

CLOSING OF DAY 3

THURSDAY, MARCH 26TH

22nd Annual Scholars Expeaux
Nicholls State University

OPENING OF DAY 4

8:00AM - 4:00PM

Student and Faculty Poster Viewing
-Bollinger Union Ballroom

2:30PM - 4:00PM

Short Film & Animation Screening
-LeBijou Theatre

4:00PM - 5:00PM

Mosaic 2025 Student Literary Readings
-Bollinger Sister Suites, Union

5:00PM - 6:00PM

Awards Ceremony
-Bollinger Union Ballroom

6:00PM - 7:00PM

Student and Faculty Poster Takedown
-Bollinger Union Ballroom

CLOSING OF EVENT

PERFORMING ARTS SHOWCASE

Performing Arts Showcase
Monday, March 23rd, 7:30pm-8:30pm
Mary and Al Danos Theater

Ryan Butts
Nocturn in A Minor
Karen Buckwalter

Xander Cox
For Sweet Love's Sake
Edward Macdowell

Devyn Danos
Allegro Barbaro, Sz. 49
Béla Bartók

Emma Gottschalk
Flute Sonata in E Major, movements 1 and 2
Johan Sebastian Bach

Miqueias Santana Vieira da Silva
Shostakovich's Cello Concerto No. 1: Passion and Power
Dmitri Shostakovich

INDEX

Scholars Expeaux 2026
Index for Presentation Summaries

Posters are numbered in alphabetical order by presenting student's last name, with names of collaborating students, faculty, and student's faculty mentor following. Abstract #s coorespond with poster #s.

GRADUATE STUDENT POSTER SHOWCASE

1

MONITORING WATER QUALITY IN THE UPPER REACHES OF BAYOU FOLSE WATERSHED

BRAXTON BISHOP, DR. RAJ BOOPATHY, AVA WILSON, & JACEY CHOTO

Bayou Folse is a large, impaired waterway in South Louisiana. With rising concerns of antibiotic resistance, monitoring water quality and pollution load is vital to limit antibiotic resistance spread. Antibiotic resistance genes (ARGs) are a set of genes present within bacteria populations that can spread between different bacterial species. The spread of these genes leads to increased antibiotic resistance and difficulty treating bacterial infections due to decreased antibiotic effectiveness. To better track resistance and water quality changes, proper monitoring is required. Samples will be collected monthly for a year in triplicate at four sites along the waterway: Nicholls Campus (site 1), Nicholls Farm (site 2), Lefort Bypass Road (site 3), and Bayou Blue Bypass Road (site 4). Water quality markers such as pH, dissolved oxygen, chemical oxygen demand, nitrate, ammonia, phosphate, and sulfate will be monitored using Hach chemical analysis methods and a YSI Pro 2030. Fecal coliform tests will be performed to determine contamination. *Staphylococcus aureus* and *Escherichia coli* will be isolated using selective and differential media. Colonies from each sample will have Kirby-Bauer antibiotic resistance assay performed to determine resistance present. Bacteria that express multi-drug resistance will have PCR performed to amplify ARGs and then will be ran on a gel to visualize the ARGs. Current results show that site two regularly has lower DO and sulfate than other sites, Sulfate has been highest at site 1, with other quality measures varying.

GRADUATE STUDENT POSTER SHOWCASE

2

A COMPARATIVE STUDY OF NATURAL AND CONSTRUCTED WETLANDS IN REDUCING NUTRIENTS AND ANTIBIOTIC-RESISTANT BACTERIA IN TREATED SEWAGE EFFLUENT

TONI CORTEZ & DR. RAJ BOOPATHY

Both natural and constructed wetlands have emerged as an effective treatment method of effluent, an important consideration in mitigating the escalating problem of antibiotic resistance in environmental and human health contexts. The purpose of this study is to evaluate the efficacy of natural versus constructed wetlands in removing nutrients, per- and polyfluoroalkyl substances (PFAS), antibiotic-resistant bacteria, and antibiotic-resistance genes from treated aquatic effluent in Louisiana. Chemical analysis and bacterial composition assessments will be conducted on water samples collected in triplicates from four sites across both a constructed and a natural wetland (specifically, the inflow and outflow sites) in Thibodaux, Louisiana. Measurements will include pH, dissolved oxygen, organic carbon, nitrate, ammonia, sulfate, and phosphate levels. Fecal coliform counts will be conducted on bacteria cultured from all water samples. Additionally, bacterial resistance to seven commonly prescribed antibiotics will be assessed using a Kirby-Bauer assay. Bacterial isolates that display multi-drug resistance will undergo genetic testing to identify antibiotic resistance genes. Analysis of PFAS will be conducted in both wetland sites. Sampling began in January 2025 and will continue until March 2026. Current data on constructed versus natural wetlands could inform future assimilation projects, potentially enhancing effluent treatment performance. Given the public health and ecological concerns regarding effluent treatment and antibiotic-resistant bacteria in Louisiana, improved methods may help to reduce human illnesses and environmental damage.

GRADUATE STUDENT POSTER SHOWCASE

3

EFFICACY OF INVASIVE CARP AS BAIT FOR WILD CRAYFISH IN THE ATCHAFALAYA RIVER BASIN, LOUISIANA

CODY CRETINI & DR. CHRISTOPHER BONVILLAIN

Invasive carp are found throughout Louisiana and disrupt aquatic ecosystems. Commercial fishing can be an option to reduce carp populations, however, market demand is needed. Using invasive carp as bait in the wild crayfish fishery could provide an opportunity to increase the commercial market for carp. Therefore, the purpose of this research is to compare the efficacy of invasive carp as bait for wild crayfish in the Atchafalaya River Basin (ARB). Five bait types were examined, carp artificial, carp cut, shad cut, menhaden cut, and Southern Pride artificial bait. Crayfish were sampled every two weeks at seven sample locations in the southeastern ARB during the 2025 crayfish season. At each sample location, 15 crayfish traps, three traps with each bait type, were fished, and catch per unit effort (CPUE) and water quality were recorded. Additionally, all captured crayfish were identified to species, sexed, carapace length measured, and male reproductive form determined. Analyses for the 2025 crayfish season indicated no significant difference in crayfish CPUE among bait types. Shad cut bait (47.9±0.2 mm) caught significantly larger ($F_{4,1981} = 7.65$, $P < 0.001$) crayfish compared to carp cut bait (46.9±0.3 mm), Southern Pride artificial bait (46.4±0.2 mm), and carp artificial bait (46.4±0.3 mm). There was no significant difference between any other bait type. Results from this study will provide information to commercial fishers and crayfish harvesters about the potential of invasive carp as a viable bait option.

GRADUATE STUDENT POSTER SHOWCASE

5

REINFORCING THE IMPORTANCE OF PHYSICAL ACTIVITY IN A DIABETIC CARE PLAN

ABBEY FANGUY

Diabetics often watch their sugar intake and take their prescribed medications, but do not always take initiative to be physically active. Sometimes nurses do not even think to help mobilize patients when they are in the hospital or give proper education on the importance of physical activity. A literature review was completed and a synthesis of findings performed. These findings showed how physical activity improved levels in diabetes, inactivity increases mortality, barriers and stigma need to be addressed, and utilizing Pender's health promotion model can help patients integrate new interventions in their care. These findings were used to create an education module to share these findings with critical care nurses at a hospital. Pender's health promotion model was utilized to help nurses integrate new interventions into their care plans for diabetic patients. Roger's protection motivation theory was taught to the critical care nurses to utilize when teaching patients about recommended physical activity. This information was presented to critical care nurses at a local hospital. Feedback from the nurses revealed that most did not keep physical activity as a priority, but after education they believed they could add it to their care plans to benefit their patients.

GRADUATE STUDENT POSTER SHOWCASE

6

INFLUENCE OF ENVIRONMENTAL SETTING ON FLOATING MARSH VEGETATION COMMUNITY COMPOSITION AND SUSTAINABILITY

ALEXANDRA HIMEL, IVY NORTON, NOAH WURTZEL, DR. CHRISTOPHER BONVILLAIN, DR. GARY LAFLEUR, & DR. JONATHAN WILLIS

Floating marsh, colloquially known as flotant in Louisiana, is a unique and valuable habitat type that supports crucial ecosystem functions, including nutrient regulation and habitat provision. Despite the importance of floating marshes, scientific understanding of its sustainability under stressors, such as eutrophication and salinization, are poorly understood. To address these data gaps, a field investigation to elucidate how floating marsh substrate integrity, vegetation community composition, and pore water biogeochemical status differed between geographic settings (Lac des Allemands, Lake Boeuf, Lake DeCade) and visual status (reference, altered) in southern Louisiana was initiated. Preliminary findings indicate that vegetation community composition differed significantly between reference and altered sites. Interestingly, species composition at Lake DeCade differed significantly from species composition at either Lac des Allemands or Lake Boeuf; however, vegetation species composition did not differ between Lac des Allemands and Lake Boeuf. These differences likely reflect differences in salinity level, with Lake DeCade experiencing a greater degree of saline influence than the remaining sites. Notably, the altered site within the Lake DeCade site also exhibited significantly elevated levels of pore water sulfides, a potent phytotoxin. Although data collection is ongoing, these initial findings reinforce the clear impact of salinity on floating marsh health and sustainability.

GRADUATE STUDENT POSTER SHOWCASE

7

BIODEGRADATION OF SULFAMETHOXAZOLE UNDER DIFFERENT REDOX CONDITIONS

MD SAMUEL ISLAM, DR. DARCEY WAYMENT, DR. HIMANSHU RAJ, & DR. RAMARAJ BOOPATHY

Pharmaceutical compounds are widely recognized as emerging aquatic contaminants due to their extensive use and limited removal by conventional wastewater treatment processes. Among those compounds, antibiotics pose particular concern for their persistence, toxicity, and contribution to the proliferation of antibiotic-resistant bacteria and resistance genes. Sulfamethoxazole (SMX), a widely used sulfonamide antibiotic, is frequently detected in wastewater and surface waters at concentrations ranging from nanograms to micrograms per liter. While physicochemical treatment methods have been explored, microbial degradation presents a more sustainable remediation strategy. This study investigated the influence of different electron acceptor conditions on the bacterial degradation of SMX using anaerobic digester sludge from the Thibodaux Wastewater Treatment Plant. Distinct bacterial consortia were developed under aerobic, sulfate-reducing, nitrate-reducing, and mixed electron acceptor conditions. SMX degradation was quantified using HPLC, and degradation metabolites were identified by LC-MS. All consortia tolerated 120 ppm SMX without observable inhibition, though SMX could not serve as the sole carbon source. Under co-metabolic conditions with glucose, bacterial growth in the presence of SMX was comparable to glucose-only controls, achieving carbon removal efficiencies between 27.1% and 54.5%. The maximum SMX degradation (99.43%) occurred under anaerobic nitrate-reducing co-metabolic conditions, whereas only 8.39% degradation was observed when SMX served as the sole carbon source under the same conditions. These findings emphasize the importance of electron acceptor availability in enhancing SMX biodegradation and support the development of optimized microbial processes for sustainable antibiotic removal from aquatic environments.

GRADUATE STUDENT POSTER SHOWCASE

8

ENVIRONMENTAL IRON'S INCORPORATION AND IMPACT ON POST-ECDYSIS MINERALIZATION OF CRUSTACEANS

JAY LOLLMAN & DR. ENMIN ZOU

Populations of economically important crab species, such as the blue crab, *Callinectes sapidus*, are increasingly exposed to heavy metals, pollutants that have major effects on organisms due to their ability to interfere and disrupt normal physiological processes. An important physiological process for crustaceans is the molting of the exoskeleton and mineralizing of a new exoskeleton. Iron, a common environmental pollutant, is a heavy metal commonly measured in high amounts and may interfere with this molting process.
This study aims to elucidate if iron is incorporated into the exoskeleton of the blue crab, *Callinectes sapidus*. An attempt will also be made to unravel how ferric and ferrous irons impact iron deposition to the exoskeleton as well as exoskeletal mineralization. It is hypothesized that Fe (III) iron would be incorporated into the exoskeleton and thereby adversely impact post-ecdysial exoskeletal mineralization to a greater extent than Fe (II) due to the facilitation of Fe (III) uptake by transferrin and the impairment of transport processes due to Fe (II)-induced oxidative stress in epidermal cells.

GRADUATE STUDENT POSTER SHOWCASE

9

DISTRIBUTION AND HABITAT ASSESSMENT OF SECONDARY AND TERTIARY BURROWING CRAYFISH IN THE PEARL RIVER BASIN, LOUISIANA

ROBI MCGARVEY, JONATHAN EISENHOUR, & DR. CHRISTOPHER BONVILLAIN

Crayfish are key components in freshwater trophic food webs, fundamental in determining ecosystem structure and function, and are indicators of water quality and biodiversity. However, many crayfish species are currently imperiled due to anthropogenic activities and in Louisiana there is a paucity of ecological information on most crayfish, including species of greatest conservation need (SGCN). This lack of distribution, population status, and habitat preference information makes conservation actions difficult for resource managers. Therefore, the purpose of this project is to examine the distribution and habitat requirements for secondary and tertiary burrowing crayfish in the Pearl River basin in Louisiana, a data deficient area. Twenty-one 1st to 3rd order streams were sampled from June to September 2025 using backpack electrofishing, seines, and dipnets. A total of 709 crayfishes representing nine species and four genera were sampled. The SGCN Pearl Blackwater Crayfish *Procambarus penni* was the most abundant species collected (390 individuals in 13 streams). Multivariate analysis of variance indicated a significant difference in habitat and water quality between streams with and without *P. penni* (Wilks' Lambda = 0.17, $F_{7,12} = 8.65$, $P < 0.001$). Streams with *P. penni* were characterized by sandy substrate and significantly higher dissolved oxygen and discharge and lower specific conductance, turbidity, and temperature compared to streams without *P. penni*. This information will aid state and federal resource managers with conservation assessments and preservation efforts, help prioritize stream and watershed locations for future sampling, and establish a robust, quantitative data set on crayfish in the Pearl River basin.

GRADUATE STUDENT POSTER SHOWCASE

10

SURVIVAL PROBABILITIES AND ABUNDANCE OF A GULF COAST DIAMONDBACK TERRAPIN (*MALACLEMYS TERRAPIN*) POPULATION IN BARATARIA BAY, LOUISIANA

CHRISTOPHER MEEHAN, DR. TIMOTHY CLAY, CLAIRE BOUDREAUX

Diamondback Terrapins (*Malaclemys terrapin*) are native to the Atlantic and Gulf Coasts of the United States, and are imperiled across their range due to habitat loss and road mortality. Mark-recapture studies are critical for long-lived organisms because long-term data is needed to detect trends in population demographics. Despite their benefit, the majority of long-term mark-recapture studies of terrapins have been conducted on the Atlantic Coast. Since 2012, terrapins on East Grand Terre, Louisiana, have been part of a mark-recapture program. Terrapins were captured with unbaited fyke nets and given scute notches for identification when recaptured. Fourteen Cormack-Jolly-Seber models were generated and provided annual survival and capture probabilities between the sexes, which were then used in a Jolly-Seber model to estimate annual population sizes. 445 terrapins have been captured, 254 females, 190 males, and 1 juvenile, and there have been 49 recaptures. Abundance estimates were lowest in 2013 for females (416.6 ± 84.6) and males (278.3 ± 56.4), and highest in 2014 for females (918.3 ± 157.9) and males (618.9 ± 104.6). Female survival probability ranged from 75-87%, and male survival probability ranged from 79-91%. Despite yearly differences, annual abundance and survival probability has remained relatively consistent throughout the study. Survivability and abundance are both high, but neither metric is at the historical maximum of our study. Relative to Atlantic Coast populations, our estimates were higher. Compared to other Gulf Coast populations, annual survivability was similar, but annual abundance was lower.

GRADUATE STUDENT POSTER SHOWCASE

11

BEE BOXES AS HABITAT FOR LOCAL POLLINATOR POPULATIONS ON A PIPELINE IN THIBODAUX, LA

LIDSAY MICHEL, DR. QUENTON FONTENOT, & DR. ALLYSE FERRARA

Bees play a vital role as pollinators for both wild and cultivated plants. Pollinators play a part in the production of an estimated 75% of global crops for human consumption. Neonicotinoids, or neonics, are insecticides used in urban and agricultural areas. Neonics are toxic to all insects and have contributed to declines in pollinator populations. To combat worldwide decline of native pollinators, bee boxes may be used to provide habitat. This study examined the use of bee boxes on a 482-m pipeline on Burma Road in Thibodaux, Louisiana. Each of the sixteen boxes was randomly assigned one of four hole diameters (3 mm, 6 mm, 10 mm or 13 mm). Pollinator-use surveys were conducted biweekly from June 2023 to September 2024, then monthly until March 2025. Boxes with 6 mm diameter holes were favored by pollinators, with just under 100% use from the beginning of surveys before declining in mid-2024. Nest emergence was initially highest in 6 mm boxes, roughly 70% in September 2023, but decreased throughout the study. Boxes with 10 mm holes had approximately 65% nest emergence in November 2024. Boxes with 3 mm and 13 mm holes had 0 to 10% and 10 to 20% use throughout the study, respectively. Non-insect organisms such as tree frogs, Hyla spp., Green Anoles *Anolis carolinensis* and Bold Jumping Spiders *Phidippus audax* occupied empty spaces in the boxes. Native pollinators such as Four-toothed Mason Wasps, *Monobia quadridens*, carpenter (*Xylocopa* spp.) and leafcutter (Family Megachilidae) bees used boxes for nesting and refuge.

GRADUATE STUDENT POSTER SHOWCASE

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BIOFILM FUNCTIONAL DEVELOPMENT AND OYSTER RECRUITMENT ON ARTIFICIAL AND NATURAL REEF SUBSTRATES

CLAIRE MOHLER & DR. BLISS BROUSSARD

Oyster settlement relies on a combination of environmental conditions and biological readiness. Biofilms on settlement substrate, or cultch, release chemical cues that trigger attachment and metamorphosis of larval oysters. Due to shortages of natural shell, restoration efforts increasingly use alternative substrates such as limestone and concrete; however, the influence of substrate type and microbial conditioning on settlement efficiency remains unclear. Current reef restoration practices are often based on untested assumptions, resulting in variable outcomes. This study aims to characterize biofilm functional development on artificial and natural cultch during early and late conditioning and to quantify oyster recruitment to evaluate cultch performance as a function of microbial diversity. Field experiments will be conducted in Port Fourchon, Louisiana based on environmental parameters representative of oyster reefs in northern Gulf of Mexico estuaries. Vertically oriented PVC ladders equipped with standardized mesh bags containing either artificial or natural cultch will be deployed in spring and fall. Bags will be collected from each ladder for biofilm sampling at the two-week and eight-week deployment stages to represent early and mature biofilm colonization. Community-level metabolic profiling will be conducted using Biolog EcoPlates to assess biofilm functional potential. Oyster recruitment will be quantified at the late deployment stage. By linking microbial functional diversity with oyster settlement outcomes, this study provides biological context for substrate conditioning practices and advances understanding of early reef establishment processes.

GRADUATE STUDENT POSTER SHOWCASE

13

COMPARISON OF FLOTANT MARSH STABILITY ON AQUATIC FAUNAL COMMUNITIES IN THE BARATARIA AND TERREBONNE BASINS

IVY NORTON, DR. CHRISTOPHER BONVILLAIN, DR. GARY LAFLEUR, DR. JONATHAN WILLIS, DR. BALAJI RAMACHANDRAN

Flotant marshes in the Barataria and Terrebonne basins provide numerous ecosystem services including nutrient abatement and habitat and resources for aquatic organisms. However, flotant marshes in south Louisiana are degrading and this critical habitat for many aquatic biota is disappearing. Although flotant marshes provide critical habitat for numerous fishes and invertebrates, including commercially harvested species, there has been little research on flotant marsh stability on aquatic faunal communities. Therefore, the purpose of this study is to examine aquatic faunal communities at healthy and unhealthy flotant marshes in the Barataria and Terrebonne basins. Healthy and unhealthy flotant marshes were sampled monthly in Lac des Allemands, Lake Boeuf and Lake de Cade. Faunal sample efforts employed multiple passive sampling methods including minnow traps, crab traps and experimental gill nets. Catch per unit effort, abundance, species richness, and size of individuals were recorded. Fish and macroinvertebrate abundance and diversity and water quality were compared among basins and between healthy and unhealthy flotant marshes. Examination of the ecological function of healthy and unhealthy flotant marshes can help inform conservation and preservation efforts for south Louisiana's aquatic ecosystems. This project is paid for with federal funding through the RESTORE ACT, with assistance from Dr. Jessica Henkel at LA-COE.

GRADUATE STUDENT POSTER SHOWCASE

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MOVEMENT PATTERNS AND HABITAT SELECTION OF BOX TURTLES IN COASTAL LOUISIANA

MADALINE STEPHENS

Despite their relative abundance throughout much of North America, very little is known about the movement patterns of box turtles (*Terrapene carolina*) across their chosen habitats. We aim to use novel technologies, mark-recapture methods, and radio telemetry to determine how various demographic classes select habitat and move throughout their chosen environment in coastal Louisiana. Our study turtles will be located through a combination of human surveyors and a trained turtle detection canine within Grand Isle's chenier forest. During initial capture, turtles will be affixed with a non-real-time GNSS (global navigation satellite system) receiver to record their precise location at consistent intervals over the course of the study, as well as VHF (very high frequency) radio transmitters to allow them to be located at later dates to collect habitat data. In addition to determining habitat, demographic, and location/movement data, we aim to use mark-recapture methodology to explore how population demographics and habitat use of box turtles have changed since Hurricane Ida impacted Grand Isle's chenier forest in 2021. We plan to use historical data collected two years prior to the hurricane's arrival to make a comparison between past and current habitat preferences of box turtles. Findings from this study will be useful for informed management decisions regarding species of conservation concern and habitat restoration across stable and disturbed landscapes.

GRADUATE STUDENT POSTER SHOWCASE

16

EVALUATING THE SUSTAINABLE USE OF NATURAL WETLAND HABITATS FOR TERTIARY WASTEWATER TREATMENT

LILLIAN THERIOT & DR. JONATHAN WILLIS

Wetlands are well recognized for their ability to provide a number of ecosystem services, including faunal support, carbon sequestration, and nutrient amelioration. In particular, the capacity of wetlands to reduce nutrient levels in adjacent surface waters is often relied upon as a cost-effective approach to water quality enhancement. Although nature-based approaches to water quality improvement often employ constructed wetlands, in Louisiana, natural wetlands referred to as assimilation wetlands are also used to reduce nutrient levels in municipal tertiary wastewater effluent. Routine monitoring is performed to ensure these valuable habitats are not degraded; however, these sampling efforts are largely limited to highly localized, on-the-ground approaches. As a result, there is little data regarding the representativeness and scalability of these on-the-ground monitoring programs across the overall ecosystem. This research endeavors to 1) assess potential impacts to an assimilation wetland using traditional on-the-ground assessments and small unmanned aerial systems (UAS) and 2) evaluate the comparability between the two data sources. Data collection is ongoing, but findings so far indicate that measures of vegetation coverage are generally indistinguishable between the marsh and forested habitats of the assimilation wetlands and the equivalent nearby reference habitats. However, vegetation community composition appears to differ between the assimilation wetland and reference habitats. Integration of on-the-ground and UAS based monitoring data in the upcoming project year will facilitate effective management of assimilation wetlands.

GRADUATE STUDENT POSTER SHOWCASE

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SURVEYS OF FLOTANT MARSH WITH LIDAR AND HYPERSPECTRAL SENSORS SHOW DIFFERENCES IN GEOMORPHIC PROFILES AND VEGETATIVE COMPOSITION

NOAH WURTZEL, IVY NORTON, ALEXANDRA HIMEL, SAMUEL LANDRY, REECE TOUPS, DANNY WOODS, DR. CHRISTOPHER BONVILLAIN, DR. JONATHAN WILLIS, DR. BALAJI RAMACHANDRAN, DR. GARY LAFLEUR, & DR. JUSTINE WHITAKER (MARYLAND EASTERN SHORE)

Flotant marsh is a type of wetland that is found in freshwater and intermediate habitats of the Barataria-Terrebonne Estuary System. Flotant occur as a vegetative mat consisting of plants rooted above peat that floats on top of the water column. Eutrophication, saltwater intrusion, and natural disasters can degrade flotant. The floating nature of this unique marsh makes re-creation of flotant nearly impossible. In our project healthy thick flotant is being compared to thin degraded flotant at Lake De Cade and Lac des Allemands. To record geospatial data, we are using un-crewed aerial vehicles (UAV) carrying LiDAR and hyperspectral sensors. The flotant at Lake De Cade occurs in salinities from 0.3 to 7.3 ppt. In contrast, the flotant at Lac des Allemands occurs in salinities from 0.1 to 0.2 ppt. To protect the flotant from damage, we developed a floating launch pad that allows UAV to be deployed on the water. The LiDAR sensors have allowed us to record topographical features for resolution of vegetative height and mat breakages. Hyperspectral sensors have allowed us to record a range of wavelengths emitted by flora which will be used to train our algorithm to classify vegetative cover. We have identified the presence of several native plants such as *Sagitarria lancifolia*, *Sagitarria latifolia*, *Hibiscus moscheutos*, *Typha latifolia*, *Althaea officinalis*, and invasive plants such as *Pontederia crassipes*, and *Ipomoea lacunose*.
This project was supported with federal funding from the RESTORE ACT, with administrative assistance from Dr. Jessica Henkel at LA-COE.

UNDERGRADUATE STUDENT POSTER SHOWCASE

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MOLECULAR MECHANISMS OF MEROPENEM RESISTANCE IN LAB DIRECTED EVOLUTION OF *PSEUDOMONAS AERUGINOSA*

SADIAH AHMED, HIMANSHU RAJE; DR. RAJ BOOPATHY

Multidrug-resistant *Pseudomonas aeruginosa* (*P. aeruginosa*), a gram-negative pathogen causing severe hospital and acute cystic fibrosis infections, can rapidly acquire resistance to antibiotics, undermining last resort treatments like meropenem. This study investigated the adaptation of *P. aeruginosa* ATCC 27853 to increasing concentrations of meropenem using a stepwise experimental evolution approach. Minimum inhibitory concentration (MIC) and Kirby-Bauer disk diffusion assays confirmed that the parent strain is susceptible to meropenem, with an MIC of 2 µg/mL and 27.06 ± 0.48 mm zone of inhibition. Serial inoculation performed in Tryptic Soy Broth (TSB) with increasing concentrations ranging from 0.5 to 10 µg/ml of meropenem revealed rapid adaptation, with evolved populations reaching high density growth (OD600 > 0.4) within 24 hours at concentrations five times the MIC. Disk diffusion tests of the evolved populations of *P. aeruginosa* showed a reduced zone of inhibition (11.31 ± 0.72 mm), demonstrating that the bacteria evolved resistance to meropenem. Overall, these findings demonstrate the ability of *P. aeruginosa* to rapidly evolve resistance to meropenem under selective pressure, underscoring the importance of continued further investigation into underlying resistance mechanisms.

UNDERGRADUATE STUDENT POSTER SHOWCASE

19

HEART TO HEART HEALING: THE EFFECT OF KANGAROO CARE ON NEONATAL DEVELOPMENT

MADISON AUTHEMENT

Premature and low birth weight infants in the neonatal intensive care unit (NICU) spend the majority of the time in separation from parents. The infants become vulnerable to complications such as impaired thermoregulation, inadequate weight gain, and disrupted parent-infant attachment due to limited physical contact during early hospitalization. While standard incubator care supports survival, it may not fully address the physiological and emotional needs of this population, creating a need for evidence-based, family-centered interventions. This project aimed to evaluate the effectiveness of kangaroo care (skin-to-skin contact) on neonatal outcomes through a focused literature review. The purpose of this project was to examine existing evidence supporting kangaroo care as a low-cost, nurse-driven intervention that improves infant health outcomes and maternal satisfaction in the NICU. The objectives were to identify the effectiveness of kangaroo care in maintaining stable body temperature, enhancing parent-infant attachment, improving feeding behaviors and weight gain, and comparing physiological and psychological outcomes between kangaroo care and standard incubator care. A literature review was conducted using the Nicholls State University Ellender Memorial Library, including quantitative-experimental and quasi-experimental studies published within the past five years. Findings demonstrated that kangaroo care supports thermal stability, promotes developmental weight gain, increases breastfeeding success, strengthens maternal-infant bonding, and overall reduces length of hospitalization. These findings support the integration of kangaroo care into routine neonatal practice. This project highlights the critical role of nurses in educating families and implementing evidence-based, holistic interventions that improve neonatal outcomes and support family-centered care.

UNDERGRADUATE STUDENT POSTER SHOWCASE

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CHARACTERIZATION OF VIRULENCE GENES BY PCR IN *E. COLI* ISOLATED FROM URINARY TRACT INFECTIONS AT A TERTIARY HOSPITAL IN SOUTHERN LOUISIANA

ANTHONY BATTAGLIA, MYRA BERTHIAUME, JOSHUA BERGERON, RAJUKUMAR NATHANIEL

Escherichia coli is a gram-negative facultative anaerobic bacterium that is commonly found in the intestines and digestive tracts. Although a typically harmless organism, *E. coli* is known to cause urinary tract infections. *E. coli* possesses several virulence genes that enable its pathogenicity within a host. The fimH gene encodes for type 1 fimbriae, a factor that allows for adhesion and invasion into the uroepithelium. iucC is another common gene that encodes for aerobactin, an agent responsible for the sequestration of iron to promote proliferation of the bacteria within infected cells. Other virulence genes include hly, a hemolysin gene and cnf, implicated in cell necrosis. Urinary tract infections involving *E.coli* are a severe public health issue with high rates of recurrence and increasing antimicrobial resistance. The goal of our study was detection of various virulence genes from clinical isolates of *E. coli* that caused recurrent nosocomial and community acquired infections. Clinical *E. coli* cultures were obtained from a tertiary care hospital in south Louisiana for the purpose of isolating DNA and conducting PCR amplification. Presence of these virulence genes are an important indicator of pathogenicity and these findings can be used in epidemiological predictions involving this bacteria.

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ENERGY ALLOCATION TOWARDS DEVELOPMENT, MAINTENANCE, AND GROWTH IN COMMON MUSK TURTLE HATCHLINGS BASED ON INCUBATION TEMPERATURE

MICHELLE BEALS, DR. TIMOTHY A. CLAY

During embryogenesis, temperature plays a key factor in facilitating trade-offs between limited yolk energy and its allocation towards development, growth, and maintenance. We hypothesize that maintenance costs will increase at temperature extremes, development will occur quicker at warmer temperatures, and growth will reduce at temperature extremes. To test our hypotheses, we incubated eggs of the Common Musk Turtle, *Sternotherus odoratus*, at four different temperatures (24, 26, 28, and 30 °C). 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 at 24 °C had the longest incubation period but were the same relative size as hatchlings from 26 and 28 °C. Meanwhile, 30 °C produced generally smaller hatchlings and had the shortest incubation period. Embryos in 30 °C were more costly to maintain, withholding energy from growth resulting in smaller hatchlings. Temperatures below 28 °C were the most efficient at maintaining balance between development, maintenance, and growth. Common Musk Turtles are temperature sex determinants where females are mostly produced above 28 °C or below 24 °C, thus females are more likely to hatch out sooner, but smaller than males. There was also a high mortality rate in the 30 °C temperature meaning females are more at risk of death before hatching. Overall, hatchling female eastern musk turtles are more likely to experience disadvantages than males.

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DIGITAL RECONSTRUCTION AND THE PRESERVATION OF CULTURAL HERITAGE

NATHAN BOURGEOIS

Inspired by my summer 2025 study abroad experience in Greece, this poster explores how digital reconstruction can benefit our understanding and appreciation of architectural sites. After visiting ancient monuments in person, I completed an art history independent study on the history of conservation. Archaeologists debate how to preserve or reconstruct historical monuments and cultural heritage sites. Based on the availability of historical sources, preservation efforts may be little more than a guess as to what was present thousands of years ago. Additionally, decisions must be made about which era will be represented, as many monuments have been used across history and have had different meanings across time.

New digital preservation methods allow scholars to reconstruct sites while also avoiding continued human interference. These techniques have motivated the themes that I am exploring in work prepared as a lead up to my senior capstone. Using reference photos taken while visiting the site in summer 2025, I digitally reconstructed a Cycladic bell tower from the village of Megalochori, Santorini with the software Autodesk Maya. I then 3-D printed different iterations of the form. One example more true to the original site was cast in iron, while others were duplicated in a spherical shape to create more imaginative, surreal structures. This poster will chart my process and the ways in which my creative process mirrors contemporary digital preservation tactics.

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EFFECTIVENESS OF SCREENINGS IN OUTPATIENT SETTINGS TO EVALUATE THE RISK OF SUICIDE IN PEDIATRIC PATIENTS

HALEE BRUCE

Suicide is the second leading cause of death in youth aged 12 to 18 years, of age making it an extremely critical priority in healthcare. The purpose of this literature review was to evaluate the effectiveness of various pediatric suicide-risk screening tools in outpatient care settings, the importance of universal screenings, and to synthesize current evidence to support best practices in suicide prevention in pediatric populations. A literature review was conducted through Nicholls State University Ellender Memorial Library and ProQuest using peer reviewed scholarly articles. Findings included that the eBHat, ASQ, C-BSSRS, and general psychosocial evaluation tools were all effective at identifying suicide risks in different ways based on clinical environment, the stats of patients who have a suicide attempt following a healthcare appointment that was not prevented due to lack of screening at first contact, and the importance of universal screening amongst pediatric patients regardless of complaint or history. Overall, the literature review demonstrated the dire need for universal suicide screening tools for the pediatric population, as well as adherence to these screenings. The results highlighted the importance of using validated screenings in all patients regardless of complaint or mental health history and suggested implications for future development, research, and education of suicidal screenings amongst all pediatric patients to improve patient outcomes.

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SCROLLING TO THE POLLS: THE INFLUENCE OF SOCIAL MEDIA ON POLITICAL PARTICIPATION AMONG GEN Z STUDENTS

ANNMARIE BRUMLEY

Social media substantially deliver's political information and intelligence to the greater part of Generation Z individuals. In the limelight of marketing in the 21 st century is social media platforms such as Facebook, Instagram, Snapchat, and YouTube, engaging individuals in politics and democratic processes. This study examines the influence social media consumption has on political awareness, engagement, trust, and intention among high school and college-aged students. The analysis shows increasing engagement and access to political information that exposes younger voters to political content and how their engagement and viewpoints of the effects of social media expose them to political information they otherwise would not have access to outside of their daily lives. Platforms such as TikTok, Instagram, and YouTube have become most impactful on Gen Z students, influencing critical thinking and shaping of political conversations among their peers. The majority use of social media is from Instagram and targets the younger audience grasping their attention in a way they understand and follow. Research also highlights concerns related to misinformation, algorithm-driven content, and declining trust in politicians and political information. Overall, the study demonstrates that social media has significantly impacted political participation among Gen Z students. Social media serves as the most powerful tool for national engagement and political awareness among Generation Z, presenting significant risks due to the widespread circulation of misleading and inaccurate information regarding political candidates and what they profess, most recently the study regarding Tylenol causing autism in fetuses and avoiding vaccines. Understanding this relationship is essential for improving and strengthening democratic participation among young voters in an increasingly divergent political environment.

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HOMOGENEOUS (NAOH) CATALYTIC CONVERSION OF ALGAE TO BIOFUEL

MEDLYNE BURIN, ELENA GHEDINI, SOMAYEH TAGGAVI, FEDRICA MENEGAZZO AND MICHELA SIGNORETTO

The continuous decline of fossil fuel reserves and the growing concern over environmental pollution have encouraged the search for clean, renewable, and sustainable energy sources. As a result, biomass has gained attention as an alternative feedstock for diesel fuel production. Biodiesel is considered an attractive option because it is less toxic, renewable, and more environmentally friendly than conventional fossil-based diesel. Both edible and non-edible biological resources have been explored for biodiesel production through the transesterification process. Among these, algal oil has emerged as a promising non-edible feedstock due to its abundance, low cost, and environmentally friendly nature. The efficiency of biodiesel production is influenced by several factors, including reaction conditions and the type of catalyst used. Various catalytic systems, such as acidic and basic homogeneous catalysts, heterogeneous catalysts, and biocatalysts, have been studied, each offering specific advantages and limitations. Although homogeneous acid and base catalysts are relatively inexpensive and provide good mass transfer, they often cause equipment corrosion, are difficult to reuse, and promote soap formation, which limits their industrial application. In contrast, heterogeneous catalysts reduce corrosion and simplify recovery, but they may suffer from mass transfer resistance, higher costs, and lower catalytic efficiency for esterification of free fatty acids and transesterification of lipids.

Biocatalysis, while more costly, can produce higher-purity biodiesel with fewer side reactions. Therefore, several important factors including catalyst availability, cost, stability, reusability, mass transfer efficiency, and the ability to facilitate both triglyceride transesterification and free fatty acid esterification must be considered when selecting an appropriate catalyst. This review focuses on biodiesel production from algal biomass and emphasizes the role of efficient catalysts in improving the overall process.

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A TECHNIQUE TO CREATE ENZYME INFUSED IRON NANOPARTICLE FILMS AS POTENTIAL DRUG CARRIERS.

BYRON CAGE, MAEGAN BOUSEGARD, DR. RAJ BOOPATHY, RAJKUMAR NATHANIEL, HIMANSHU RAJE

The goal of this study is to develop a simple yet efficient and cost-effective method for chemically conjugating an enzyme to iron nanoparticles. Here we propose the use of lactase as an enzyme to be conjugated to iron nanoparticles, and lactose as a substrate. 5.79mg of lactase powder was dissolved in 1.0ml of PBS to create a 400U stock solution. A mixture was created with 0.026g magnetized iron nanoparticles, 3 emptied and washed cellulose capsules, 5.0mL phosphate-buffered saline (PBS), and 0.5mL of lactase stock solution. This mixture formed a film at room temperature within 48 hours. Another film was created with the same composition without the lactase enzyme. The films with and without lactase were separately treated with 3mL of 1000ppm lactose solution for fifteen minutes. 2mL of assay reagent from a glucose detection kit (Sigma Aldrich, GAGO20) was then added to the separate cuvettes along with 1mL of solution from time zero (t0) and time fifteen (t15). The absorbance was measured at 540 nanometers. The percent increase in absorbance was measured from T0 to T15. Although the numbers did not reach statistical significance, the percent increase value for the films with lactase was about 7 times higher than the percent increase observed for the films without lactase. These findings will be further evaluated with biological replicates and by detection of glucose with LC-MS.

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INTERVENTIONS TO PREVENT CLABSI IN THE PEDIATRIC ONCOLOGY POPULATION

HEIDI CHAUVIN

This project focused on identifying and evaluating evidence-based interventions to prevent central line–associated bloodstream infections (CLABSIs) in the pediatric oncology population. This group is at a particularly high risk of CLABSIs due to immunosuppression, frequent central line use, and prolonged hospitalizations. Pediatric oncology patients commonly require central lines for chemotherapy and long-term medication administration, making infection prevention a critical component of nursing care. The purpose of this project was to review current literature to determine which nursing interventions are most effective in reducing CLABSI rates and to highlight the best evidence-based practices that can be applied in clinical settings. A review of recent quantitative studies examined three primary interventions: chlorhexidine gluconate (CHG) containing dressings, nurse-driven care protocols, and the CLABSI prevention bundle. The objectives of this project were to identify evidence-based strategies that decrease CLABSI incidence, examine the nurse's role in central line management, and compare the effectiveness of different interventions. Findings demonstrated that CHG-containing dressings resulted in the greatest reduction in CLABSI rates, followed closely by nurse-driven interventions that emphasized strict aseptic technique, standardized dressing changes, and proper line access. The CLABSI bundle also contributed to improved adherence to central line care practices and reduced infection rates. The rationale for this project is grounded in the nursing responsibility to protect young, vulnerable patients through infection prevention, evidence-based practice, and consistent adherence to protocols. By improving nursing knowledge and compliance with proven interventions, CLABSI rates can be reduced, patient outcomes improved, and healthcare costs minimized.

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IMPACT OF BEDSIDE REPORT ON PATIENT FALL RATES

LAYNEE CHOUEST

Patient falls remain one of the most common preventable complications seen in healthcare. Even with fall precaution implementations, falls remain a persistent safety concern and are often related to inadequate communication. This presentation breaks down a literature review focusing on the impact that bedside shift report (BSR) has on patient fall rates. BSR is a form of shift report between the outgoing and incoming done in the patient's room, at the bedside. It offers the patient an opportunity to be involved in the report and allows the incoming nurse to verify the information reported. This review's purpose is to analyze and synthesize research supporting BSR implementation to evaluate its effect on patient fall rates. Objectives include analyzing literature to evaluate the impact BSR has on patient fall rates and safety, determining the impact of BSR on patient fall rates, and discussing the importance of BSR to improve patient safety. This literature review reveals a consistent improvement in communication, patient involvement, safety, and efficiency when BSR is implemented.

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EVALUATING CHEMISTRY STUDENTS' MOLECULAR MISCONCEPTIONS WITH TWO-DIMENSIONAL INTERPRETATIONS

TATIANA DANTIN, EMILY LUBAG, DR. SARAH BERGERON

Chemistry students are traditionally taught about three-dimensional (3-D) microstructures, such as molecules, using two-dimensional (2-D) models. Although they are expected to be able to seamlessly translate between the two, they often struggle in reality, as the models tend to be too simple and they often lack skills needed for the translation. A way for the students to learn how to easily switch between the various structures is through the incorporation of 3-D models in the classroom. Prior to the incorporation of 3-D models, the fundamental misconceptions of students need to be identified and evaluated. Over the course of six semesters, three introductory chemistry courses at Nicholls State University were asked to draw and label their mental models of a water molecule at three points throughout the course. One higher level chemistry course at the same institution was asked the same question, at only two different points. The students' drawings were evaluated based on the particle nature of water; atomic composition (number and type of atoms); molecular shape; and molecular polarity. Statistical analysis (1) evaluated the misconceptions that occur over a particular course and (2) identified misconceptions prevalent in all courses. The results of this study give a baseline for the misconceptions that occur without incorporation of 3-D models in course instruction. With this baseline, researchers can determine if addition of 3-D models aids in reducing/correcting student molecular misconceptions.

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EARLY BIOMARKERS OF ENVIRONMENTAL STRESS IN LOUISIANA CRAYFISH

EMILY DAVIS

Industrial activity along Louisiana's coast, particularly from chemical and petroleum production, has resulted in the release of environmental contaminants that threaten coastal ecosystems. Among these byproduct contaminants are polycyclic aromatic hydrocarbons (PAHs) such as naphthalene, which is known to interfere with cellular metabolism and respiration in coastal organisms. The red swamp crayfish, *Procambarus clarkii*, inhabits coastal environments where they are exposed to contaminants through water, air, and soil, therefore capable of serving as a sentinel biological indicator of environmental stress. This study aims to evaluate the anaerobic respiration enzyme lactate dehydrogenase (LDH) as a potential biomarker of PAH exposure in crayfish. Because PAH metabolism consumes oxygen, we hypothesize that organisms experiencing PAH-related stress will rely more heavily on anaerobic pathways resulting in elevated LDH activity. Enzyme activity will be assessed by monitoring NADH formation, providing a sensitive and economically efficient method for quantifying LDH. Crayfish will be collected and exposed to sub-lethal concentrations of naphthalene under controlled laboratory conditions. Gill tissue, a site directly impacted by the contaminants, is used to assess LDH activity in control and experimental groups. Further studies will compare LDH activity in juvenile crayfish as well. Results from this study will support efforts to protect Louisiana's coastal ecosystem and serve as foundational data for development of diagnostic assessments of crustacean health.

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QUALITY IMPROVEMENT STRATEGIES TO DECREASE SELF-EXTUBATION IN INTENSIVE CARE PATIENTS

KALYN DEHART

Unplanned extubation is of significant concern for patient safety in intensive care units and poses grave risks if the tube becomes dislodged or pulled out. This literature review examines the risk factors of self-extubation and the best methods used to decrease incidences. Nicholls State University Ellender Memorial Library, PubMed, and Google Scholar were used to perform a comprehensive data search. Peer-reviewed articles that were used focused on critically ill ICU patients, self-extubations, ventilators, and prevention strategies. Primary risk factors included high nurse-to-patient ratios, inadequate restraints, delirium, ineffective sedation, and lack of supervision. To combat this, effective measures that could be beneficial include proper nurse education, appropriate restraint and sedation use, airway monitoring protocols, increased nursing staff, and poster reminders around units. An implementation of quality improvement measures focused on proper nurse education and protocols will help decrease the risk of unplanned extubation. Patient safety is of utmost importance, and implementing these effective measures will help decrease preventable incidents in the intensive care setting.

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ASSESSING THE EFFECTIVENESS OF FALL PREVENTION STRATEGIES ON HOSPITALIZED GERIATRIC PATIENTS

SARAH DOMINGUE

Sentinel events such as patient falls have a significantly negative impact on the health outcomes of hospitalized geriatric patients. Patient falls are most common among geriatric patients due to physical disabilities, cognitive impairment, environmental hazards, drug side effects, and medical conditions. Fall injuries can range from minor to severe including contusions, fractures, or even brain bleeds leading to death. In addition, extended hospital stays are a result of inpatient injury, which leads to increased costs for health care systems. It has been reported that “An additional 11.5 days of length of stay was estimated to occur after a fall, with an average cost increase of 61% (Wen et. al, 2024). Nurses play a significant role in fall prevention and should be knowledgeable on interventions they can implement to provide adequate safety and best outcomes for their patients. After utilizing research from a systematic review, meta-analysis, and a large quasi-experimental study, it has been identified that there are various interventions which can be implemented to reduce the rates of this sentinel event. Basic hospital sensors are proven to have little effect in reducing patient falls due to high rates of false alarms. Smart patient care systems are a new form of innovative technology that includes advanced sensitivity motion detection and provides quick communication access between the nurse and patient. With the use of educational courses for nurses, thorough patient teaching, patient supervision, and the implementation of new smart patient care system sensors, patient fall rates and hospital costs can be reduced.

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SUPERTASTERS AND CILANTRO: EXPLORING GENETIC INFLUENCES ON FLAVOR PERCEPTION

LILY DOMINQUE, EMILY ELLIOTT, OLIVIA NAVARRO, TAYLOR PHILPOTT, NORA SCULLY

Cilantro (*Coriandrum sativum*) is a citrusy herb used in many recipes, yet its flavor perception varies widely. Some individuals simply dislike cilantro, while others perceive it as bitter or soapy. This variation in taste perception is influenced by the OR6A2 gene, which detects aldehyde compounds that make up over 80% of cilantro's essential oils. In individuals with greater sensitivity to these volatile compounds, cilantro can produce a strong soapy aroma that alters its perceived flavor. Sensitivity to cilantro may also be associated with being a "supertaster" or an individual born with higher density of fungiform papillae and greater sensitivity to certain bitter compounds. These physiological differences contribute to variability in taste perception, and can be assessed using standardized supertaster test strips. We hypothesize that individuals who perceive a cilantro-forward dish as unpleasant are more likely to be supertasters. To investigate this, tasters will sample a chimichurri sauce prepared with cilantro harvested from the program's compost garden, part of the Dietetics Composting Project supported by a Nicholls State University Research Council Grant. Tasters will complete a supertaster assessment using four taste-testing strips (phenylthiourea, sodium benzoate, thiourea, and a control) and indicate whether they perceive bitter, sweet, or no taste. Afterward, tasters will record whether they liked or disliked the chimichurri sample. Descriptive statistics and Fisher's exact test will be used to evaluate the association between supertaster status and sample preference. We anticipate that the findings will provide insight into genetic influences on flavor perception and their impact on dietary patterns.

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THE ROLE OF PHYSICAL THERAPY TECHNICIANS IN ENHANCING PATIENT ENGAGEMENT AND REHABILITATION OUTCOMES

LILY ELLIS

The role of physical therapy technicians is often overlooked, yet so important when it comes to helping the physical therapists and their patients. This project examines how physical therapy technicians contribute to treatment adherence, patient engagement, and overall, the rehabilitation outcomes through clinic interactions. Using observational insights in outpatient physical therapy settings and a review of current rehabilitation literature, this project identifies common and specific barriers patients face. These include examples such as pain, lack of motivation, and a lack of understanding the role these certain exercises play in returning to one's best health. The project looks into the certain ways the physical therapy technicians support licensed physical therapists. Some examples of this are demonstrating exercises, performing therapeutic treatments like heating or stim pads, and ensuring the patient's safety. The project additionally emphasizes the importance of encouraging and communicating with the patients through the rehabilitation process. By highlighting the contributions of physical therapy technicians, the project emphasizes the value of collaborative groups in physical therapy and the impact it has on the patient's growth and success with their recovery. These findings highlight that optimizing and recognizing the importance of physical therapy technicians and their roles may enhance patient experiences and improve their rehabilitation success.

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THE EFFECTS OF PSYCHOLOGICAL INTERVENTION ON QUALITY OF LIFE FOR ADULTS WITH ACUTE PANCREATITIS

LOGAN GORE

Acute pancreatitis, a sudden-onset condition characterized by severe symptoms and considerable uncertainty, can take a major toll on patients' psychological well-being and overall quality of life. Although the management of acute pancreatitis primarily focuses on alleviating physical symptoms, recent evidence indicates that nursing care should also address psychological needs to improve clinical outcomes and patient well-being. The purpose of this literature review was to examine the relationship between mental health and acute pancreatitis, identify nursing-led psychological interventions, and evaluate their effects on quality of life and clinical outcomes in adults. This review included quantitative and qualitative studies with control and intervention groups that assessed the impact of psychological interventions on hospitalized patients with acute pancreatitis. Across the reviewed studies, findings demonstrated that nursing-led psychological approaches, such as education, therapeutic communication, environmental modification, and mindfulness-based stress reduction, positively influenced patients' psychological well-being. These interventions were associated with improved clinical and psychosocial outcomes, such as reduced anxiety and depression, shorter hospital stays, and lower complication rates. Collectively, the findings of this literature review support the need for integrating psychological interventions alongside standard nursing care to enhance patient-centered care and promote improved outcomes for adults with acute pancreatitis.

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VIRULENCE FACTORS IN *KLEBSIELLA PNEUMONIAE*

AVERY GUIDRY

Klebsiella pneumoniae is a known gram negative bacterium. It causes severe bloodstream and urinary tract infections as well as illnesses like meningitis and pneumonia. *K. pneumoniae* promotes these infections and establishes itself within a host by utilizing virulence genes. *K. pneumoniae* is considered a highly antibiotic-resistant pathogen and contains many antibiotic resistance genes, including those that make them resistant to carbapenems and β-lactamases. NDM-1 is a gene found in a plasmid that codes for the enzyme New Delhi metallo beta-lactamase. This enzyme allows *K. pneumoniae* to hydrolyze both beta-lactams and carbapenems. Genomic DNA was extracted from clinical *Klebsiella* isolates collected from a hospital located in southern Louisiana and used for PCR amplification to identify presence of species as well as New Delhi metallo beta-lactamases. PCR-based detection of virulence genes is a valuable method in epidemiological studies and aids in gaining insight into their impact on clinical outcomes.

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REFORMING THE AMERICAN HEALTHCARE INSURANCE SYSTEM

LAUREN GUIDRY

Throughout the decades, the U.S. healthcare system has faced ongoing challenges regarding high costs, unequal access to resources, and a system that tends to prioritize profit over the wellbeing of patients. This project implements the ideas of a balanced reform strategy focused on value-based care, prevention, fairness, and responsible innovation. To accomplish this, I analyzed peer-reviewed research, policy evaluations, and TedxTalk presentations addressing value-based care, social determinants of health, healthcare financing, elder care reform, and artificial intelligence. Based on the research, I designed a reform framework built on four major policy changes. The policy changes include transitioning from fee-for-service reimbursement to value-based payment models, expanding preventive and primary care services, implementing community-based interventions that address social and economic health imbalances, and making pricing more transparent through simplified billing systems. The proposal also incorporates the responsible integration of artificial intelligence and global hospital budgeting to reduce unnecessary hospitalizations. A phased implementation timeline was developed to demonstrate attainability and allow for adjustment. Although there are many concerns about the political duality and total cost, saving money through prevention and administration efficiency could balance out the initial costs. This plan focuses on improving quality of care, making healthcare more accessible, and being transparent with funding.

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HOST–GUEST COMPLEXATION OF PILLAR[6]ARENES TOWARDS PFAS

GAVIN HARMAN, XUXIAN (MATTHEW) HE

Per- and polyfluoroalkyl substances (PFAS) represent a rapidly growing global environmental concern due to their widespread use, extreme chemical stability, and persistence in water systems, where they are associated with adverse health effects. Supramolecular chemistry offers a promising strategy for the selective capture and removal of PFAS from contaminated water. In this study, sulfated pillar[6]arene—a macrocyclic host molecule with a robust multigram synthesis, well-defined cavity size, and electron-rich property—is investigated as a potential receptor for PFAS. Host–guest interactions between sulfated pillar[6]arene and various perfluoroalkyl acids are evaluated by determining binding constants using nuclear magnetic resonance (NMR) spectroscopy and isothermal titration calorimetry (ITC), while formation of well-defined complexes is further confirmed by single-crystal X-ray diffraction when possible. This work aims to establish a fundamental understanding of PFAS recognition by pillar[6]arene and to provide a foundation for the development of new materials for PFAS capture and water remediation.

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THE ROLE OF NURSES IN MANAGING INFECTIOUS DISEASES

BEYONCE HENRY

Infectious diseases continue to pose a major worldwide concern, increasing morbidity, mortality, and healthcare burden. Nurses are at the forefront of managing different conditions through early identification, prevention, patient education, and infection control practices throughout clinical practice within the healthcare setting. A review of current clinical guidelines, nursing interventions, and nursing strategies highlights essential responsibilities in the management of infectious diseases. This project evaluates the significant role nurses play in managing infectious diseases through infection control interventions, usage of personal protective equipment, impact of nursing education and training, and technological innovations. The project objectives include defining what infectious diseases are, examining the role of nurses in managing infectious diseases, identifying infection control interventions implemented in practice, evaluating the effectiveness of personal protective equipment (PPE), discussing the impact of nursing education and training on adherence with infection control protocols, infectious disease management, and current policy, describing the impact of technological innovation on infectious disease management, and analyzing challenges faced by nurses in implementing infection control interventions into practice. Focus areas include infection control prevention and control measures, special precautions, environmental surveillance, implementing policies, integrating technology, using proper personal protective equipment, nursing training, and nursing education. Findings indicate that bridging the gap between nursing education and training, timely assessment, constant adherence to infection control protocols, and integrating artificial intelligence to enhance data analysis can help nurses manage infectious diseases. Therefore, nurses play a significant role in managing infectious diseases through multiple avenues.

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ANTISENSE MS2 LYSIN AND REPLICASE TRANSCRIPT FOR POTENTIAL PACKAGING WITHIN MS2 VLP

KIRA JEANMARIE, ALYSSA BATTAGLIA, EMILY DANEHOWER, DR. RAJ BOOPATHY, DR. RAJKUMAR NATHANIEL, & DR. HIMANSHU RAJE

MS2 coliphage is an RNA virus that infects *Escherichia coli*. One method to neutralize MS2 phage is to create an MS2 virus-like particle. MS2 RNA was reverse-transcribed to generate cDNA. The coat protein and maturase genes from the MS2 coliphage were then amplified with specific primers. The primers contained a T7-phage promoter sequence that was added at the 5' end of the forward primers, immediately followed by a short spacer sequence and a Shine-Dalgarno sequence. The products were then transcribed by T7 RNA polymerase. The resulting transcripts were introduced into a bacterial cell-free expression system for translation. Western blot detected MS2 coat protein at ~14kDa. Coat protein and maturase co-expression extracts were sent for visual analysis to look for capsid formation with a transmission electron microscope. Electron micrographs revealed the presence of capsid-like particles of ~30nm diameter. MS2 lysin and replicase genes were amplified together with T7 promoter embedded within the reverse primer. This PCR product was used to create a fluorescein labeled antisense transcript by in-vitro transcription. This transcript was subjected to a packaging reaction with a bacterial cell-free expression system. The reaction was carried out for 16 hours. The initial and final fluorescence was measured by a realtime PCR instrument at the endpoint setting. Results hinted at potential packaging of the antisense transcript with significant reduction in fluorescence after 16 hours.

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DETECTION OF VIRULENCE GENES BY PCR IN CLINICAL ISOLATES OF *STAPHYLOCOCCUS AUREUS* FROM A TERTIARY HOSPITAL IN SOUTHERN LOUISIANA

BLAISE KLIEBERT, JACE MORVANT, ANTHONY BATTAGLIA, LANDON AUCOIN, AVERY HOLLIE DEVOLTZ, JOSHUA BERGERON, MYRA BERTHIAUME, AND DR. RAJKUMAR NATHANIEL

Staphylococcus aureus, a potentially pathogenic gram-positive bacterium, causes infectious diseases and postoperative complications. *S. aureus* has virulence genes that promote its ability to establish itself and cause pathogenicity in its host. Resistance to β-lactams in methicillin-resistant *S. aureus* (MRSA) is acquired by the transmission of a mobile genetic element, the staphylococcal cassette chromosome (SCC mec), carrying a methicillin resistance gene MecA which encodes for the penicillin-binding protein (PBP-2A). The Panton-Valentine leukocidin (PVL) gene encodes a cytotoxin that causes leukocyte destruction and tissue necrosis. Alpha hemolysin (Hla) gene codes for a β-pore-forming α-toxin that perforates the plasma membrane. Toxic shock syndrome toxin-1 (TSST-1) is a superantigen that over-stimulates T-cells; activated lymphocytes produce a cytokine storm which leads to inflammation and tissue damage. Genomic DNA was extracted from clinical MRSA isolates collected from a tertiary care hospital in southern Louisiana, and used for PCR amplification of mecA, PVL, Hla, and TSST-1 genes. The presence of thermonuc was used for species identification. PCR confirmation of the presence of virulence genes is a useful tool for epidemiology and understanding the role that these genes play in clinical outcomes.

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LOUISIANA IMPACTS FROM THE DEEPWATER HORIZON OIL SPILL

TYLER LEDET

The 2010 Deepwater Horizon Oil Spill happened on the Macondo well at Mississippi Canyon 252. It was the most devastating oil rig disaster in U.S. history. The cement seal failed on the oil well because it did not stop the pressurized oil and gas from escaping through the drilling pipe casing and the riser pipe that fed it back up to the drilling platform. The blowout preventer failed on the oil well because the oil wellhead could not be sealed off properly from the drill pipe to prevent the escaped oil and gas from reaching the drilling platform and bursting the Deepwater Horizon into flames.

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PREVENTING CLABSI IN ICU PATIENTS THROUGH HAND HYGIENE

MATTIE LEE

Central-line associated bloodstream infection (CLABSI) is a type of hospital inquired infection (HAI) that can be fatal (Karimian et al., 2025). Thousands of intensive care patients (ICU) patients are infected yearly, leading to high mortality rates, frequent hospital stay, and increased healthcare cost (Karimian et al., 2025). With proper hand hygiene, CLABSI can be prevented.

Project outcomes are as followed: explore current practices that are implemented to reduce CLABSI rates; identify nursing practices, behaviors, and attitudes that can contribute to CLABSI; and discuss the use of hand hygiene as a preventative measure in relation to CLABSI.

Findings of this literature review show that there is reduction in the use of hand hygiene when handling central lines even though hand hygiene is an effective prevention guideline. 80.9% of nurses interviewed believe that using proper hand hygiene before and after inserting, accessing, or dressing a central line reduces the risk of CLABSI (Alqalah, 2024). Hospital leadership recognize that hand hygiene is essential, so much so that 96% of nurses reported that someone in leadership directly observed and monitored the nursing performing hand hygiene (Pisney et al., 2024). Results of studies show that ICU nurses have weak knowledge, attitudes, and practices towards infection control (Karimian et al., 2025).

To reduce the rates of CLABSI in ICU patients, nurses should participate in continuous education courses that strengthen knowledge on infection control and hand hygiene and discuss barriers that impede performing effective infection control practices.

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IMPACT OF PHYSICAL EXERCISE ON UNIVERSITY STUDENTS EXPERIENCING DEPRESSION

MOLLIE LEONARD

While depression, anxiety, and many other mental health disorders are becoming greatly prevalent within many age groups, college students account for large majority of this population due to the amount of stress endured within the ages of 18 to 22. While symptoms can sometimes be alleviated with antidepressants and antianxiety medications, these often lead to dependency issues and negative side effects such as weight gain, sleep disturbances, and reproductive dysfunction. Through a search of databases including PubMed and ProQuest within the Nicholls State University Library as well as Google Scholar, it can be concluded that physical exercise can be just as effective as some medications while excluding negative side effects. Overall, it was found that while frequency, duration, and intensity of exercises assist in improving symptoms, intensity is the strongest reducer. This reduction in symptoms can be attributed to the fact that exercise regulates hormones such as serotonin and noradrenaline while also promoting better coping skills. Implementing physical exercise prior to prescribing pharmacological interventions can assist in decreasing treatments for other co-morbidities that result with the use of medications as well as improving patient satisfaction.

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A QUANTUM THEORETICAL PERSPECTIVE OF THE ELECTROPHILIC AROMATIC SUBSTITUTION REACTION OF CHLOROTOLUENE

JOSEPH LOUPE

Electrophilic aromatic substitution (EAS) is a reaction mechanism commonly taught in introductory organic chemistry to explain the chemical properties of benzene and its derivatives. When a second substituent is introduced to a monosubstituted benzene, EAS can be used to predict whether the incoming electrophile preferentially attacks the ortho, meta, or para position. This study investigates whether electronic structure calculations can provide a quantum-mechanical perspective on the EAS mechanism. Ab initio calculations using the GAMESS 6-31G* basis set, with the g3mp2 add-on, were performed at chemcompute.org for the proposed intermediates and products formed during chlorination at the ortho, meta, and para positions of toluene. The calculated entropies and heats of formation were used to determine equilibrium constants for interconversion among the three intermediates, as well as among the three products. The results agree with the experimentally established preference for substitution at the ortho and para positions, which is attributed to the electron-donating character of the methyl substituent in toluene. Electrostatic potential maps generated to visualize positive-charge dispersal in the proposed intermediate structures are consistent with electron delocalization arising from resonance and inductive effects. This work demonstrates that modern computational chemistry tools can provide useful quantum-mechanical information that complements qualitative ideas in proposed reaction mechanisms.

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IMPLEMENTING COMPOST EDUCATION IN THE CLASSROOM BENEFITS CAMPUS SUSTAINABILITY: A PILOT STUDY

HAILEY MASON, AMBER SEAL

The United States Environmental Protection Agency estimated in their 2019 report that the US alone wasted 66 million tons of food over the span of one year, with 60% of that waste going to landfills. This waste negatively impacts the environment through greenhouse gas emissions and polluting air and water. The EPA claims that resources are also drained to produce these foods, while one third of food produced in the United States ends up never being eaten. Composting is one strategy to promote sustainable practices and reduce the impact of food waste. In this study, compost will be collected and weighed for two weeks pre and post intervention. The intervention includes a video lesson on the benefits and techniques of composting. The purpose of this study is to evaluate the effectiveness of a pilot education intervention program on the quantity of food waste, compost production, and compost quality in food labs at Nicholls State University. This study is part of a campus-based composting program for food waste reduction and experiential learning funded by the Nicholls State University Research Council.

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PHYSIOLOGICALLY INFORMED METHODS FOR PHYSICAL THERAPISTS TREATING TRAUMA-AFFECTED PATIENTS

JENA MODISETTE

Trauma is a significant aspect of life, often resulting from injury or other life-altering events. It may lead to lasting effects on an individual's physical, mental, and emotional health, and it is commonly associated with motor vehicle accidents, sudden falls, sports-related injuries, assault, workplace incidents, etc. These types of injuries can negatively affect a person's body in various ways, including bone fractures, torn ligaments, spinal cord dysfunction, and head trauma. Beyond the physical consequences, trauma can profoundly impact a person's psychological and emotional well-being, too. Individuals that have experienced some form of physical damage due to an adverse event may be an ideal candidate for trauma-related physical therapy. The purpose of this study is to highlight the clinical experiences of physical therapists and increase awareness of the resources available to recovering patients. It is hypothesized that individuals involved in traumatic accidents experience more than just physical pain, as significant emotional, cognitive, and social challenges are often included as well. Trauma may also contribute to persistent anxiety, depression, PTSD, embarrassment, frustration, decreased motivation, and fear of the future. A survey was distributed to licensed physical therapists across various workplace settings, including outpatient clinics, inpatient rehabilitation, and acute care hospitals. Statistical data from the survey will be recorded based on the percentage of trauma-affected patients treated by these physical therapists, as well as the approaches that they each implement into their clinical practice.

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BREAKING THE CYCLE OF TRAUMA: TRAUMA-FOCUSED THERAPIES FOR NURSES IN HIGH-INTENSITY CLINICAL ROLES

AMYRI MYLES

Nurses are frequently exposed to traumatic events in high-stress clinical environments, placing them at an increased risk for burnout, secondary traumatic stress, mental health disorders, and suicide. Despite the increased emphasis on mental health awareness, evidence-based interventions specifically tailored to support nurses remain limited. The purpose of this literature review was to evaluate the effectiveness of trauma-focused therapies—particularly eye-movement desensitization and reprocessing (EMDR) and trauma-focused cognitive behavioral therapy (TF-CBT)—in facilitating recovery from traumatic experiences among nurses. The review also aimed to increase awareness of the psychological impact of high-stress work environments, identify risk factors, prevalence, and symptoms of secondary traumatic stress, examine the consequences of unprocessed trauma in nursing, and compare trauma-focused psychotherapies with pharmacological treatments. A systematic search was conducted using the Nicholls State University Ellender Memorial library, with keywords including “PTSD,” “nurses,” “high-stress environments,” “EMDR,” and “medications.” Peer-reviewed, full-text articles published within the past five years were included. Findings suggest that a combined approach utilizing both pharmacological treatments and trauma-focused psychotherapies yields the most effective long-term outcomes. However, limited research specifically focused on nurses highlights the need for further investigation. Increasing awareness and expanding evidence-based mental health interventions are essential to supporting nurse well-being and sustaining the nursing workforce.

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PERFORMANCE EVALUATION OF A CONSTRUCTED WETLAND FOR NUTRIENT REMOVAL

KARISHMA NATHANIEL, TONI CORTEZ, CARLEY PINEL, EMILY ARCENEAUX, DR. RAMARAJ BOOPATHY

Antibiotic resistance is and has been a prevalent issue in public health in recent years. Besides the bacteria found in medical and clinical settings, there are genetic reservoirs called the resistome in the environment that hold antibiotic resistant bacteria (ARBs) and antibiotic resistance genes (ARGs) that provide ample opportunity for horizontal gene transfer in the environment. Because of these growing challenges and environmental reservoirs for microbes, new methods for dealing with ARB and ARGs are needed. Both natural and constructed wetlands have shown potential to be effective in reducing antibiotic resistance in the environment. When compared to traditional wastewater treatment facilities, constructed wetlands have been shown to be cheaper, more efficient, and better in removing antibiotics and antibiotic resistance genes. The purpose of this study is to determine the efficacy of the Nicholls State University's newly constructed wetland in reducing nutrients and ARB. Water samples were collected once a month for a year in the inlet and outlet of the constructed wetland and analyzed for water chemistry, fecal coliform bacteria and ARB. The results showed reductions in sulfate, ammonia, total organic carbon, phosphate, nitrate, and fecal coliform bacteria in the water samples of the outlet compared to the inlet. The presence of ARB was noted in both sites, but ARB and multi-drug resistant isolates were decreased in the outlet samples. The preliminary results of this study have demonstrated the efficacy of the constructed assimilation wetland in reducing nutrient load, fecal coliform bacteria, and ARB from the water in Bayou Folse.

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DILL (*ANETHUM GRAVEOLENS*) FORM AND CONSUMER PREFERENCE IN RANCH DRESSING

OLIVIA NAVARRO, LILY DOMINIQUE, EMILY ELLIOTT, TAYLOR PHILPOTT, NORA SCULLY

Dill (*Anethum graveolens*) is one of the most common ingredients used in ranch dressing recipes, and can be used fresh, dried, or frozen. The state of the dill when it is added to the recipe may influence consumer flavor perception and preference. The purpose of this project is to evaluate whether dill type (fresh, frozen, dried) affects taster preference in ranch dressing. It was hypothesized that tasters will prefer ranch prepared with fresh dill most and dried dill least. To investigate this, three identical batches of ranch will be prepared, differing only in the form of dill used. Recipe samples will be coded to blind participants: fresh (238), frozen (561), and dried (369). Fresh and frozen dill will be harvested from the program's compost garden as part of the Dietetics Composting Project supported by a Nicholls State University Research Council Grant. Participants will taste all three recipes and rank them from 1 (most preferred) to 3 (least preferred). Descriptive statistics and a Friedman test will be used to analyze preference rankings across dill types. Findings from this project may inform recipe development and ingredient selection in culinary and foodservice settings.

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COSMOMICS

XANDER NICHOLS

Speculation regarding the possibility of life beyond Earth dates back to antiquity. Only in the 21st century have scientists applied sufficiently advanced chemical and spectral technology to identify with atomic certainty extraterrestrial molecules of biological significance. Signatures of amino acids, ribose and other sugars, glycolaldehyde, ammoniated salts, dimethylsulfoxide, phosphine, various nucleobases, aliphatic molecules, and even peptides, have recently been identified from meteorites, comets, and planetary atmospheres. Amid accelerating discovery, including anticipation of detailed laboratory identification of molecules captured in situ from the carbonaceous, near-Earth asteroid 101955 Bennu (collected by NASA in 2023), curation of molecular information becomes paramount for both current understanding and improving (and assuring) technology and search missions. Toward that end, we have conducted a survey of recently discovered astrobiochemicals and curated information on molecular type, biological significance, discovery locus, discovery technology, space mission, and peer-reviewed reporting. Our work anticipates international collection of such astrobiochemical information in a field we hereby name “cosmomics.”

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BIODEGRADATION OF TRIMETHOPRIM, A COMMON ANTIMICROBIAL, BY A BACTERIAL CONSORTIUM ENRICHED FROM THIBODAUX SEWAGE TREATMENT PLANT

TRISTAN NILSSON, DR. RAMARAJ BOOPATHY, DR. DARCEY WAYMENT, DR. HIMANSHU RAJE, DR. BLISS BROUSSARD

Antibiotic resistance has been a persistent issue in public health for the past few decades and in the present. Usage of antibiotic prescriptions by medical and animal husbandry practices have led to a distribution in the environment. Antibiotics in excrement and hospital effluents travel to wastewater treatment plants and establish a selection pressure on natural bacteria. Louisiana is one of the top five states to have the highest rate of antibiotic prescriptions. The purpose of the study was to test for antibiotic resistance and biodegradation of Trimethoprim (TMP), a common antibiotic, in the Thibodaux sewage treatment plant. Anaerobic digester sludge was collected and a consortium was created. The consortium was grown in different conditions and concentrations in triplicates for 14 days and was analyzed with high performance liquid chromatography and mass spectrometry on day 0 and day 14. Kinetics of the consortium biodegradation occurred afterwards and was analyzed every 3 - 4 days until day 19. A pure culture was tested for trimethoprim degradation and trimethoprim resistant genes. The results showed that the consortium was able to degrade Trimethoprim in co-metabolic conditions, formed 4 desmethyl trimethoprim after degrading, and followed zero order kinetics. The pure culture isolate was identified as Bacillus cereus and was determined to have sulfonamide resistance genes, sul3 and sulA, but did not actively degrade Trimethoprim.

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INVESTIGATING SECONDARY METABOLISM OF N-HEXADECANE BY *VIBRIO VULNIFICUS*

ETHAN ORDOYNE, DR. BLISS BROUSSARD

Vibrio vulnificus, a flesh-eating pathogen common in Gulf of Mexico waters, is frequently detected in oil-contaminated environments and exhibits apparent chemotaxis toward hydrocarbons such as n-hexadecane. Although this association suggests possible ecological interactions, whether *V. vulnificus* can utilize hydrocarbons as a carbon source remains uncertain. This study tested the ability of *V. vulnificus* to metabolize n-hexadecane under laboratory conditions. Cultures were incubated in artificial seawater (ASW) medium containing background dissolved organic carbon and supplemented with 2.5% n-hexadecane. Uninoculated controls were included to assess abiotic hydrocarbon degradation. After 72 hours of incubation, hydrocarbons were extracted and analyzed by gas chromatography–mass spectrometry (GC-MS), while potential aqueous metabolites were examined by liquid chromatography–mass spectrometry (LC-MS). No measurable degradation of n-hexadecane was detected by GC-MS, and LC-MS revealed only nonspecific byproducts unrelated to hydrocarbon metabolism. These results show that *V. vulnificus* does not metabolize n-hexadecane under the tested conditions, although it may adapt to do so over longer periods. Its association with hydrocarbons may instead reflect a surface-seeking or protective response, suggesting that further work is needed to determine how *V. vulnificus* interacts with oil in marine environments.

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HEALTHCARE CRISIS OF AFFORDABILITY PREVENTING THE SEEK OF CARE BY SOCIETY

LUCIE OTT

The healthcare system in the United States has existed for centuries, continually evolving as new policies, regulations, and societal needs emerge. As many policy makers want to adopt a new universal healthcare system, I believe we should abolish that idea and make provisions to improve our current healthcare system. While this evolution allows individuals to choose their healthcare providers and insurance options — including Medicare, Medicaid, and private insurance — the rising cost of healthcare remains one of the system's greatest flaws. Although insurance often covers a large portion of medical expenses after the deductible is met, the remaining costs can still be overwhelming leaving individuals with significant financial responsibilities. As a result, many people delay or avoid seeking care altogether. Even among Medicaid recipients, who make up roughly one in five Americans, affordability remains an issue due to transportation barriers, limited covered services (vary state to state), and additional costs that are not fully reimbursed by insurance. Addressing these challenges requires changes in the healthcare system, especially within Medicaid. Expanding coverage for copayments, reducing deductibles, and increasing access to preventative care facilities and community clinics are potential strategies that could help lower healthcare costs while improving access for vulnerable populations.

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EXPLORING THE IMPACT OF VIRTUAL REALITY ON ATTENTIONAL SKILLS

MARLYCE PERRY

As technology continues to advance, Virtual Reality (VR) offers new ways to explore how immersive experiences influence human attention and cognition. This study examined how calming and stimulating VR environments affect attention and task performance. Eleven participants from Nicholls State University completed both VR conditions, while a control group of nine participants performed the same attention task without VR exposure. Performance was measured utilizing a modified version of the Perfection® game before and after each session. Results showed that both VR environments improved completion times, with the calming experience producing slightly greater gains. These findings suggest that immersive VR exposure may enhance short-term attention and engagement. The results align with previous research indicating that VR can improve focus, emotional regulation, and cognitive performance through heightened immersion and presence, reinforcing its potential to positively influence attentional skills.

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THE IMPLEMENTATION OF COMPOSTING CURRICULUMS AND THE EFFECTS ON SUSTAINABILITY AND KNOWLEDGE-BASED ATTITUDES FOR STUDENTS AT NICHOLLS STATE UNIVERSITY: A PILOT PROJECT

ABBY RICKER, RAVEN BENOIT

Food waste is a global issue, with nearly 30 percent of food produced worldwide lost or wasted, equaling around 1.3 billion tons per year.1 Higher education institutions play a crucial role in this problem being that students often underestimate their role in food due to a lack of knowledge, awareness, and skills to properly reduce food waste.2 The purpose of this study is to discover if integrating a composting curriculum within the culinary and dietetics programs at Nicholls State University will increase sustainability practices, enhance knowledge, and strengthen attitudes towards composting and food waste reduction. The method used for data collection is a questionnaire sent from a feedback system (Qualtrics) at the beginning of the study, which employs data gathering and data analyzation. A 30-item questionnaire will be distributed among the CULA and DIET classes to evaluate knowledge, attitudes, and practices. The pre-video questionnaire had a response rate of 33%, while the post-video response rate was 36%. The results demonstrated increases in knowledge, attitudes, and practices after implementing the educational intervention across all majors. DIET students scored higher overall on knowledge assessments, and students from other majors showed the largest improvement. Perceptions regarding composting were generally positive at baseline and slightly increased post intervention. Although the findings weren't statistically significant due to the small sample size and response variability, the results suggest that composting curriculums positively influence student attitudes and knowledge towards composting. Further research with a larger sample size and less extraneous variables is recommended.

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KEATONQUANTITATIVE, A NON-PROFIT STARTUP EMPOWERING RETAIL INVESTORS

ALEXANDER RIVERS, DR. EN MAO

Financial markets are extremely noisy and non-stationary and with 80 million retail investors in the U.S., representing 60% of households, Public Investor Survey finds 3 in 5 investors use the brokerage app they trade on for information. Many retail investors fall victim to emotional decision making, trend chasing, and analysis paralysis due to an overload of information and not knowing which resource to trust. These brokerage apps provide statistics on user volume, forecasted earnings, and buy ratings, with some showing a “Bear and Bull Says”.

The purpose of this non-profit startup project is to develop, implement, and evaluate a free investment analysis tool powered by various large language models (LLM). KeatonQuantitative was developed using Python and a variety of packages and libraries, including yfinance and XGboost. I once struggled with understanding the indicators used in financial markets, and with KeatonQuantittative, I now have the ability to better assess companies' equities. KeatonQuantitative is driven by five LLMs, each generating a buy, sell, or hold signal separately, based on its own logic. These signals are evaluated against market returns on the day of execution and compared to a free technical indicator resource on Trading View, and each other. Signals are collected in a spreadsheet over a 20-day period, results are visualized and ranked by performance. This study will contribute to the societal understanding of how LLMs perform relative to the market index, which indicators are effective, and how investors can benefit from incorporating LLMs in investment decisions.

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USING A CONSUMER-GRADE BLOOD GLUCOSE MONITOR TO STUDY MUTAROTATION

ROSS RODRIGUE, DR. GLENN LO

Mutarotation refers to the change in optical rotation of a solution resulting from the interconversion between anomeric forms of a solute molecule. This study explores the feasibility of using consumer-grade blood glucose monitors (BGMs) to measure glucose concentrations in non-blood samples for instructional laboratory experiments. These devices utilize glucose oxidase, an enzyme that is selective for the β anomer. Glucose oxidase test strips, when used with BGMs, measure the concentration of the β anomer exclusively. However, the device readout reflects the total glucose concentration (α and β), under the assumption that the anomers are in equilibrium, as is typical in blood samples. An aqueous solution of α-D-glucose was allowed to reach equilibrium. Glucose concentrations were then determined using BGM readouts, with adjustments made to account for differences between the sample and typical blood matrices. Measurements were taken using both expired and unexpired test strips. Relative standard deviations from 10 strips of the same lot revealed significant variability, suggesting that a high number of trials is recommended for reliable equilibrium measurements and frequent sampling is advised for kinetic studies. The mean obtained from unexpired strips fell within accepted accuracy standards, while the mean from expired strips was found to be unreliable.

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A TASTE OF INDEPENDENCE: EFFECTS OF CHILD-LED SENSORY EXPLORATION ON VEGETABLE INTAKE

AMBER SEAL, DR. ALLISON GAUBERT, & DR. BRIGETT SCOTT

Vegetable intake among children in the United States is staggeringly low. Countering this issue is particularly important in preschool age children, whose dietary patterns are being developed for their futures. Some studies suggest that encouraging food intake amongst children can be accomplished through nutrition education and sensory exposure. Despite this, research to determine whether these techniques have applications for vegetables of varied textures in preschool age children is lacking. For this study, two rounds of data collection will take place amongst 3–4-year-old participants, each round focusing on a different textured vegetable. Data collection utilizing pre-and-post intervention analysis is expected to demonstrate if student-led discussions and sensory exploration increases the acceptance of selected vegetables. We expect our results to provide further insight into the applications of sensory food exploration in childcare settings for enhancing overall diet quality.

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THE IMPACT OF FALL PREVENTION PROTOCOLS IN REDUCING FALL RATES IN ELDERLY

EMILY SMITH

Falls among the elderly population continue to be an ongoing public health concern. These incidents can lead to loss of mobility, fractures, hospitalization, and even mortality. Due to the significant increase in the aging population, it is essential that effective strategies in reducing these risks are implemented. The purpose of this project was to identify evidence-based interventions that support lowering fall risks among this population in the healthcare setting. Interventions found relevant include screening, providing effective education, exercise, and performing thorough medication assessments.

The objectives of this project were to evaluate the effect of educational intervention on fall prevention measures, discuss exercise routines that should be followed to decrease risk of falls, link the impact technology has made in improving exercise programs, discuss physiological changes associated with age and its effects on medication regimen, and identify screening tools used to assess fall risk in older adults. The findings including routine screening, patient education, exercise interventions, and medication review indicate a reduction in fall risks among the elderly population. Implementation of these protocols enhance patient safety, improve quality of life, and lead to a reduction in hospital costs.

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ARE TECHNOLOGICAL INTERVENTIONS BENEFICIAL FOR OLDER ADULTS WITH DEMENTIA?

EMILY TERREBONNE

As the baby boomer generation ages, patients suffering from dementia are increasing in prevalence and possess many risks to their safety and well-being, especially within the clinical setting. Previous studies have concluded that pharmacological interventions are not only ineffective but pose a health risk to older adults since metabolism and excretion is slowed tremendously and can precipitate toxic effects. Leaving researchers to search for nonpharmacological interventions, technological advancements have recently been suggested to help older adults with physical and emotional symptoms of dementia. This study intends to understand if different technology outlets can be used within the clinical setting to support and increase the quality of life in older adults with dementia. To achieve this goal, this study analyzes three research articles that utilize different types of technology, yet all for the same goal of promoting comfort and safety for older adults with dementia. The technology used includes an intelligent robot, an immersive virtual environmental technology (IVET) tablet, and a social robot. The three studies describe how each technological intervention affected the older adult's cognition, psychosocial behavior, activity level, and overall quality of life. Overall, the studies demonstrated that technological interventions improved physical activity, declined symptoms of depression and agitation, and did not precipitate any exacerbations throughout all experiments. The purpose of this research study is to plan for the best possible outcomes for older adults with dementia by maintaining patient safety, enabling comfort, and promoting a healthy lifestyle and psychosocial well-being.

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ANAEROBIC DIGESTION OF CHICKEN MANURE AND SUGARCANE BAGASSE FOR METHANE PRODUCTION

CAROLINE THERIOT, DR. RAJ BOOPATHY, DR. DARCY WAYMENT, DR. HIMANSHU RAJE

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.

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EFFECT OF SCARIFICATION ON THE GERMINATION RATES OF THREE SPECIES OF NATIVE HIBISCUS

DANI THIBODEAUX, DR. QUENTON FONTENOT, DR. ALLYSE FERRARA

In Louisiana, there are several species of native hibiscus including *Hibiscus lasiocarpos*, *Kosteletzkya pentacarpos* and *H. coccineus*. Native hibiscus can be used in landscaping and seeds can be easily collected to produce new seedlings. Native hibiscus seeds are typically scarified to encourage germination by scratching the seed on fine-grit sandpaper to weaken the seed coat. Our objective was to determine if seed scarification improves germination rates of native hibiscus. In a greenhouse study, we compared the germination rates of scarified and un-scarified seeds for three native hibiscus species. After one month, germination rates were compared by scarification treatment and species using ANOVA with Tukey post-hoc analyses. Germination rates (%) of scarified and un-scarified seeds for the three native species were similar ($P < 0.0001$) therefore germination rates were pooled by species. Germination rate (mean ± SE; $P = 0.05$ was highest in *H. coccineus* (93 ± 1.5), followed by *K. pentacarpos* (82 ± 2.1) and *H. lasiocarpos* with the lowest rate (75 ± 2.3). Based on our results, scarification does not improve germination rates and is not needed to produce native hibiscus seedlings. Because scarification does not increase germination rates we can simplify production of native hibiscus seedlings.

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DIETS OF YOUNG-OF-THE-YEAR BLUE CATFISH *ICTALURUS FURCATUS* IN THE LOWER MISSISSIPPI AND ATCHAFALAYA RIVERS

ANDREA TIRADO, DR. QUENTON FONTENOT, DR. ALLYSE FERRARA

Understanding trophic dynamics in large river systems can be useful for evaluating how anthropogenic modification influences early life stages of fishes. The lower Mississippi River and the lower Atchafalaya River differ in floodplain connectivity and habitat complexity. This study examined diets of young-of-the-year (YoY) Blue Catfish *Ictalurus furcatus* from both rivers to compare diets. Sampling was conducted in fall 2024 and 2025 at two sites on each river. A total of 50 YoY catfish were collected from each site for each year. All specimens were measured (mm), weighed (g), and dissected to obtain gut contents. Prey items were identified to the lowest practical taxonomic level and classified into broad functional categories for analysis, including aquatic insects, small crustaceans, mollusks, detritus/plant material, and unidentifiable material. DNA barcoding will be conducted to further refine prey identification. Differences in size, weight and diet composition between river systems and sampling years will be determined using multivariate statistics. Results from this study will provide insight into how variation in river modification and floodplain connectivity influence large river trophic pathways.

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FORGOTTEN FRONTLINES: THE UNRECOGNIZED COLONIAL SOLDIERS OF WORLD WAR II

JAIDEN VALURE

Colonial soldiers were vital to allied armies for manpower, combat skills, and labor support in theaters such as Burma, North Africa, and Italy. They faced high casualties, harsh conditions, and systemic racism. Many returned home to broken promises and unequal treatment. Their legacy influenced postwar independence movements and challenged Eurocentric views of WWII history.

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BIODIVERSITY METRICS OF HERPETOFAUNA COMMUNITIES IN PREVIOUSLY DISTURBED HABITAT

GABRIEL WHITE

Reptiles and amphibians are sensitive species that are heavily affected by environmental changes, and a biodiverse rich community can indicate a healthy ecosystem. By temporally tracking biodiversity metrics of herpetofauna communities, we can assess how previously disturbed habitats recover. Artificial cover boards give herpetofauna a safe refuge and allow 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 along woody vegetation edge habitat, while the wetland region has six sites within a hardwood tree patch. Each site contains four individual pieces of 1 x 0.6m plywood boards. Data is collected once weekly consisting of above and below board temperatures, individual species, and the number of individuals sighted under each board. Using the Shannon-Wiener Diversity Index we compared diversity temporally, by site, and by temperature. Beginning in 2021 species richness inclined but has begun to plateau indicating a maximum richness. The field sites have higher diversity than the wetland sites with diversity peaking all-round in the cooler parts of the year. Diversity may be lower in the warmer months due to increased reproductive activity and less nesting. 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.

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NEONATAL ABSTINENCE SYNDROME AND THE EFFECTS OF PRENATAL OPIOID EXPOSURE

AMAYA WILLIAMS

Opioid use during pregnancy poses many significant risks to both maternal health and fetal development, with Neonatal Abstinence Syndrome (NAS) being one of the most concerning and major effects of prenatal opioid exposure. NAS is a postnatal withdrawal syndrome among newborns that can result in immediate and even long-term complications. Despite the rise in diagnoses and increase in opioid use, it remains underrecognized and understudied. The purpose of this literature review is to examine the effects of prenatal opioid exposure on newborns and children, identify the clinical manifestations of NAS, and highlight evidence-based interventions that support effective management and education to improve neonatal outcomes. A review of literature was conducted using the Nicholls State University Ellender Memorial Library. Peer-reviewed quantitative and qualitative studies published within the last five years were included, using the keywords neonatal abstinence syndrome, prenatal opioid exposure, and effects of opioids on newborns. Findings indicate that infants with NAS commonly experience symptoms such as tremors, irritability, feeding difficulties, seizures, and prolonged hospitalization. Long-term outcomes may include developmental delays, behavioral and mental health disorders, and increased morbidity, often compounded by socioeconomic and environmental factors. This review emphasizes the vital role of nursing in early recognition of NAS, implementation of pharmacological and non-pharmacological interventions, and efforts of prevention. Increased education and continuation of research are essential in promoting improved outcomes and a healthier future for infants and families affected by NAS.

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BIODEGRADATION OF ACETAMINOPHEN USING A BACTERIAL ENRICHMENT ISOLATED FROM A WASTEWATER TREATMENT PLANT

MIA WILSON, DR. RAJ BOOPATHY, DR. DARCEY WAYMENT

Acetaminophen (APAP) is a pollutant in waterways and wastewater systems throughout the world. Biodegradation of APAP using certain bacterial strains has proven to be a safe and eco-friendly method in removal from water systems. Many bacterial strains are known to break down APAP, but the pathways in which they do so are not well understood. In this study, samples from an anaerobic digester collected from a wastewater treatment plant were used to develop bacterial enrichments in the presence of APAP. The bacterial enrichment was tested for the biodegradation of APAP under various conditions including APAP as the sole carbon source and co-metabolic condition with glucose as the co-substrate. The results showed bacteria grew even at the maximum concentration of 400 mg/L APAP. The culture condition with APAP as the sole carbon source produced a dark metabolite in the culture medium. Total organic carbon analysis showed 85.7% carbon removal from the sole carbon source, and 93.0% carbon removal from the co-metabolic conditions. This study is ongoing; the APAP metabolites will be analyzed using HPLC and LC/MS in the future, and the biodegradation metabolic pathway will be constructed using the identified metabolites.

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USING HYPERSPECTRAL AND LIDAR SENSORS TO CHARACTERIZE COHESIVE AND DEGRADED FLOTANT AT LAKE BOEUF, LOUISIANA

DANNY WOODS, DR. BALAJI RAMACHANDRAN, JONATHAN WILLIS, DR. CHRIS BONVILLAIN, NOAH WURTZEL, ALEX HIMEL, SAM LANDRY, REECE TOUPS, DR. GARY LAFLEUR

Flotant marsh is an integral edge habitat of Lake Boeuf. It is composed of mat made of vegetation and organic material that floats above a layer of water. To characterize flotant habitat we have chosen to survey two sites within Lake Boeuf that represent cohesive and degraded flotant mats. To collect our data, we use LiDAR and hyperspectral sensors mounted onto un-crewed aerial vehicles (UAV). The LiDAR sensor records geomorphic data such as the height of the vegetation canopy, as well as the interface between soil and water. The hyperspectral sensor records different wavelengths reflected off the plants which allow species identification and can contribute to understanding the phase of growth or health of certain vegetative species. To avoid damage to the habitat we are trying to preserve, we have developed a floating launch pad for our mission. In 2025 we identified several native species at Lake Boeuf flotant including Bulltongue, Cattail, Giant Cutgrass, and Maidencane dominating the cohesive mat. However, the degraded mats included several other species such as purple morning glory, parrotfeather, water hyacinth, button bush, and loosestrife. Preliminary analysis suggests that degraded flotant possesses a thinner mat and the presence of more non-native species. We foresee that our results will aid in the development of tools for rapid assessment of flotant so that resource managers can protect and restore this unique habitat of the Louisiana coastal ecosystem. This project was funded through the Restore Act; special thanks to J. Henkel at LA-COE.

UNDERGRADUATE STUDENT POSTER SHOWCASE

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OVERCOMING CHEMOTHERAPY RESISTANCE IN MYELODYSPLASTIC SYNDROME: THE ROLE OF JERVINE AS A SONIC HEDGEHOG PATHWAY ANTAGONIST

MORGAN WREN, DR. SARAH BERGERON

The Sonic Hedgehog (SHH) gene encodes a critical signaling protein essential for embryonic development and regulation of adult stem cell homeostasis. During embryonic development, the SHH protein acts as a morphogen, creating a chemical gradient that tells cells exactly where they are and what they should become—whether that is a neuron in the brain, a finger on a hand, or a vertebrae in the spine. In adults, this pathway remains active with SHH governing the proliferation and differentiation of adult stem cell pools; however, aberrant over-activation of this pathway in the bone marrow is a known driver of Myelodysplastic Syndrome (MDS) and its progression into Acute Myeloid Leukemia (AML). Such over-activation often results in the cancer being chemotherapy resistant, necessitating the development of novel targeted therapies. This study (YuTing et al., 2020) investigates the efficacy of Jervine, a steroidal alkaloid, as a pathway inhibitor to disrupt oncogenic SHH signaling. By analyzing CD34+ cells from 53 MDS patients and the MDS-derived MUTZ-1 cell line, researchers observed that Jervine treatment successfully inhibits the SHH pathway. Specifically, Jervine induces cell cycle arrest at the G0/G1 phase, effectively forcing malignant cells into stasis and halting disease progression. These findings transition the SHH pathway from a theoretical target to a practical therapeutic opportunity. By proving that inhibiting this specific developmental "switch" can overcome chemotherapy resistance, this work paves the way for a new generation of targeted treatments that could prevent the deadly progression of MDS into Acute Myeloid Leukemia (AML).

UNDERGRADUATE STUDENT POSTER SHOWCASE

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THE EFFECT OF TEMPERATURE ON APPLE SNAIL LIFE HISTORY

PAIGE ZERINGUE, GABRIEL WHITE, DR. TIMOTHY CLAY

The giant apple snail, *Pomacea maculata*, is an invasive species that is rapidly spreading throughout the Southeastern coast of the United States. The complete removal of these snails from the US is not an option, but conservation efforts can instead focus on understanding future range expansions. To this end, temperature-dependent life history trials are being conducted that focus on growth, survival, and fertility using captive bred apple snails. Three temperature treatments were set up in triplicate at 20, 25, and 30 °C, each with 20 juvenile snails, approximately 5mm in shell length. 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 were also noted weekly to track reproductive output and survivability. The 30 °C treatments reproduced first, but also exhibited the highest mortality rates, with no individuals surviving past week 72. The 25 °C treatment snails have produced the most clutches and exhibit similar adult body sizes to snails in the 30 °C treatments. The 20 °C treatments have the highest survival rates, but they did not produce a clutch until week 125. Our research thus far suggests that there are temperature dependent trade-offs in life history characteristics. From this research, we have produced a preliminary mechanistic model predicting apple snail distribution across Louisiana and the United States.

UNDERGRADUATE STUDENT POSTER SHOWCASE

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ANALYSIS OF BIOREACTOR GASES FROM THE ANAEROBIC DIGESTION OF SUGARCANE BAGASSE AND AGRICULTURAL WASTE

ADAM GAUTREAUX, DR. DARCEY WAYMENT, HIMANSHU RAJE, DR. RAMARAJ BOOPATHY

Anaerobic digestion of lignocellulosic biomass, such as sugarcane bagasse, provides a sustainable approach for renewable biofuel production and waste valorization. Accurate measurement of gaseous products is essential for evaluating reactor performance and optimizing biogas yield. This study describes the development of a gas chromatography method for analyzing gases produced during anaerobic digestion of sugarcane bagasse and other organic waste materials.

Gas samples were analyzed using gas chromatography with a thermal conductivity detector (GC-TCD) and a Restek Rt-Msieve 5A PLOT column (30 m × 0.53 mm ID × 50 µm). The method enables effective separation and quantification of permanent gases and light components commonly generated in anaerobic systems. Detection limits were approximately 5 µL for hydrogen and 1 µL for methane. In addition to hydrogen (H_2) and methane (CH_4), the method allows simultaneous detection of argon (Ar), carbon dioxide (CO_2), hydrogen sulfide (H_2S), nitrogen (N_2), and oxygen (O_2).

The developed method provides reliable and reproducible gas measurements suitable for routine monitoring of anaerobic digestion processes. This analytical approach supports optimization of biohydrogen and biomethane production from agricultural waste streams and improves assessment of renewable energy systems.

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PRE-ECLAMPSIA: LONG-TERM CARDIOVASCULAR HEALTH AND RISK REDUCTION INTERVENTIONS

LAUREN BELANGER

Preeclampsia impacts 2% to 8% of pregnancies globally, representing a significant concern within obstetric care (Yang et al., 2023). The most severe complication associated with this hypertensive disorder is cardiovascular disease (CVD) (Yang et al., 2023). CVD is the leading cause of mortality among women, and recent evidence indicates that women with a preeclampsia history have an increased lifelong risk of CVD development compared to parous controls with normotensive pregnancies (Brener et al., 2020). A cross-sectional study demonstrated that women have a limited understanding of their CVD risks after a preeclampsia diagnosis, along with a low level of CVD knowledge (Hussien et al., 2023). A mixed-method survey conducted by Jones et al. (2020) found that patients have a limited perception of CVD risk due to insufficient counseling from healthcare providers. Brener et al. (2020) performed a retrospective chart review, revealing that women are rarely asked about preeclampsia history during CVD risk screenings, in contrast to inquiries regarding smoking, hypertension, and diabetes (Brener et al., 2020). Obstetricians and nurses should educate patients regarding CVD risks immediately after a preeclampsia diagnosis and upon discharge (Hussien et al., 2023). Primary prevention is essential for educating patients with a preeclampsia history and effectively identifying these women during CVD risk screening (Brener et al., 2020). This approach aims to reduce the prevalence of CVD following preeclampsia (Brener et al., 2020).

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COMING FULL CIRCLE: HARMONY CIRCLE, NEW ORLEANS

ASHLEY BUSBY

This talk examines evolution of the former site of the Lee monument in downtown New Orleans. The Robert E. Lee Monumental Association of New Orleans was formed in 1870, just one month after the military figure's death, and was one of the first Southern projects to memorialize the Confederate leader. In February 1884, organizers dedicated a monumental bronze statue of Lee atop a sixty-foot marble column in what was then-known as Tivoli Circle. Following the Charleston massacre (2015), the city council voted in favor of removal, but efforts were initially held up in court. The statue was eventually removed and placed in a city-owned warehouse in 2017. Since then, the grassy park at the center of the traffic circle has been renamed Harmony Circle (2022), and the site has played host to temporary sculptural installations by Simone Leigh (2022) and Raúl de Nieves (2024). In late 2024, the city's Downtown Development District announced plans to reimagine the circle with input from a team of local architects and historians. This talk examines evolving approaches to reclamation in the wake of removal, tracking local and expert opinions on the capacity of public art and architecture to bring about change and healing.

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SCARRED MARSH: HISTORIOGRAPHY OF A WETLANDS VILLAGE IN COASTAL LOUISIANA

DR. JOHN DOUCET

The town of Golden Meadow, Louisiana, is the southernmost incorporated area of Lafourche Parish. Though first settlers to the area were European farmers arriving from Natchez, Mississippi, in the mid- 19th century, the village rapidly became home to generations of Acadians and other French-speaking peoples attracted to the economic independence of land- and water-based subsistence availed by surrounding wetlands. At the dawn of the 20th, the area served as site of one of the largest land reclamation farming projects in state history. However, for over a century, the origin and early history of Golden Meadow has remained vernacular, with locals sharing remembrances of goldenrod fields and a Midwestern land developer whose activity gave the village its early name: Canal Yankee. In this study, inspection of maps, courthouse records, and other historical documents, adds accuracy and precision to these remembrances and changes local understanding significantly. Notably, the study elucidates the activity of the Golden Meadow Land Developing Company, lead by a land agent of the Illinois Central Railroad, William H. Junk. At their height, Junk and the Company owned 33,000 acres of Lower Lafourche marshland, intending to engineer a farming society to surround a 3000-acre reclamation impoundment called Golden Meadow Farms. The Great Leeville Hurricane of 1915 inundated the impoundment and ultimately forced the company's successor into bankruptcy. Ruins of the 3000-acre farm impoundment remain after over 100 years a conduit to open Gulf waters, contributing to saltwater incursion and destruction of Lafourche Parish's coastal marshland.

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SIMULATION BEST PRACTICES: A SURVEY AMONGST NUTRITION AND DIETETIC EDUCATORS AND PRECEPTORS

SHERRY FORET, DR. KATHRYN FAKIER, DR. SARA TAMSUKHIN, DR. SHERRY FORET, AIMEE SERIO, DR. SANDRA MAYOL-KREISER, DR. MARIA PLANT

The use of simulation has become the new standard to teach critical thinking skills, especially after the pandemic, when experiential learning sites were limited. While the incorporation of simulation activities is on the rise, its use among nutrition and dietetics educational programs is unpublished. To identify and assess best practices among educational programs, a survey was developed and disseminated by email to all program directors of ACEND®-accredited programs and all members of the Nutrition and Dietetics Educators and Preceptors (NDEP) organizational unit. Descriptive statistics were conducted, and data were analyzed using SPSS. Respondents included 159 nutrition and dietetic educators across different program types. Some respondents (23.9%, n=38) reported formal training in simulation, while 1.9% (n=3) reported being a Certified Healthcare Simulation Educator. The majority of respondents (63.5%, n=101) reported that their institution had a dedicated simulation lab, while only 54.7% (n=87) reported using the simulation lab. The majority of programs (58.5%, n=93) use simulation to achieve ACEND® competency requirements. Respondents reported a variety of simulation hours used to meet alternate learning experiences in a variety of content areas that included simulation and participating in interprofessional simulation activities with other disciplines. Lack of faculty and funding were identified as the top barriers to the use of simulation in programs. There were no significant correlations. Overall, most programs use some type of simulation to meet ACEND® requirements. Simulation activities included case studies, role play, manikins, standardized patients, and computer-based scenarios.

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DEVELOPING A CAMPUS-BASED COMPOSTING PROGRAM FOR TEACHING AND PROMOTING FOOD SYSTEM SUSTAINABILITY IN HIGHER EDUCATION

DR. ALLISON GAUBERT & DR. BRIGETT SCOTT

Food waste poses a critical environmental, economic, and educational challenge in higher education institutions, particularly in programs with food preparation. This project describes the development and planned evaluation of a campus-based composting program at Nicholls State University designed to reduce food waste from Dietetics and Chef John Folse Culinary Institute cooking laboratories while enhancing sustainability education, experiential learning, and community engagement. Program goals include diverting compostable food waste from landfills, producing nutrient-rich compost for on-campus food production, and integrating sustainable food system practices into academic curricula and outreach efforts. Program implementation is supported by a grant awarded by the Nicholls State University Research Council.

The 12-month project will use a mixed-methods, quasi-experimental, longitudinal design. Quantitative measures will include food waste diverted, compost produced, produce yield, and estimated cost savings, while qualitative outcomes will assess changes in student and community knowledge, attitudes, behaviors related to composting and sustainability. Initial phases include food waste audits and baseline participant assessments, followed by installation of SubPod composting systems and routine collection of compostable waste from selected culinary and dietetics courses. Compost will be used to grow staple ingredients for laboratory use, with excess produce donated to campus food security initiatives.

The program integrates undergraduate student research, faculty mentorship, and curriculum-aligned activities to provide high-impact learning experiences. Educational workshops and a composting toolkit will extend the program to the university and local community. Program effectiveness will be evaluated through pre- and post-intervention surveys and longitudinal tracking of composting and educational outcomes.

FACULTY/STAFF POSTER SHOWCASE

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THE ROLE OF SOCIAL MEDIA IN HIGHER EDUCATION FOR RECRUITMENT AND RETENTION AND THE IMPLICATIONS FOR NURSING PROGRAMS

CARI GRANIER, JAMIE GRAVOIS

Purpose: This review article assesses findings related to social media use in regards to student recruitment and retention for higher education institutions (HEIs) including schools of nursing. This review outlines the need for building a social media presence, creating engaging content for target audiences, available platforms, and posting times and frequency. Methods: A literature review was conducted with keywords including the following terms in combination with "social media and" higher education marketing, higher education recruitment, university marketing, university recruitment, college marketing, and college recruitment. Results: College applicants rely on social media when making decisions about enrollment (Chen & DiVall, 2018). Social media allows students to engage with HEIs in a casual manner and can help them determine if the HEI is a good fit for them from the start, which could lead to better retention rates (Benedict et al., 2016). Much of building a social media presence is trial and error. Created content should complement the HEI's goals, but be appropriate, engaging, and interesting to the target audience while promoting a sense of belonging and community (Chen & DiVall, 2018). Engaged followers are also more likely to be loyal to the brand and invest resources there (Lund & Wang, 2021). Conclusion: HEIs and nursing programs can utilize social media platforms like Facebook®, Instagram®, and TikTok® to disseminate content that showcases their brand and what differentiates them from competitors. Social media can be an impactful marketing tool to build brand awareness, and connect with current students, potential students, and donors.

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ANTITHETICAL INCARNATIONS: THE HAUNTING PRESENCE OF NEBUCHADNEZZAR'S DREAM MEDALLION WITHIN PACINO DI BUONAGUIDA'S TREE OF LIFE

MICHAEL SHANE HARLESS

Although Pacino di Buonaguida's Tree of Life (ca. 1310-1315), a painted panel traditionally linked to the Clarissan monastery of Monticelli in Florence, is traditionally considered a faithful illustration of Bonaventure's Lignum Vitae, the work diverges from the devotional text on select occasions. One artistic variance can be found on the tree's lower left branch, as the image sequence opens with a peculiar scene depicting the Dream of Nebuchadnezzar. For a devotional treatise designed to treat "at length the life, passion, and glorification of Jesus Christ," why would Pacino elect to begin his visual meditation with this haunting dream sequence? The Lignum Vitae does not mention the Dream of Nebuchadnezzar, alluding only to Christ's prefiguration through the patriarchs, judges, priests, and kings, and prophets dotting the five ages of history, yet the idol associated with the Babylonian king takes center stage in Pacino's opening medallion. What is the typological significance of the Dream of Nebuchadnezzar and how might this image have spoken to its Clarissan audience? This paper will elucidate the polysemous nature of the opening medallion and the way the graven image converses with the three complementary fruits that populate the opening limb of the mystical tree. On the first branch of the Tree of Life, Pacino deftly employs the pedagogical method of antithesis to instruct the Monticelli community on the veracity of the Incarnation.

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GET ORGANIZED LIKE AN ARCHIVIST: ARCHIVAL PRINCIPLES FOR EVERYDAY FILE MANAGEMENT

MARY KATHERINE KEARNS

Digital disorganization—cluttered desktops, inconsistent file names, and chaotic cloud storage—can hinder academic productivity and digital literacy. Without intentional strategies for organizing files, workflows become inefficient, cognitive load increases, and information can be challenging to access. Yet, explicit instruction on digital organization is rarely provided in higher education.

This poster presents Get Organized Like an Archivist!, a one-page visual guide that applies archival principles of arrangement, description, and hierarchy to practical digital workflows. Initially developed for one learner, the guide has since been adopted across campus by students, faculty, and colleagues. It models structured folder hierarchies, consistent file naming, intentional digital habits, and optional backup and cleanup routines, while prompting reflection on personal practices.

Grounded in the ACRL Framework for Information Literacy and Universal Design for Learning, the guide breaks tasks into manageable steps, supports diverse learning needs, and promotes sustainable digital habits. It has been applied to research portfolios, project collaboration, academic planning, and records management, demonstrating broad relevance and adaptability.

By modeling intentional digital organization, the guide fosters confidence, efficiency, and transferable digital literacy skills. Thoughtful file management is more than neat folders—it enables clarity, reduces barriers, and strengthens self-directed learning across educational contexts.

The views expressed here are informed by my training as a Certified Archivist and represent my own research interests, not institutional policy.

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FROM ONE REPERTOIRE TO TWO: HOW AMERICAN WIND BAND REPERTOIRE SEPARATED BETWEEN HIGH SCHOOL AND COLLEGE BANDS

DR. JASON LADD

This paper begins with an overview of the school band movement and the evolution of college bands in the United States during the 1900s. A review of literature will include studies based on quality of wind literature and analysis of the most performed works by college and high school bands in the United States. State lists of recommended pieces will be analyzed as how they have changed over time, followed by a comparison of the programing of both high school bands and college bands.

A survey has been developed to gather information from high school directors in four states and college directors from throughout the United States. The survey asks about specific pieces chosen from the lists of three states as well as the most programmed pieces in Texas for festival. A list of specific composers based on the state lists and living composers has been cultivated to compare which composers are known by each of the groups and to evaluate any striking differences. The programming philosophy of high school band directors will be evaluated from surveys and then related to the answers to the same philosophical statements by college band directors. This information will help determine how the repertoires differ and how to best prepared college music education students to teach high school band.

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CONSERVATION OF KENNY HILL'S HEARTOFFACT DURING 25 YEARS OF COASTAL ADVERSITIES

DR. GARY LAFLEUR, GREG ELLIOTT, KIMBERLY ARP, ANDREW CUNEO, JEFF BROWN, MICHAEL WILLIAMS, DENNIS SIPIORSKI

Kenny Hill created his visionary art environment entitled the Heartoffact from 1985 to 2000, when he enigmatically walked away from his masterpiece. As Dept Head of Nicholls Art Dept, Dennis Sipiorski recruited support from the Kohler Foundation to rescue the site. They purchased the garden, constructed a gallery space, and made several improvements to the property before gifting it to Nicholls State University in 2002. Since then the Dept of Art, Center for Bayou Studies, Nicholls Foundation, and the Friends of the Chauvin Sculpture Garden have collaborated to achieve successful grant funding, programming, and conservation of the site. Several rounds of adversity have befallen the garden including coastal flooding, vandalism, and damage caused by Hurricanes Katrina, Gustav, and Ida. After storm damage in 2021, the Friends of the CSG hired a team of sculpture conservators including Greg Elliott, Kimberly Arp, Dennis Sipiorski, and Andrew Cuneo. From 2023-2026 they repaired ten large sculptures including the White Knight, several angels, the column with Kenny and eagle, and large-scale restoration of the 50 ft. Lighthouse. Their strategy included developing unique methods to patch and strengthen sculptures while installing tie-down anchors to better protect the site during future weather events. Through the collaborative spirit of the Center for Bayou Studies, Nicholls Art, Nicholls Foundation, Kohler Foundation, Ruth Arts and the Friends of the CSG, the Chauvin Sculpture Garden is prepared to withstand the harsh environment of the Louisiana Coast for several decades.

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BUSINESS CAREER PASSPORT

STACEY NICHOLS

Purpose: to serve the learning needs of our students and the workforce demands of our employers in a fun and engaging way

Summary: The Business Career Passport is designed to help build business students' confidence and career readiness by offering activities which align with important career and professional development competencies.

Through a series of research methods and focus groups, the UPIC (Undergraduate Program/Instruction Committee) was able to identify some business skills important to current/future workforce demands. By working with alumni, employers, and a panel of 8 industry partners, UPIC's findings resulted in the establishment of an "Industry Top 10" list of skills/knowledge important to our business graduates:

1. Communication
2. Emotional/Social Intelligence
3. Critical Thinking
4. Problem Solving
5. Creativity/Innovation
6. Teamwork
7. Leadership
8. Experience-Based Learning
9. Technical Skills/Expertise
10. Project Management

The Business Career Passport program will offer both opportunity and motivation to work towards improving these 10 skills which are so important to our Al Danos College of Business graduates. The Passport program helps to develop students in these areas through participation in and reflection of extracurricular activities such as speaking events, student/professional organizations, and collaborating with departments across campus and business professionals in the local community.

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BONNE ANNÉE: A GERMAN TRADITION CONDUCTED IN CREOLE FRENCH IN KRAEMER, LOUISIANA

DR. BRIGETT SCOTT

Bonne Année: A German Tradition Conducted in Creole French in Kraemer, Louisiana examines a local New Year's Day cookie-collecting tradition historically practiced by children in the Kraemer (Bayou Boeuf) community of Northern Lafourche Parish. The objective of this project is to document this celebration as a product of cultural convergence among German and French winter holiday customs. Drawing on archival texts, regional histories, oral histories, and comparative folkloric traditions, this work situates the Bonne Année practice within transatlantic patterns of door-to-door New Year and winter rituals involving food exchange, blessings, and communal goodwill. Although no single German source explicitly documents a New Year's cookie-collecting custom, related traditions such as German New Year visiting, Epiphany Sternsinger practices, and St. Nicholas Day celebrations provide a plausible cultural framework for its development in Louisiana. By examining foodways, particularly traditional cookies of the community comparable to European New Year pastries, this study underscores how immigrant traditions were reshaped through local experience and memory. The purpose of this work is to preserve an understudied regional tradition and contribute to Louisiana folklife scholarship.

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WHAT'S IN THE MACHINE? ASSESSING FOOD ACCESS THROUGH CAMPUS VENDING

ELIZABETH SLOAN, LILY DOMINIQUE, EMILY ELLIOT, TOI GREEN, OWEN LEDET, LUKE MEADE, LINDSAY MILLER, HAILEY STEPHENS, ABRIELLE STOLTZ

Well Ahead Louisiana is an initiative of the Louisiana Department of Health, which aims to reduce the burden of chronic disease and assure access to quality healthcare for all Louisiana residents. Organizations across the state can become a Well Ahead partner and apply to earn a WellSpot designation. This three-level designation is voluntary and is given to organizations that meet certain benchmarks, with level 1 being the highest. Colleges and universities are among the eight organizational types that can earn this designation. There are currently 11 four-year colleges and universities in Louisiana that have at least a Level 3 designation, with Nicholls State University being one of these. A Level 3 designation is defined as meeting the Tobacco Free Policy and three other benchmarks. For Nicholls to increase its level to a 3, there are two additional benchmarks that must be met. The Nicholls Campus Health and Wellness Coalition has been working on this initiative. The students in the DIET 390 Community Nutrition course are completing a community needs assessment on the campus vending machine environment, which will include an analysis of the current campus vending and the development of a proposal on how Nicholls State University can increase its WellSpot designation and become a healthy vending campus. The proposal will be provided to the members of the Campus Health and Wellness Coalition

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NEW PERSPECTIVE ON MICROTUBULE MECHANICS

MICHAEL VERSHININ, TANNER HOOLE, ANNA SHCHERBAKOVA

Most eukaryotic processes directly or indirectly depend on the network of microtubule filaments permeating the cytosol. Microtubules are the longest and most rigid cytoskeletal filaments. Consequently, microtubule rigidity has been extensively studied in the past however it remains very poorly quantified and poorly understood at a conceptual level. The methodology used to quantify rigidity in filament ensembles is often beset by incorrect or poorly established assumptions, and consequently by suspect analytical approaches. Microtubule persistence length values reported in the literature differ by at least one order of magnitude from study to study. We have examined large numbers of filaments per experimental condition and established that microtubule persistence length under our experimental conditions has an asymmetric distribution with heavy upper tail. This result is in accord with several prior reports under different experimental conditions. We show that properly accounting for distribution asymmetry leads to a different statistical methodology than what is commonly employed in the field. We demonstrate that statistical analysis can significantly affect estimates for microtubule persistence length in individual studies and provide an example of how it can affect reproducibility across studies. We furthermore call into question prior reports that microtubule persistence length has a statistically significant dependence on temperature.

HUMANITIES SYMPOSIUM

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TAXI DRIVER AND THE MALE FANTASY

CALEB BAGWELL

This essay contains an analysis of the typical male fantasy and Martin Scorsese's 1976 classic, Taxi Driver in order to define the current trend of male movie goers. In the opening paragraph, the author defines the current mentality of the young male movie goer and how they pick up the worst aspects of a character and add it to their personality. The author draws parallels to the mentality of the character, Travis Bickle, in the film Taxi Driver. In the second paragraph, the author defines what is the male fantasy and what it presents itself in mainstream pop media. In the third and fourth paragraphs, the author then proceeds in detail of the actions and mentality of the character, Travis Bickle. In the fifth paragraph, the author connects that if Travis Bickle is a walking contradiction, then some of the viewers are too. Film is a conversation between director and viewer, but that conversation can only happen if the viewer is open to having a conversation. In the sixth paragraph, the author proposes how to engage in conversation and probe critical thinking for the end goal of countering the media literacy decline. The author states that we should be only questioning the what in media, but the why and how. Deeper meaning and analysis can potentially combat less than favorable interpretations of media in which can probe a better thought process.

HUMANITIES SYMPOSIUM

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THE EFFECT OF ORGON'S NEURODIVERGENCY IN MOLIÈRE'S *TARTUFFE*

JENNIFER CHIRCHIRILLO

When the title character is introduced to the Pernelle family in Molière's 1664 play, Tartuffe, the patriarch of the family, Orgon, becomes wholly beguiled by the charlatan. At the time the play was written, there was little explanation for Orgon's behavior. He was viewed as either a fool or someone who had lost his mind. The aim of this paper is to illustrate how neurodivergence could offer a reasonable and sound explanation for Orgon's risky behavior. The paper explores the possible means of introduction of attention deficit hyperactivity disorder (ADHD) in adulthood, and its effects upon Orgon's judgement. Evidence to support this neurodivergence as a cause is explored. This is achieved by reviewing what he is willing to risk, including religion, control of the family, familial relationships, wealth, and sanity, with emphasis on the importance of the losses he is willing to suffer for the benefit of Tartuffe's happiness.

HUMANITIES SYMPOSIUM

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CARRIE MAE WEEMS: BLENDING MEDIA AND TIME IN STORYTELLING

MIA CROOKS

This project examines the work of artist Carrie Mae Weems and the ways in which her work uses language to explore African-American culture. Weems showcases how historical narratives influence every aspect of life: within landscapes and infrastructure of the South, the intimacy of the home, and the relationships between the self and others. Her integration of photography and text showcases the prevalence of these narratives in both material and linguistic realms.

The project will analyze and compare two series by Weems. In Sea Islands (1992), she exhibits a collection of photographs, text, and ceramic plates that track the enduring connections between Africa and Black America in Georgia and South Carolina's Gullah Geechee communities. She blends contemporary materials with traditional religious customs and settings, unveiling remnants of the colonial past in the 20th century. In her Kitchen Table Series (1990), Weems also incorporates narrative text alongside her portraits. She poses as the main character of the work, interacting with family and friends as she navigates metropolitan life. Her use of southern Black vernacular engages with issues of race and class between historical roots and a modern present, reflecting her own familial ties to the Great Migration.

This analysis serves to cultivate a greater understanding of ongoing social and political movements. Such forces manifest through vernacular language, both poetic and narrative, and serve as an additional tool through which Weems' work provides insight into the links between historical and contemporary identity and communication.

HUMANITIES SYMPOSIUM

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EXPLORING THE LESBIAN SUBTEXT IN THE NOVEL *DRACULA*

SLOAN DUET

The novel Dracula, written by Bram Stoker, reflects the growing anxiety with sexual repression and changing gender roles during the Victorian period. Stoker displays anxiety about the changing roles of women, and the implications of sexual repression connect with the discussion of gender and sex. When critics access the novel Dracula, they look at it through a queer lens, but they generally overlook the theme of lesbianism. My paper will examine how the characters Mina and Lucy challenge traditional norms in the Victorian period regarding lesbianism. Readers can perceive Mina and Lucy's relationship as having lesbian undertones in the novel by analyzing their letters, conversations, and interactions with each other. Their intimate connection provided emotional support, love, and affection during a time of turmoil in society. I supported my argument with research from outside sources that helped me expand on the scholarly conversation within Dracula about the topic of queerness. By delving into the historical context of intimate friendships during the Victorian era, I acquired a deeper understanding of Mina and Lucy's relationship. In a time period of repression marked by strict traditional values, these deep friendships provided women with a sense of companionship and emotional support. These relationships provided a space for women to explore their feelings and desires that were typically suppressed in heterosexual relationships. All in all, my paper examining hints of lesbianism provides insight into how deep female relationships allowed women to express their true desires.

HUMANITIES SYMPOSIUM

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PRIVATE SIN AND PUBLIC SHAME

LUCY GOTTSCHALK

To purify something means to remove the impurities that could contaminate the object and jeopardize its integrity. The Puritans of the 17th century initially took the name “puritan” to signify their purification of the Anglican religion, but instead they have purified society of all its color and warmth. The contrast between the public and private lives of Puritan ministers depicted in the diary of Michael Wigglesworth and his poem "The Day of Doom" as well as John Winthrop's journal and sermon "A Modell of Christian Charity" illustrates how the religion of Puritanism as a whole focuses less on the comfort and peace faith can bring to a society, but rather on the ways that religion can act as a means for those in power to control every aspect of life on both a public and private scale. Puritan officials created a world where everyone thought him or herself so firmly in the wrong that finding someone to confide in seemed like an act of treason against their religion and community. Normal human reactions to the intricacies of life are made condemnable and morals are bent to serve the will of man, not God. The contrast between the public and private lives of those in power showed that everyone across society struggled with balancing a public image of purity and controlling their inner thoughts and urges. Living a life scared of your own thoughts is no way to live, but for the Puritans, it was a good way not to die.

HUMANITIES SYMPOSIUM

101

CLOSELY COMPARING HUMANS TO ANIMALS IN OCTAVIA BUTLER'S *DAWN*

AIDEN LANDRY

Over the course of Octavia Butlers' book Dawn, there is a very intentional connection drawn between humanity and children. Over the course of the novel, countless humans are treated in what many would consider to be a "less than humane" manner, as they are held captive by an advanced alien race called the "Oankali" who refuse to let them decide anything for themselves. Through the narrative, it becomes clear that this is because the Oankali do not view humans as intelligent enough to make the right decisions for themselves, much like a parent would treat a child. And although this dynamic does work very well do parallel the relationship between the humans and Oankali, I believe that there is another dynamic comparison worth considering in this instance; viewing humanity as livestock. The Oankali see humans as a species below them in many regards, and use them to accomplish specific goals and societal objectives. As a species, they have enough power over humanity to hold them in captivity and make decisions for them; many of which their humans have not consented to. They drug, breed, and manipulate humans for their own gain, and cross many ethical lines while they do so. And it's for these reasons that I feel the depiction of the Oankali's use of humans in Dawn much more closely resembles our own industrial use of animals today rather than the more immediate comparison of a parent to a child.

HUMANITIES SYMPOSIUM

102

ALL QUIET ON THE WESTERN FRONT: FINDING HUMANITY AND CONNECTION IN WAR

MARYGRACE OHLER

In All Quiet on the Western Front (1928), chapters seven and might enhance the reading experience by the mirroring of emotions, even though they detail different situations. Chapters seven and eight need to be next to each other to represent the disconnect, misunderstanding, and lack of compassion from soldiers, civilians, and prisoners. The content developed in chapter seven sheds light into a deeper meaning in chapter eight. I n chapter seven when Paul, our main character, is on leave, he feels as if no one understands what it is like to be a soldier. He feels as if his words do not reach people, and people have these preconceived notions of what a soldier does, and not who a soldier is. Chapter eight is when the roles start to reverse. The Russian prisoners are struggling, and starving while the soldiers repeatedly beat them. Paul realizes that this is not right, we do not understand that even though they are the enemy they too are people. These prisoners are misunderstood and taken to a place that in their mind is the “front” for Paul. They can’t reach the soldier like Paul can’t reach the civilian. While their lives are so different but feelings are all the same. The development of being misunderstood, to a small part, leads readers to the bigger picture is what makes chapters seven and eight help each other intensify the novel's themes.

HUMANITIES SYMPOSIUM

103

COMBATTING MEDICAL MISINFORMATION USING SOCIAL MEDIA

MORGAN WREN

Medical misinformation is becoming an alarming issue on social media. Consequently, people are increasingly distrustful of their doctors and actively avoiding seeking proper medical attention. Doctors spend over a decade of their lives studying medicine and even take an oath to “do no harm,” but with bad actors behind cameras sharing “facts,” these efforts are slowly becoming for naught. Many people don’t seem to even know or understand how their own body works. They don’t go to school for years to know how cancer comes from stem cells or how different medicines interact. In a world where there are people on the news, on your phone, in your own social circle who spread misinformation (purposefully or not), it’s incredibly easy to become confused. So how can we combat this? In simple terms, we must go to the opponent’s playing field: social media. People who are not in the medical field or interested in research don’t often seek out information about it, unless they are looking for something specific. We have unprecedented research and technology, but people won’t notice it if it’s not right in front of them. There are many doctors, nurses, and scientists who are currently on social media trying to educate people on how the medical field really works. With more help from social media, news, and education platforms, a real difference can be made in making sure people know what they need to know—that medical research and your doctor are not scary.

PERFORMING ARTS SHOWCASE

104

GIUSEPPE TARTINI'S *CONCERTINO*: MOVEMENTS I AND II

ARIEL COOPER

This presentation will contain a performance of movements and of *Concertino* by Giuseppe Tartini, performed by Ariel Cooper on clarinet, and Dr. Ying-Shan Su on piano. This piece originates over a period of time (around the 1730s) rather than having a single composition date, as it is a collection of multiple violin sonatas written by Tartini. Gordon Jacob arranged this piece for clarinet from the violin sonatas in 1945.

Movement I is written in G major and structured in common time. It is a slow, grave section filled with numerous crescendos and decrescendos for contrast and shaping. Despite the majority of the movement being written with eighth and sixteenth notes, they are played slowly and carefully. It also includes many decorative cadential trills and grace note embellishments. It is a gentle and expressive movement. Conversely, Movement II is written in G minor with a 3/4 time signature. It is an energetic, allegro molto movement filled with vivacious slurred eighth notes that contrasts to the first movement, though it also features the Baroque style with the decorative grace notes and trills similar to the first movement.

PERFORMING ARTS SHOWCASE

105

"THE ROBIN SINGS IN THE APPLE TREE" BY EDWARD MACDOWELL

XANDER COX

"The Robin Sings in the Apple Tree" is a song about better days with loved ones that have long passed. It opens in a somewhat cheery manner which is expressed with brightness and a soaring melody for a baritone voice. This is followed quickly by a middle ranged lamentation of the day ending and possible hints of despairs that come in the night. When night finally comes, the melody is much lower, the key signature becomes merely a suggestion as many chords are of the parallel minor, rather than in the major which the song began in. This lower melody is in a much more comfortable range, which is the perfect environment for a rich and personal tone along with plenty of dynamic freedom. By the coda of the song, it ends back up in the higher register, creating a very familiar melody, but the end of the phrase is different, ending quietly on the same note the song began on.

PERFORMING ARTS SHOWCASE

106

SUMMARY OF BARTOK *VIOLIN CONCERTO NO.2*

LUHAN DE SOUZA

Béla Bartók's *Violin Concerto No. 2* (1937–1938) is a 20th-century violin masterpiece of literature, commissioned by Hungarian violinist Zoltán Székely. The concerto combines Bartók's modernistic harmonic idiom and rhythmic sophistication with folk-inspired melodies. The First Movement (Allegro non troppo) is both dramatic and lyrical, a sonata-form built with contrasting themes and complex development. The Second Movement (Andante tranquillo) consists of a haunting theme and six variations, with tender and passionate transformations. The Third Movement (Allegro molto), a lively and forceful dance, recalls the earlier material from the First Movement, adding structural unity. Bartók combines thematic transformation, virtuosic solo violin passages, and lush orchestration in the concerto, making it both a challenging work to perform and deeply moving. The composition is a reflection of his deep roots in Hungarian folk music, but also a progressive style that has solidly become one of the greatest violin concertos of the 20th century. The selection to be presented during the Performance Show Case will be the First Movement of the Concerto.

PERFORMING ARTS SHOWCASE

107

“DEEP BLUE" BY IAN CLARKE

EMMA GOTTSCHALK

“Deep Blue” by Ian Clarke is composed for solo flute and piano. The piece’s simple, yet captivating melody includes pitch bending that brings out the oceanic theme of the piece that also mimics whale song. From a masterclass I attended put on by Clarke himself at the 2024 National Flute Convention, he talked about his philosophy of his pieces providing a sense of musicality that is meant to bring real life into the music. I believe this piece is truly an example of this belief and is a real adventure to both listen and perform.

PERFORMING ARTS SHOWCASE

108

SONATA NO. 17 IN D MINOR OP. 31 NO. 2, LUDWIG VAN BEETHOVEN

BRENNA BOUDREAUX

Ludwig van Beethoven's *Sonata No. 17 in D minor* Op. 31 No. 2, commonly known as "The Tempest Sonata", was composed during a harsh period of the composer's life: dealing with the realization that he was losing his hearing. The name "Tempest" is not what Beethoven originally called it, but it was a comment from Beethoven about Shakespeare's play "The Tempest" when asked how to interpret the sonata.

The opening melody of the first movement, Largo – Allegro, is marked by long, unresolved pauses, creating a sense of anticipation and suspense. The composer uses long, drawn-out chords with sustained pedal to let the chords resonate, which allows the listener to pause, reflect, and have a sense of peace, until the following allegro section enters by surprise. Beethoven uses these sudden shifts,. from quiet to loud and tense dissonances to brief moments of calm, to mirror the unpredictable nature of a storm.

Beethoven's use of dynamic contrasts, dramatic tempo changes, and unsettling harmonic progressions capture a sense of emotional struggle, which makes this movement one of the most striking and expressive in the piano repertoire.

CULINARY ARTS DEMONSTRATION

110

THE CULINARY LEGACY OF THE SPANISH CONQUEST

EMELY ESPINAL & CHEF GREGORY ROSARY

In this presentation, we will explore the Spanish Conquest through a culinary perspective. We will analyze how this historical event created the foundation for modern global gastronomy through the trade of European and Indigenous American ingredients, dietary patterns, and culinary practices. The Spaniards initiated the “Columbian Exchange” motivated by the desire to avoid the Ottoman Empire (which controlled established spice routes) to gain direct access to Asian goods. The Spanish Conquest turned out to be the most significant agricultural transfer in history.

The presentation will detail the incorporation of the Old-World staples, such as livestock, cereal grains, and citrus into the Americas, as well as the complementary introduction of New World ingredients, including nightshades, tubers, and cacao to Europe. Rather than focusing on static recipes, we will examine the evolution of fundamental food concepts and techniques, highlighting how food staples merged to play a significant role on both continents.

The presentation will conclude with a culinary demonstration showcasing the specific ingredients and dishes discussed. This demonstration will highlight the practical application of these historical flavors and ingredients in a modern kitchen setting, providing a sensory understanding of the fusion pf these two worlds.

Ultimately, this presentation demonstrates that the Spanish Conquest was not merely a political event, but a culinary revolution. By investigating how colonial trade routes evolved into contemporary global markets for essential commodities like coffee and sugar, we see how this exchange permanently expanded not only professional chef’s pantries, but everyone. This exchange altered the human palate, bridging two worlds through the shared language of food.

CULINARY ARTS DEMONSTRATION

111

HOW TO IMPROVE HOME COOKING BY GROWING A GARDEN

KELLIE SPIVEY & CHEF JANA BILLIOT

Years ago, backyard gardens were a common sight, and many people have fond memories of harvesting fresh ingredients to cook and eat. However, as grocery stores became more accessible, growing food at home became less of a necessity. In recent years, the Farm-to-Table movement has reignited interest in using seasonal, locally sourced ingredients, emphasizing the benefits of fresh, homegrown produce.

You don’t need a large space to grow your own food—raised beds, containers, and small garden plots can all yield delicious results. Harvesting fruits and vegetables at their peak ripeness enhances flavor and nutrition, making home-cooked meals taste significantly better. Just ask anyone who grows tomatoes—they’ll tell you there’s nothing like the first juicy, sun-ripened tomato of the season, perfect for a fresh sandwich. Imagine digging up homegrown potatoes for supper or picking herbs straight from your garden to add to a dish.

A bountiful harvest can also be preserved through water bath or pressure canning, allowing you to enjoy the taste of freshly picked produce even when it’s out of season. In the following sections, we’ll explore how to start a garden, find the best resources, and choose the right varieties for your climate. By growing your own food, you'll not only elevate your cooking but also create lasting memories in the garden.

SHORT FILM AND ANIMATION SCREENING

114

ACCEPTANCE

ABBIE HUGHES

Acceptance is a Cajun Thiller film about a teen. Throughout the course of the film, she is confronted with hazy memories that make her question reality. Will she accept the hideous truth or the selfish lie?

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