ACADEMIC SUMMIT
Nicholls State University
April 14-15, 2016

UNDERGRADUATE RESEARCH

SERVICE-LEARNING

ART EXHIBIT

PERFORMANCE SHOWCASE
THURSDAY, APRIL 14

3:30 p.m. - Ongoing.......................... Registration Check In
Cotillion Ballroom Lobby

4:30-5:30 p.m........................................ Performance Art Showcase
Peltier Auditorium

5:45-6:45 p.m.............................. Art Exhibition and Summit Reception
Talbot Hall, Ameen Gallery

7-7:45 p.m........................................ Bistro Ruth with Reservations
Chef John Folse Culinary Institute

FRIDAY, APRIL 15

7 a.m. – Ongoing.......................... Registration Check In
Cotillion Ballroom Lobby

8-9:30 a.m.............................................. Concurrent Session I
(Plantation Suite, Carnival Room,
Captain’s Room, Leader Suite, and Lafitte Room)

9:30-10:15 a.m.......................... Poster Session I
Cotillion Ballroom

10:25 a.m.-Noon.......................... Concurrent Session II
(Plantation Suite, Carnival Room, Captain’s Room,
Le Bijou Theater, Lafitte Room, and Bowie Room)

Noon-1:30 p.m ......................... Lunch and Keynote Speaker
Cotillion Ballroom

1:30-2:15 p.m.......................... Poster Session II
Cotillion Ballroom

2:30-3:25 p.m.............................. Concurrent Session III
(Plantation Suite, Carnival Room,
Captain’s Room, LeBijou Theater, and Bowie Room)

3:30-4 p.m.......................... Wrap Up, Pictures and Door Prizes
Cotillion Ballroom
Welcome to Nicholls State University and the City of Thibodaux, Louisiana. We are honored to host the University of Louisiana System’s 2016 Academic Summit, and we encourage you to explore our beautiful campus and community while you’re here.

Ideally located along the banks of Bayou Lafourche, Nicholls has uniquely positioned itself to be the intellectual, economic and cultural heart of Louisiana’s Bayou Region. As the closest university to the Louisiana coast, Nicholls plays an active role in helping solve the monumental land loss problem that our state faces. In the past two years, Nicholls biology faculty, students and community volunteers have grown and harvested more than 16,000 plants at the Nicholls Farm, and we’ve planted over 20,000 shrubs, grasses and trees in coastal habitats. Several of our unique programs — from maritime management to petroleum engineering technology and safety management — work closely with local industries to ensure that we’re meeting the future needs and workforce demands of our area, where Nicholls has a $275 million annual economic impact.

Despite the budgetary challenges, our students continue to compete with the best in Louisiana and the nation. For the third time since 2013, a Nicholls undergraduate student has been invited to present his research at the prestigious Posters on the Hill event in Washington, D.C. Our nursing graduates consistently pass the NCLEX-RN certification exam at higher rates than the state and national average. And, the Chef John Folse Culinary Institute, offering Louisiana’s only four-year culinary arts degree, is the sole U.S. school in the internationally prestigious Institut Paul Bocuse Alliance.

By hosting the two-day University of Louisiana System Academic Summit, we at Nicholls hope that all nine of our system institutions will inspire one another as our students share their research discoveries and service learning projects. The Summit gives us an opportunity to shine a light on how we are preparing students for successful futures through high-impact activities such as research, service learning and the arts. While the two-day event is meant to showcase our students’ work, it is also a demonstration of how valuable our institutions are to the future of our communities and the state of Louisiana.

Thank you for participating in this year’s Academic Summit. We hope you enjoy your time on the Nicholls campus.

Sincerely,

Bruce Murphy
President
On behalf of the Board of Supervisors for the University of Louisiana System, I welcome you to Nicholls State University for the fifth annual UL System Academic Summit.

We gather annually to celebrate and showcase the academic excellence thriving throughout our System’s nine Universities. We are thrilled you are here to participate in this year’s Summit and hope it is a productive two days for you. During our time we will focus on a few co-curricular activities—service-learning, undergraduate research and artistic expression—that exemplify the core of our mission to emphasize teaching, research and community service to enhance the quality of life for the state’s citizens.

We are grateful to Nicholls for hosting the Summit and look forward to enjoying all that this beautiful campus has to offer. I encourage each of you to make your way to Chef John Folse Culinary Institute’s Bistro Ruth, the completely student-run restaurant located in the new Lanny D. Ledet Building.

I truly appreciate each faculty and staff member who is attending the Summit. Many of you have dedicated a lot of time and effort in mentoring our student presenters. Know that your efforts are impactful and long-lasting.

Student presenters, you are exemplary as each of you are going beyond the classroom to obtain knowledge. I am proud of the work you have done thus far and encourage you to continue your pursuit of education throughout your life. It is our hope that the Academic Summit medals awarded to you are worn with pride on your graduation day.

I encourage everyone attending the Summit to network with students, faculty and staff from your sister institutions across the state. These valuable connections can reap many benefits and possibly spur collaborations in the future.

Thanks for all you are doing to ensure the UL System makes Louisiana a better place.

Sincerely,

[Signature]

Dr. Daniel Reneau
Interim President
University of Louisiana System
In March 2016 Dr. Kahn joined the University of Louisiana System staff as Vice President for Academic Affairs. She has over 25 years of experience in public post-secondary education in Louisiana most recently serving as Assistant Commissioner for Academic Affairs with the Louisiana Board of Regents where she focused on articulation and transfer, academic programming, and educational policy. Dr. Kahn’s campus experiences include functioning as the Assistant Vice Chancellor for Academic Affairs at Louisiana State University as well as holding various positions in the area of student life at the University of New Orleans and Delgado Community College.

Dr. Kahn received a BA in Sociology and MPA from Louisiana State University and a Ph.D. in Educational Administration from the University of New Orleans. Dr. Kahn is a firm believer that an education prepares an individual for a better tomorrow and, as such, has dedicated her career to ensuring that quality public education remains a viable option in Louisiana.
Dr. Lynn Gillette  
Provost and Vice President of Academic Affairs  
Nicholls State University  

Master of Ceremonies

Dr. Gillette joined Nicholls on July 1st as the Provost and Vice President for Academic Affairs. Most recently, he was President of Sierra Nevada College in Lake Tahoe, Nevada. He worked with the faculty to transform SNC from a culture of disengaged students to active learning in every class, service learning required for all interdisciplinary majors, undergraduate research in every major, student academic competitions and symposiums, and flipped classrooms. He is a recognized expert in innovative teaching techniques that engage students in their learning. Dr. Gillette has given over 60 presentations at professional conferences on Active Learning and Change Management. He has received 13 outstanding teaching awards.

Dr. Gillette received a BA in Economics from the University of Richmond, a Ph.D. in Economics from Texas A & M University, and he is a graduate of the Management Development Program at Harvard University. Dr. Gillette has held faculty positions at several institutions including the University of Texas, Texas A & M University, and Tulane University.
Chef Randolph J. Cheramie Jr., CFSE Senior Faculty Member and Institute Spokesman

Chef John Folse Culinary Institute Chef Randy began his teaching career with the Chef John Folse Culinary Institute as an adjunct professor, teaching Classical French Cuisine, in 1999 while he still owned and operated his restaurant in Golden Meadow, his home town. Randolph’s Restaurant opened in 1946 upon Randolph Sr.’s return from WWII. Chef Cheramie bought the business in 1981 and sold it in 2001. Two months after the sale, Chef Randy was offered a full time position with the Institute. Chef Cheramie has taught Stocks-Sauces-Soups, Meat Fabrication, World Cuisine, Italian Cuisine, Classical French Cuisine, and Culinary Foundations. He coached six American Culinary Federation Student Teams to 1 Silver and 5 Bronze Medals.

He has coached culinary students for the San Pellegrino “Almost Famous” Chef Competition and won Regional Championships to go on and compete at the National Competition in Napa California five years in a row. In 2010 Chef Randy was requested by then President Stephen Hulbert to assume the Executive Director’s role for the Institute. He now serves as the Senior Faculty Member and Spokesman for the Institute, coordinates all Student externships and still teaches Culinary Foundations and Evolution of Cajun/Creole Cuisine. “I really enjoy getting students excited about the high standards of excellence in fine dining foodservice! Teaching them classic cooking technique, watching their faces light up when they taste something they’ve cooked, witnessing their little epiphanies and “Aha!” moments, and then observing their success in the Industry, I feel so blessed teaching here.” Randy received his BA degree in Theatre so during his free time you can still find him in rehearsal halls and film sets around New Orleans preparing for his next role or shooting a film or commercial. He also has done voice-overs for commercials, training films, audio books and museum tours.

2016 KEYNOTE PRESENTATION
Chef Randolph J. Cheramie Jr.
“FEAR OF FRYING”
ACADEMIC SUMMIT SCHEDULE
FRIDAY, APRIL 15, 2016

7 a.m. – Ongoing.......................................................................................................................................................Registration
Cotillion Ballroom Lobby

8 – 9:30 a.m............................................................................................................................................Concurrent Session I

PLANTATION SUITE

Welcome

Graphene Oxide Nanostructures
Cynthiya Shrestha ........................................................................................................................................University of New Orleans

Effective Permittivity and Permeability of Metamaterials: Methods of Extraction from Experimental and Theoretical Data
Caylin VanHook ........................................................................................................................................Louisiana Tech University

Characterization of Thin-Film Substrate Interface with Optical Interferometry
David Didie ...............................................................................................................................................Southeastern Louisiana University

Calibration of the Heat of Pyrolysis for the Torrefaction of Bagasse
John Pippins ........................................................................................................................................University of Louisiana Lafayette

CARNIVAL ROOM

Welcome

“The Real American Horry Story”
Brookes Washington ........................................................................................................................Nicholls State University

Land the Role or Protect Your Voice: A Dilemma for Emerging Opera Singer
Crystal Dunning ........................................................................................................................................Northwestern State University

Culture, Obscenity, and Feminist Art: The Female Nude
Cayla Mendow ........................................................................................................................................Northwestern State University

“It’s All About Me!” Instagram use and Narcissism
Jack Ocieja ................................................................................................................................................Grambling State University

CAPTAIN’S ROOM

Welcome

Differentiation of Mouse Embryonic Stem Cells for Cardiac Tissue Engineering
Anna Whitehead ........................................................................................................................................Louisiana Tech University

The Role of Notch Signaling in Regulating Stem Cell State
Demi Sandel ................................................................................................................................................Louisiana Tech University

Visualization Representation of Data Collected From Acoustic and Satellite Tags
Perabjoth Bajwa ...............................................................................................................................................University of New Orleans

Podoviridae Used to Control Vibrio Parahaemolyticus Biofilm in Vitro
Corey Melancon ...............................................................................................................................................Nicholls State University
LEADER SUITE
Welcome

Service Learning Panel
Tina Granger .............................................................. Nicholls State University
Steven Gruesbeck ....................................................... Northwestern State University
Farah Elaboudy ........................................................... University of New Orleans

LAFITTE ROOM
Welcome

Strengthening Technology Skills: A Workshop for People Over 50
Prentiss Smiley, Dr. Ellen Smiley, Dr. Rory Bedford .................................................... Grambling State University

Straight Talk: A Service Learning Program
Cassandria Peoples .................................................... Grambling State University

9:30 – 10:15 a.m. ......................................................................................................................... Poster Session I
Cotillion Ballroom

10:25 a.m. – Noon ...................................................................................................................... Concurrent Session II

PLANTATION SUITE
The Social Memory of WWII: Prisoners of War in Louisiana
Elena Ricci ................................................................. University of New Orleans

Seattle Coffee Experience
Trent Harrison .............................................................. Louisiana Tech University

PID Control for a Wearable e-Braille Using a Force Sensing Resistor
Tim Carambat ............................................................ Southeastern Louisiana University

Explicating the Senses
Reed Everette ............................................................. University of Louisiana Lafayette

The Effects of Incarcerated Parents on Young Adults
LaKisha McCoy ............................................................ Grambling State University

CARNIVAL ROOM
A Study of Salinity Transport in Calcasieu Water System
Susan Regmi ................................................................. McNeese State University

Does Salinity Have an Impact on Antibiotic Resistant Bacteria and Antibiotic Resistance Genes in the Bayous and Wetlands of Southeast Louisiana?
Ryan Brown ................................................................. Nicholls State University

Investigating Mechanisms of Ototoxic Effects on Hair Cells using a Model Sea Anemone
Fatima Fazal-ur-Rehman ............................................... University of Louisiana Lafayette

Ecocentric Watering System
Gabriel Singleton ........................................................ University of New Orleans
ACADEMIC SUMMIT SCHEDULE
FRIDAY, APRIL 15, 2016 - CONTINUED

CARNIVAL ROOM - CONTINUED

Sauerkraut: A Probiotic Superfood?
Ryan Orgeron II ................................................................. Nicholls State University

CAPTAIN’S ROOM

Suppression of Exosome Uptake by Derivatives of Stilbene
Blake Schouest ................................................................. Northwestern State University

Comparison of Pre-Race Behavior of Quarter Race Horses on Finish Order and Finish Type
Michelle Petrarca ............................................................... McNeese State University

Human Trafficking with Respect to the United States with a Concentration on Sex Crimes
Janell Cutrer ................................................................. Southeastern Louisiana University

Retrieving a Required Document Using Hadoop Technology
Desmond Hill and Busby Sanders ........................................ Grambling State University

Molecular Docking in Rational Drug Design: The Significance of Paracyclophane Scaffolds in Proteasome Inhibition
Caleb Killer ................................................................. Northwestern State University

LEBIJOU THEATER

The Emergence of the New Orleans Tourist Identity
Morgan Byrd ................................................................. Northwestern State University

The Ruskin Journey: GIS Applications in the Digital Humanities
Brittney Jarreau ............................................................ Southeastern Louisiana University

Musical Ghosts: References and Associations in the Works of Luciano Berio and Alfred Schnittke, and an Original Composition
Jackson Harmeyer .......................................................... Northwestern State University

Workflow Visualization and Learning
Bibek Gautam ............................................................. Southeastern Louisiana University

Mechanical Tensile Strength of 3D Printed PLA Filament
Kelsey Phelan ................................................................. Louisiana Tech University

LAFITTE ROOM

Enhancing Literacy Learning Through A Collaborative Community-Based Summer Enrichment Project
Dr. Loretta Jaggers .......................................................... Grambling State University

Cultivating a Community of Learning Across Campus: Building a Nature Inspired Playground
Dr. Mary Sciaraffa, Ashley Roberts, and Jim Foret ........................................ University of Louisiana Lafayette

BOWIE ROOM

Exploring Suicidal Ideation in College Students
Melanie Mann, Dr. Lolita Boykin, and Dr. Bonnie Ahn ........................................ Southeastern Louisiana University

Developing Experience with Service-Learning
Dr. Gary Poe ................................................................. Grambling State University
ACADEMIC SUMMIT SCHEDULE
FRIDAY, APRIL 15, 2016 - CONTINUED

Noon – 1:30 p.m. ............................................................................................................................................................... Lunch
Cotillion Ballroom

Dr. Lynn Gillette
Nicholls State University Provost and Vice President for Academic Affairs – Master of Ceremony

Dr. Bruce Murphy
Nicholls State University President - Welcome

Dr. Jeannine Kahn
ULS Vice President for Academic Affairs - remarks and introduction of Keynote Speaker

Keynote Speaker
Chef Randy Cheramie – “Fear of Frying”

1:30 – 2:15 p.m. .................................................................................................................................................. Poster Session II
Cotillion Ballroom

2:30 – 3:25 p.m. ........................................................................................................................................... Concurrent Session III

PLANTATION SUITE

Molecular Identification of Damaged and Dying Neurons in Rocky Mountain Elk
Cathryn Frey............................................................................................................................ McNeese State University

From Sputnik to the Next Generation: Science Education Reform in America
Chelsea Maielli........................................................................................................................................ Northwestern State University

Digital Light Projection (DLP) Based Sterolithography (SLA) 3D Printer Design
John Frank.................................................................................................................................. University of Louisiana Lafayette

CARNIVAL ROOM

Marxist Theory and Corporate Social Responsibility: A Look at the “Billions in Change” Campaign
Kristen Petitjean........................................................................................................................ University of Louisiana Lafayette

Chiasmus Archery and Paintball Range
Kendell Webb................................................................................................................................Louisiana Tech University

“The Naked Woman Playing Chopin:” The Music of Chopin in the Last Report on the Miracles of Little No Horse
Leanny Muñoz ........................................................................................................................ Northwestern State University

CAPTAIN’S ROOM

Developing a Feasible and Scalable Solution for Recipe Analysis and Recommendation Using Open Source Software
Joseph DeBartola ................................................................................................................... McNeese State University

Adversus Haereses: Gnostic Christianity and its Hostile Witnesses
Zoe Barnett........................................................................................................................................ Northwestern State University

Tracking the Presence of Vibrio Pathogens in Louisiana Seafood
Richard Grabert.......................................................................................................................Nicholls State University
LEBIJOU THEATER

Game Development for Education: Designing Learning Tools Using Unity
Ashim Sitoula ................................................................. University of New Orleans

The Orient in the Attic
Shelby DuBos ................................................................. Louisiana Tech University

BOWIE ROOM

Search for a Suitable Model Organism to Study the Functions of Angiotensin Converting Enzyme
Lucie Doumbe ............................................................... Grambling State University

Effects of L-Arginine on the Sensory, Physicochemical and Microbiological Characteristics of Beef Jerky
Alli Rushing ................................................................. McNeese State University

3:30 – 4 p.m. .................................................................................................................. Wrap-Up (Awards and Door Prizes)
Cotillion Ballroom
Performance Art Showcase
Peltier Auditorium
4:30 – 5:30 p.m.

Grambling State University
“Breathe on Me Breath of God”
Composer: John Work, Jr.
Performer: Quinterio Lane
Accompanied by: Natorshau Davis
Faculty Mentor: Natorshau Davis

McNeese State University
“Brass Quintet No. 1”
Composer: Victor Ewald
Performers: Honors Brass Quintet (Victor Medina, Eli Cutler, Roxie Jo Davis, Andrew Usie, Michael Farrar)
Faculty Mentor: Dave Scott

Nicholls State University
“Rakastava (The Lover) Op. 14
The Lover
The Way of the Lover
Good Night, Farewell”
Composer: Jean Sibelius
Performers: Elena Minkova, Rafael Marzagao, João da Fraga, Vyara Hristova, Christiano Rodrigues, Fabio do Santos, Wagner Duarte, George Alexander
Faculty Mentor: James Alexander

Northwestern State University
“Quando m’en vo; Chanson d’avril”
Composers: Giacamo Puccini, Georges Bizet
Performer: Leannya Muñoz

Southeastern Louisiana University
“Three Songs Without Words”
Composer: Felix Mendelssohn-Bartholdy
Arranged for clarinet quartet by Bela Kovacs
Performers: Lindsey Poret, Ryan Lafleur, Robert Malbrough, Nicholas Dolan
Faculty Mentor: Victor Drescher

University of New Orleans
“Pulp Fiction Reenactment: Hamburger Scene”
Composer: Quentin Tarantino
Performer: Prerak Chapagain
Faculty Mentor: Cory Dumesnil
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

Grambling State University

*Golden*
Oil on Canvas
Jessica Keyes
Faculty Mentor: Rodrecas Davis

*Seek His Face*
Acrylic on Canvas
Blake Johnson
Faculty Mentor: Rodrecas Davis
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

Louisiana Tech University

Self Portrait
Digital Painting
Garnett Robinson
Faculty Mentor: Nicholas Bustamante

Portrait of a Mother and Daughter
Photo
Hannah Spence
Faculty Mentor: Nicholas Bustamante

Self Reflection
Charcoal
Skylar Vickery
Faculty Mentor: Nicholas Bustamante

Untitled
Mixed Media
Haley Keeper
Faculty Mentor: Nicholas Bustamante
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

McNeese State University

**Withered**
Digital Photograph
Erica Fisher
Faculty Mentor: Samantha VanDeman

**Untitled #2**
Photoshop
Katy Geymann
Faculty Mentor: Larry Schuh

**Forlorn**
Oil on Canvas
Rae-Leigh Johnson
Faculty Mentor: Heather Kelley

**Venus of Room 133**
Graphite on Paper
Jordan Hebert
Faculty Mentor: Gerry Wubben

**Helvetica**
Illustrator
Stefan Borssen
Faculty Mentor: Martin Bee
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

Nicholls State University

Fungal Form
Sculpture
Gabrielle Dinger
Faculty Mentor: Michael Williams

Tomato
Printmaking
Ali Cheramie
Faculty Mentor: Ross Jahnke

Affinity
Painting
Mark Orgeron
Faculty Mentor: Gaither Pope

Unknown
Photography
Savanne Solet
Faculty Mentor: Deborah Lillie

Foowl
Graphic Design
Hannah Fontenot
Faculty Mentor: Jeremy Grassman
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

Northwestern State University

Looking Back
Watercolor
Shana Jefferson
Faculty Mentor: Matthew DeFord

Drying
Acrylic on Canvas
Cayla Mendow
Faculty Mentor: Matthew DeFord

Winter
Woodcut Print
Skylar Guidrox
Faculty Mentor: Matthew DeFord

After Mondrian
Inkle Weave Cotton
Bobbie Launius
Faculty Mentor: Matthew DeFord

The Rocks
Ink on Paper
Marie Robichaux
Faculty Mentor: Matthew DeFord
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

Southeastern Louisiana University

Seasonal Flowers
Mixed Media
Trent Pechon
Faculty Mentor: Dale Newkirk

Septoplast Catastrophe
Ceramics
Bibbet Robison
Faculty Mentor: Dale Newkirk

Passion 1
Digital Print
Chelsea Penton
Faculty Mentor: Dale Newkirk

Package Design: Fun Balloon Clown Cars
Digital Print
Sarah Amacker
Faculty Mentor: Dale Newkirk

1 of 12 Form Deepest Dreamer Series
Digital Print
Randi Major
Faculty Mentor: Dale Newkirk
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

University of Louisiana at Lafayette

Üntitled
Intaglio
Hailey Hutchinson
Faculty Mentor: Brian Kelly

Bonzo
Solvent Transfers on Paper
Hannah Walters
Faculty Mentor: Allan Jones

Encapsulation
Pigment Print
Shelby Wanzer
Faculty Mentor: Lynda Frese

Whine Drunk
Soda-fired Stoneware
Susan Sinitiere
Faculty Mentor: John Gargano

Sprout
Inkjet
Emily Frederickson
Faculty Mentor: Jeffrey Lush
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

University of Louisiana at Monroe

If Only It Would Last Forever
Digital Media
Justin Ferguson
Faculty Mentor: Dr. Joni Noble

Life Will Go On
Chalk Pastel
Aidan Warren
Faculty Mentor: Cliff Tresner
Art Exhibition
Ameen Gallery, Talbot Hall
5:45 – 6:45 p.m.

University of New Orleans

**David**
Red Wine & Balsamic Vinegar on Watercolor Paper
Michelle Ramos
Faculty Mentor: Cheryl Hayes

**Meat**
Oil Paint
Amy Nguyen
Faculty Mentor: Kathryn Rodriguez

**Switch**
Sumi Ink on Paper
Tina Tran
Faculty Mentors: David Colannino/Cheryl Hayes

**Misanthrope**
Wood
Mackenzie Franco/Matthew Eberts
Faculty Mentors: Kevin Griffith/Cheryl Hayes

**I Ching: Wounding Light**
Hexagram 36” Encaustic & Oil on Panel
Michelle Lepori
Faculty Mentor: Cheryl Hayes
Summit Reception

All Conference registrants are invited to attend the Summit Reception on Thursday April 14 from 5:45-7:30 PM at the Ameen Gallery in Talbot Hall. This will provide an opportunity for all attendees of the conference and their guests to meet while viewing the works selected for the 2016 University of Louisiana System Art Exhibition.

Service-Learning Presentations

GRAMBLING STATE UNIVERSITY

Strengthening Technology Skills: A Workshop for People Over 50
Prentiss Smiley, Dr. Ellen Smiley, Dr. Rory Bedford

Responding to the challenges that “seasoned citizens” face when using technology, faculty and students implemented a four-day technology skills workshop. The workshop targeted people who were 50 years old or older and provided participants with a glossary of terms and definitions to help them understand the language used with regard to technology. The students also helped participants know how to define searches in order to receive relevant articles and scholarly information. As a special treat, students helped participants be aware of how to maximize security and protect personal information when shopping, paying bills and searching for services online.

Students gave hands on assistance to those in attendance as participants learned a variety of creative and technical skills. Participants learned how to skype and how to use apps for different types of desires and uses. Over 30 persons participated daily with a total of over 60 persons for the week.

Enhancing Literacy Learning Through A Collaborative Community-Based Summer Enrichment Project
Dr. Loretta Jaggers

This multi-media presentation is designed to first identify the components of the “2015 Collaborative Community-Based Summer Enrichment Literacy Learning Project”. Second, specific pre-planning and implementation collaborations between the Grambling Housing Authority and the Department of Curriculum and Instruction at Grambling State University will be presented. Third, assessment procedures, motivational activities, instructional strategies, and various resources that were used during the implementation process will be shared. Third, various techniques that were used to promote positive reinforcement and promote self-esteem for the students in the program will be emphasized. Finally, there will be a display of student work samples that resulted from their involvement in the program. The students who participated in the collaborative community-based project will be recognized for their outstanding accomplishments at the 2016 Annual Spring Reading Conference that will be held on March 16, 2016 in the Black and Gold Room at Grambling State University.

Developing Experience with Service-Learning
Dr. Gary Poe

Real world experience often is the greatest impediment graduates face as they enter the workforce. Some students gain access to this experience through taking jobs, internships and cooperative work arrangements. For other students, these opportunities are not forthcoming. Taking a job may mean sacrificing the education. Finding the internship and cooperative work arrangements for these students often prove problematic for many reasons.

This presentation will demonstrate how a service-learning project can provide the experience needed by all students in a program to enter the workforce. Using a service-learning model, students are paired with university partners. Students analyze problems, propose solutions and construct products needed by the partners. The outcomes realized by both students and partners will be set forward during the presentation. Finally, a model for implementation will be provided that can stretch across disciplines.

Straight Talk: A Service Learning Program
Cassandria Peoples

This program was organized as a service-learning activity for college students to test their attitude toward various subject areas that are of importance to high school age children. The program targets alleviating stress on teens due to bullying, sexting, teen pregnancy, substance abuse and the hidden dangers of social media.

SOUTHEASTERN LOUISIANA UNIVERSITY

Exploring Suicidal Ideation in College Students
Melanie Mann, Dr. Lolita Boykin, and Dr. Bonnie Ahn

The goal of this study is to provide insight into the challenges that college students with suicidal thoughts face as a marginalized group and to yield information that will expand the existing body of knowledge regarding this topic. The study was based on the collective experiences of three college students and the language constructed by them during in-depth interviews. It is crucial for the general college student population and mental health professionals to recognize and validate the struggles of these students, particularly during crisis. However, the experiences may not necessarily be representative of the greater populations.
Service-Learning Presentations

UNIVERSITY OF LOUISIANA AT LAFAYETTE
Cultivating a Community of Learning Across Campus: Building a Nature Inspired Playground
Dr. Mary Sciaraffa, Ashley Roberts, and Jim Foret

The project to build a nature inspired playground for preschool aged children was multi-faceted with the basic core of bringing nature into children’s lives in a significant, sustainable way. Throughout the process, the faculty in Child and Family Studies, Dietetics and in Renewable Resources worked alongside university students to increase awareness of the importance of connecting young children to nature. A change in attitude among both the university students and the young children was observed and documented. The university students enrolled in Renewable Resources courses experienced a sense of pride through the planning, designing, and building of the outdoor space. The Dietetics students gained a better understanding of how to plan and implement hands-on educational experiences for young children to improve children’s healthy eating habits. While the university students enrolled in Child and Family Studies courses, have learned how to reduce their own biophobia in order to model a positive attitude toward the natural environment. All of the university students, regardless of discipline affiliation, gained a better understanding of the importance of recognizing the processes of child development, planning interactive experiences, and connecting children with nature.

NICHOLLS/NORTHWESTERN/UNO
Service Learning Panel Discussion
Tina Granger (Nicholls State University), Steven Gruesbeck (Northwestern State University), Farah Elaboudy (University of New Orleans)

An information sharing session on how to connect course material to real world situations. Strategies to implement service learning into course material, overcoming challenges, and tips and trends in service learning. Bring your experiences and your questions. Moderated by Dr. David Yarbrough (University of Louisiana at Lafayette)

Undergraduate Research Oral Presentation Abstracts

Grambling State University
“It’s All About Me!” Instagram use and Narcissism
Presenter: Jack Ocwieja
Faculty Mentor: Dr. Matthew Sheptoski

Narcissism is a prominent issue in millennial culture. Several studies (Rees, 2011; Fox & Rooney, 2015) link excessive posting of selfies to narcissism. In addition, narcissists are more prone to post content on Facebook. Using a convenience sample, I investigated the connection between Instagram use and narcissism among GSU students. More specifically, research questions included: How does Instagram use impact user self-esteem? Second, how do Instagram users perceive their Instagram-using peers? Results indicate a positive correlation between Instagram use and user self-esteem. Additionally, a majority of Instagram users reported a strong emotional response, either positive or negative, to their Instagram-using peers. Finally, the broader implications for self, identity, and society of living in a technologically advanced era in which anyone with access to a smart-phone or computer can broadcast the details of their life are addressed.

Retrieving a Required Document Using Hadoop Technology
Presenters: Desmond Hill and Busby Sanders
Co-Investigator: Busby Sanders
Faculty Mentor: Dr. Yenumula Reddy

Analyzing the Big Data using Map Reduce techniques and identifying a required document from a stream of documents is the goal of the current research. The research was conducted using Hadoop 2.6.0, JDK 7, and Python 3.4 on Dell Precision T5500 with Ubuntu 14.04 at Grambling State University. The code was developed to utilize the Hadoop Systems node distribution capabilities to analyze the text files. The analysis includes number of times each word in the text file was repeated. The algorithm was coded in two stages. During the first stage the reputation of the words and in the second stage the importance factor and selection of the document were coded in Python. The process did not include any data models or SQL. It is simple Hadoop cluster, Map Reduce algorithm, required keys and their importance factor.
Undergraduate Research Oral Presentation Abstracts

Search for a Suitable Model Organism to Study the Functions of Angiotensin Converting Enzyme
Presenter: Lucie Doumbe
Faculty Mentor: Dr. Hung-Tat Leung
This study aimed to determine which model organism is best for the investigation of the role of the Angiotensin I-converting enzyme in blood pressure regulation in humans. Angiotensin I-converting enzyme (ACE) hydrolyzes angiotensin I into angiotensin II which is a potent vasopressor. The enzyme is also able to inactivate bradykinin, a potent vasodilator. Thus ACE acts to increase blood pressure. NCBI protein BLAST analysis of ACE showed that pigs express a protein with high homology (83%) to humans. The enzymes found in Mice and chickens share some similarity, 80% and 63% correspondingly, with the human enzyme. Among the six organisms used in the comparison, Human ACE shared least with that of fruit flies (45%) and rhesus monkeys (42%). We concluded that pigs would be a good model organism for the study of the functions of ACE in human beings.

The Effects of Incarcerated Parents on Young Adults
Presenter: LaKisha McCoy
Co-Investigator: LaKeisha Laville
Faculty Mentor: Clarence Williams
The effects of incarceration on children, families and communities alike, have raised grave anxieties and apprehensions, in terms of the impact of growing jail populations. Irrespective of viewpoints one may share regarding role of incarceration, it has been made apparent over the years, that imprisonment does in fact disrupt the positive, nurturing relationships between many parents and their children. The objectives of this study are to explore how young adults are impacted by parental incarceration and to explore these young persons' views on following in their parents footsteps. Utilizing the non-probability method of purposive sampling questionnaires were completed by participants. Participants described a combination of emotional and behavioral problems as a result of parental incarceration. Despite the incarceration of parents, respondents felt their lives would be different and many expressed a desire to mentor others. Despite many past findings concluding that children with incarcerated parents are more susceptible to becoming incarcerated themselves, there are those children who abstain from situations and circumstances that would actually lead them to follow the exact path. There are children who learn, understand, and accept the circumstances that they were raised under and become better individuals than their parents.

Louisiana Tech University
Mechanical Tensile Strength of 3D Printed PLA Filament
Presenter: Kelsey Phelan
Fused deposition modeling (FDM) printers are becoming more frequent in everyday use. These types of 3D printers are extremely useful for rapid prototyping. Two common types of filament used in FDM printing are Polylactic Acid (PLA) and Acrylonitrile butadiene styrene (ABS). The goal of this project was to analyze the mechanical strength of the PLA filament. Some properties that can change the strength of 3D printed piece are things such as infill percentage, layer height, print orientation, extruding temperature and build speed to name a few. Infill percentage and print orientation were tested to determine the mechanical strength of the material. The infill percentage varied from 20%-100% by increments of 20%. The 3D printed pieces were printed in three different orientations which caused the infill pattern and edges to be printed in distinct arrangements. All pieces of the same infill percentage were printed at the same time to avoid environmental factors such as humidity. This project reveals much needed insight into the mechanical properties, and suitability, of 3D-printed constructs for biomedical applications.

Effective Permittivity and Permeability of Metamaterials: Methods of Extraction from Experimental and Theoretical Data
Presenter: Caylin VanHook
Co-Investigator: Brandon Touchet
Faculty Mentor: Dr. Dentcho Genov
Metamaterials are engineered nano-scale metal-dielectric structures that exhibit unique microscopic and macroscopic electromagnetic properties that are drastically different than those of their constituent materials. Currently there are three extraction methods used to determine the bulk electric and magnetic properties of metamaterials: the Inverse Method (IVM), the Field Averaging Method (FAM), and the Eigenfrequency Method (EFM). The IVM uses reflection and transmission coefficients to obtain the permittivity and permeability of a slab made of the metamaterial. However, it involves multiple branches in the complex plane and is thus not uniquely defined. The FAM uses averaging of the electric and magnetic field over the metamaterial structures, but is only applicable for thin samples. The EFM estimates the effective index of refraction by directly calculating the dispersion relation of light in the metamaterial. However, it is computationally intensive. In this talk, we discuss the consistency between these methods and establish the conditions under which each method may be applied.

Seattle Coffee Experience
Presenter: Trent Harrison
Faculty Mentor: Kevin Singh
The project is a coffee house located in Seattle. The program includes tasting areas where local coffee brewers can lease space to sell their coffee products. With these tasting areas, also comes an exterior coffee garden, it will be a nice external condition for the enjoyment of coffee. There is also a two dining opportunities within the project; one being a more casual breakfast scene, and the other one is more of an upscale restaurant. My concept for the building is to become a visualization that shows the process of making coffee. This concept is what lead me to choose the next pieces of programming, the first of which is a greenhouse that will grow coffee plants so that observers can see the coffee in its most
natural state. The last piece of programming is a water distillery plant, because the essence of a good cup of coffee is the quality of water.

The Orient in the Attic
Presenter: Shelby DuBos
Faculty Mentor: Dr. Dorothy Robbins

Jean Rhys’ Wide Sargasso Sea tells the story of Charlotte Bronté’s madwoman in the attic. Wide Sargasso Sea explains why this character, Antoinette, married Rochester and ended up locked in his attic, and explores how their relationship, which threatens Rochester’s sanity, actually leads to her insanity.

Edward Said’s theory of Orientalism offers a way to examine colonial policies and practices in the context of self and other. Orientalism defines everything that is not European as “other.” The Occident aligns with the Anglo-European perspective. The Orient (in this novel represented by Antoinette) is everything that is not the Occident (represented by Rochester); therefore, the Occident determines the meaning of the Orient. Rochester and Antoinette’s marriage, as seen through the lens of Orientalism, reveals their roles as colonizer and colonized.

Just as the British colonized the Caribbean, Rochester, the Occident, attempts to colonize Antoinette through their marriage. Because she is the Orient, Rochester can only coexist with her by imposing upon her all that is British. He does this by challenging what little self-identity Antoinette has as an islander. However, she remains the resistant Orient, and their marriage will end, as did many colonial enterprises, in utter chaos and flames.

Differentiation of Mouse Embryonic Stem Cells for Cardiac Tissue Engineering
Presenter: Anna Whitehead
Co-Investigators: Nehal Patel, Jamie Newman, Mary Caldorera-Moore
Faculty Mentor: Dr. Jamie Newman

The leading cause of death in the United States is cardiovascular disease. Due to the limited regenerative capabilities of the heart, a heart transplant is often the most successful treatment. Current research is focused on stem cell-scaffold based tissue engineering to develop implantable cardiac tissue constructs. Embryonic stem cells serve as a potential cell source for these constructs or as a model for other cell types, such as induced pluripotent stem cells or adult stem cells. Pluripotent stem cells have yet to produce completely functional tissue. This study focuses on optimizing the method to produce cardiomyocytes suitable for cardiac tissue engineering. Cell differentiation will be evaluated using quantitative and semi-quantitative RT-PCR. Contractility will be analyzed using phase contrast microscopy and cardiac tracking software. In addition to optimizing conditions for cell culture and differentiation, tissue engineering relies on the identification of a biocompatible scaffold that enhances functionality and success of clinical applications. In order to achieve these goals, hydrogels will be used to create a scaffold that mimics the heart’s natural extracellular matrix. This study will increase the knowledgebase for stem cell-scaffold based cardiac tissue engineering, as well as serve as a foundation for future cell-substrate interaction studies.

The Role of Notch Signaling in Regulating Stem Cell State
Presenter: Demi Sandel
Co-Investigators: Ngozi Oghobnaya, Dr. Bruce Bunnell, Dr. Lucio Miele, Dr. Jamie Newman
Faculty Mentor: Dr. Jamie Newman

Notch Signaling is a highly conserved developmental pathway that has been shown to be misregulated in many diseases including cancer. It is important to understand how Notch signaling regulates stem cell fate and to better understand how this pathway can be used to optimize the therapeutic potential of adult stem cells. Using Adipose-derived Stem Cells (ASCs) and Bone Marrow-derived Mesenchymal Stem Cells (MSCs), we characterized the basal activity of Notch signaling. We also characterized the effect of Notch inhibition using the gamma secretase inhibitor, DAPT, to understand the role of Notch in the differentiation of MSCs and ASCs. Data from our study suggests that inhibiting Notch results in an increased induction of MSCs towards the bone lineage when compared to the vehicle treated cells. This suggests that Notch signaling may modulate the osteogenic differentiation of MSCs. Further experiments are underway to confirm these results, determine differences between ASCs and MSCs, and to identify specific Notch receptors that are responsible for differentiation.

Chiasmus Archery and Paintball Range
Presenter: Kendell Webb
Co-Investigators: Nikki Crane, Alaina Proctor
Faculty Mentors: Brad Deal, Robert Brooks

In spring of 2015, our Design Build Studio was presented with the challenge to design and construct an outdoor archery and paintball range for MedCamps of Louisiana, a nonprofit organization that provides summer camp experiences for children with a variety of disabilities. Our class focused the design around the concept of the chiasmus, which is represented by the letter X and found in the structure of ancient poetry. By utilizing the conceptual foundation of the chiasmus, we formed two inherently separate experiences of archery and paintball, with a central gathering space where they crossed in the middle to frame the view of the lake at Camp Alabama. The center space between the poised, collected accuracy of archery and the sporadic, thrilling release of paintball facilitates gathering and reflection for the children to share their excitement. This project provides diverse experiences in archery and paintball, creating exciting and rarely available participation for children with disabilities.

This presentation will tell the story of our class’ design and construction of this deeply meaningful project, as well as discuss how a chiastic intersection can evoke a transformative, metamorphic experience for its designers as well as its end users.
McNeese State University
Developing a Feasible and Scalable Solution for Recipe Analysis and Recommendation Using Open Source Software
Presenter: Joseph DeBartola
Faculty Mentor: Dr. Chengwei Lei

The objectives of this project were to determine whether it was possible to create a feasible and scalable solution for recipe analysis and recommendation using open source software and to determine whether a hobbyist developer, small company, or startup could utilize such a solution. This project is broken down into several key stages. First, the data must be mined from recipe websites. Second, the respective recipes and ingredients must be parsed out of the data and modeled to allow associative analysis. Third, the information must be stored in a full-text search capable database to allow for sophisticated searching. Finally, a statistical method must be defined for comparing and correlating recipes. It was found that using well-documented, open-source, and largely free software solutions, a system capable of mining, storing, and analyzing recipes can be created. This system could both differentiate recipes and recommend new ones based on key elements and similarities. It is entirely feasible to create a lightweight, scalable solution for recipe analysis.

A Study of Salinity Transport in Calcasieu Water System
Presenter: Susan Regmi
Co-investigator: Xiao Han
Faculty Mentor: Dr. Ning Zhang

A modeling tool has been developed in the past years at McNeese for simulating hydrodynamics in the Southwest Louisiana Calcasieu Lake water system. Recently, a salinity transport model has been developed and added to the modeling package. Water level and salinity concentration data from NOAA and USGS are used as boundary conditions of the model. Simulation results were then compared to NOAA and USGS data for validation. The good agreements prove the validity of the simulations. The validated models are used to study salt water intrusion in Calcasieu Lake. Salt water intrusion is a major threat to the marshes of Calcasieu Lake. Salt water intrusion destroys vegetation, which leads to coastal erosion. In order to reduce salinity concentration in the most damaged wetland of Calcasieu Lake called the West Cove, three different types of levees are designed. Results from the simulation show the implementation of a levee decreases salinity concentration significantly. However, the presence of a levee also drops down flow velocity in the targeted area causing water stagnation, which leads to many ecological problems. A flow control mechanism is suggested to direct fresh water to enter inside West Cove, increasing flow velocity while reducing salt water contamination.

Molecular Identification of Damaged and Dying Neurons in Rocky Mountain Elk
Presenter: Cathryn Frey
Co-investigators: Brittany Slabach and Mollie Matz
Faculty Mentor: Dr. Amber Hale

Kentucky is home to the largest free-ranging North American Elk population outside of the Rocky Mountains. The majority of the terrain on which the population resides is reclaimed coal mining land. It has been well documented that a parasitic nematode, Parelaphostrongylus tenuis, infects this population; however, diagnostics in absence of adult worm identification can be tenuous. Due to the ambiguity in diagnostics many idiopathic deaths are assumed to be resultant from sub-clinical Parelaphostrongylus tenuis infection. We hypothesize polioencephalomalacia (PEM) a degenerative neurologic disorder caused by acute sulfur toxicity primarily from water sources in the normal range of the elk population is the cause of some proportion of idiopathic deaths.

We are using combination of neuropathic and molecular techniques to identity diagnostic markers in elk that may be used to differentiate PEM afflicted elk from Parelaphostrongylus tenuis positive elk. For all experiments we compare symptomatic Parelaphostrongylus tenuis negative, symptomatic Parelaphostrongylus tenuis positive, and asymptomatic Parelaphostrongylus tenuis negative animals (control). Histopathology results have revealed statistically significant differences in molecular layer thickness and Purkinje cell density among all three groups. Additionally, we have used TUNEL staining to compare apoptosis across groups and Fluoro-Jade C, which labels damaged neurons, to compare groups.

Comparison of Pre-Race Behavior of Quarter Race Horses on Finish Order and Finish Type
Presenter: Michelle Petrarca
Faculty Mentor: Dr. Edward Ferguson

Louisiana horse racing is a multimillion dollar industry that supports many jobs. The ability to identify a horse’s performance and welfare would be beneficial to the horses as well as horse producers. This study was designed to determine the effect of pre-race behavior on performance and identify factors that may affect pre-race behavior. One thousand forty Thoroughbred race horses were evaluated in the course of 137 races over 14 racing nights at Delta Downs Race Track (Vinton, LA). The pre-race period was divided into four subsections: before saddling (BSAD; time when the horse walked across the track’s infield to right before entering its stall to be saddled); during saddling (SAD); after saddling (ASAD; time the horse was saddled to when the jockey mounted the horse); and post-parade (POSTP; time the jockey mounted to the end of the post-parade). During these periods, the horses’ behavior was classified as calm, ready or nervous. We showed that horses classified as calm and ready in the four different periods had a better race finish than nervous horses. Therefore, observance of pre-race behavior can aid in how the audience portrays the stress level of the horse and the influence it plays on race performance.

Undergraduate Research Oral Presentation Abstracts
**Effects of L-Arginine on the Sensory, Physicochemical and Microbiological Characteristics of Beef Jerky**

*Presenter: Alli Rushing*

*Faculty Mentor: Dr. Wannee Tangkham*

The objectives of this study were to determine the effects of different levels of L-arginine on the sensory, physicochemical, and microbiological characteristics of beef jerky. We tested three treatments including: 1) control (0% L-arginine), 2) treatment 1 (1.7% L-arginine) and 3) treatment 2 (3.3% L-arginine). Untrained participants (N = 103) evaluated the jerky once a month for acceptability of flavor, texture, taste, saltiness, and overall liking over a six month period. Each sample was analyzed for amino acid profiles, pH, moisture content, color (L*, a*, and b* values), lipid stability (TBARS), aerobic plate count, Escherichia coli, Listeria spp. and Salmonella spp. Beef jerky prepared with 3.3% L-arginine was the most desirable with a texture score of 6.29. The pH values for all samples increased (P < 0.05) with storage time. The initial L-arginine and moisture contents ranged from 2.43% to 8.81% and 37.37% to 41.20%, respectively. Beef jerky prepared with 1.7% L-arginine had the highest (P < 0.05) L* lightness (29.97) and a* redness (6.33). TBARS values were lower in the control treatment at 1.14 mg MDA/kg. Aerobic plate counts decreased by 1.42 log CFU/g in treatment 2. No E. coli, Listeria spp. or Salmonella spp. were detected.

**Nicholls State University**

**Podoviridae Used to Control Vibrio Parahaemolyticus Biofilm in Vitro**

*Presenter: Corey Melancon*

*Co-investigator: Ashleigh Aubin*

*Faculty Mentor: Angela Corbin*

A dilemma encountered in seafood aquaculture is bacterial pathogens. Many closed circulating systems develop biofilm and biofloc for use as a supplemental feed. This practice may result in the incorporation of pathogens like Vibrio species into the biofilm and thus into the diet. In September 2014, a Vibriosis outbreak forced an aquaculture facility in Texas to harvest their shrimp weeks early, causing a loss in tonnage and revenue. We isolated the potential pathogen from hemolymph of morbid shrimp using PCR and CHROMagar. PCR was used for confirmation of the gyrB gene specific to Vibrio parahaemolyticus. This isolate formed heavy biofilm in culture. We tested if this biofilm can be controlled by a bacteriophage. A bacteriophage with lytic activity was isolated from oyster liqueur through enrichment and filtration. Our results showed a significant difference in biofilm formation between the phage-treated and an untreated control. Transmission electron microscopy was used to identify our bacteriophage as belonging to the family Podoviridae, based on bacteriophage morphology. This is a significant find because recently a pathogenic strain of V. parahaemolyticus has been identified as the cause of the deadly Acute Hepatopancreatic Necrosis Disease (AHPND) that causes high mortalities in aquacultured shrimp and huge economic losses.

**Undergraduate Research Oral Presentation Abstracts**

**Sauerkraut: A Probiotic Superfood?**

*Presenter: Ryan Orgeron II*

*Co-investigator: Angela Corbin*

*Faculty Mentor: Dr. Brigett Scott*

**PURPOSE**

Determine if various serving sizes of homemade sauerkraut (2 Tbsp., ½ cup, & 1 cup) fall within the recommended and effective Lactobacillus CFU range in comparison to a control (supplement probiotic).

**METHODS**

Modified Lactobacillus Media was used to culture LAB. The capsule serving (0.8g) was diluted with 99.2g PBS (1/100) and 10g of sauerkraut was diluted with 90g PBS (1/10). For serial dilutions, 1mL of each of the samples was diluted into 9 mL MRS broth for t dilutions (10-1-10-10). Then 1mL from each test tube is transferred into petri dishes. Melted Lactobacillus MRS agar is then mixed into each of the petri dishes. All petri dishes are then placed into a candle light jar and placed in an incubator at 37 degrees Celsius (98.6oF) for 5 days. After five days, the petri dishes with 25-250 visible cultures were counted.

**RESULTS**

The control group was calculated as a mean of 4.3x10^7 CFUs. The sauerkraut averages were calculated for each of the serving sizes. The 2 Tbsp. serving has a mean of 1.5x10^6, the ½ cup has a mean of 5.9x10^6, and the 1 cup serving has a mean of 1.2x10^7.

**The Real American Hurry Story**

*Presenter: Brookes Washington*

*Co-investigator: Sarah Rogers*

*Faculty Mentor: Christie Landry*

From 2006 to 2011, the FBI has reported over 170 mass killings, with new incidents occurring approximately every two weeks. Some of the more recent incidents have sparked research interest in the biological and psychological profiles of the assailants. Post-mortem examination of the shooters’ personalities, interactions with others, and personal manifestos regarding their beliefs indicated that each shooter displayed symptoms of multiple social disorders leading to aggressive outward manifestations of their ideologies not compatible with societal standards. Links between early childhood trauma and personality disorders, specifically issues with regulation of neurotransmitter production and release, were also noted. We researched the connection between depression and dysregulation of neurotransmitters associated with early life trauma. Data suggest that when an adolescent experiences a traumatic event before the onset of puberty, detrimental effects to the brain can occur, resulting in increased production of monoamines, which may cause an imbalance in the emotional centers of the brain and a mental disconnect from normal societal views. Scientific data indicates that both nurture (environment/experience) and nature (genetic/epigenetic) play a role in an individual’s mental state. Understanding the biochemistry behind psychopathy and evaluating the ideologies of these mass murderers can be a key of preventing future mass shootings.
Undergraduate Research Oral Presentation Abstracts

Tracking the Presence of Vibrio Pathogens in Louisiana Seafood

Presenter: Richard Grabert
Faculty Mentor: Dr. Ramaraj Boopathy

In Louisiana, seafood is a multi-million dollar industry. Because of this, the presence of Vibrio spp. is monitored in the water where seafood is harvested, but rarely will the seafood itself be tested. The objective was to isolate colonies of Vibrio, with a specific interest in isolating Vibrio parahaemolyticus and testing for antibiotic resistance and pathogenicity. Working with the John Folse Culinary Institute, raw seafood from the seafood culinary class were swabbed and allowed to culture in Alkaline Peptone Water. After isolating individual colonies of Vibrio spp., Kirby-Bauer antibiotic-resistance tests were run using common antibiotics for treatment of Vibrio infections. PCR was also run on all V. parahaemolyticus colonies for species identification and pathogenicity. Using a serial dilution method, the quantity of Vibrio on the seafood was studied as well. All three Vibrio species were found over the course of the sampling. Antibiotic-resistance was present in some of the Vibrio spp. Based on the results, better monitoring of seafood and new storage techniques should be considered.

Does Salinity Have an Impact on Antibiotic Resistant Bacteria and Antibiotic Resistance Genes in the Bayous and Wetlands of Southeast Louisiana?

Presenter: Ryan Brown
Co-investigators: Scott Bergeron, Justin Homer, Dr. Ramaraj Boopathy
Faculty Mentor: Dr. Ramaraj Boopathy

One of the major public health problems today is the occurrence and spread of antibiotic resistant bacteria (ARB) in the environment. A main reservoir for ARB is aquatic ecosystems. Culture based methods and qualitative molecular techniques were used to screen and determine the presence of antibiotic resistance genes (ARG) and ARB in three different salinity gradients in southeast Louisiana. Monthly samples were taken for a six-month period with a water salinity range from 0 to 12 parts per thousand (ppt) and analyzed for the presence of ARB and ARGs. The bacteria of interest included Enterobacter cloacae/aerogenes, Enterococci spp. and E. coli. The antibiotic resistance genes of interest included ermB, sll, tetA, tetX, tetW, and mecA. The results indicated salinity did not have a significant impact on the presence of ARB and ARGs. ARB were found in all three salinities (0, 6, and 12 ppt). ARGs were more prevalent in site 2 with the salinity of 6 ppt followed by site 1 with 12 ppt and site 3 with 0 ppt.

Northwestern State University

“The Naked Woman Playing Chopin:” The Music of Chopin in The Last Report on the Miracles of Little No Horse

Presenter: Leanny Muñoz
Faculty Mentor: Dr. Holly Stave

The beautifully crafted novel, The Last Report on the Miracles at Little No Horse by Louise Erdrich, tells the story of Father Damien Modeste, an aging Catholic priest who serves the people on the reservation of Little No Horse. Father Damien is also Agnes DeWitt, a woman who is married to God while having an illicit affair with Frederick Chopin, the deceased nineteenth century Polish composer. The specific use of the composer along with notable mentions of specific works raises the question, “Why Chopin”? Agnes DeWitt is connected to Chopin’s music because, “Chopin’s music carries a poignant relationship to loss and melancholy.” The music is a reflection of Agnes’s future after the convent, which is filled with loss. Along with the music, the composer’s own life shares some similarities; the musical affair between Agnes and Chopin is a deliberate inclusion by Erdrich. Through an analysis of the musical score of Chopin’s Prelude in E Minor and the Nocturne in C Minor it is clear that the music supports and adds to the character of Father Damien, formally Agnes DeWitt.

Land the Role or Protect Your Voice: A Dilemma for Emerging Opera Singers

Presenter: Crystal Dunning
Faculty Mentors: Dr. Lisa Wolfe and Terrie Sanders

As young singers are entering the world of classical singing, it is imperative that they guard their instruments. With high expectations and market demands, protecting their livelihood can be challenging, but it is of the utmost importance in order to attain and sustain a career. When a singer is training with the intention to enter the classical field, there are several key aspects they, as well as their teachers, should prioritize. These include many areas of the vocal training process, but primarily the singer should be focused on vocal health. In order to understand the importance of vocal health and how it can be compromised by market demands, it is necessary that the singer, teacher, and any respectable voice professional understand the importance of proper vocal technique, the history of voice training, and currently accepted definitions of voice classification and Fach. With this knowledge at hand, singers may equip themselves against unintentional threats to their instrument. This work will primarily focus on and use female voices as examples and reference points; however, the male voice shares many if not all of the same key technical points.

From Sputnik to the Next Generation: Science Education Reform in America

Presenter: Chelsea Maielli
Faculty Mentor: Dr. Massimo Bezoari

The launch of Sputnik I in 1957 promoted a period of continuous reforms in science education. Previously, science education was of low importance in the United States, but the fear of falling behind caused an increased emphasis on science education. Science education has experienced four waves of reform, influenced by wars and politics. Although all fifty states have science content
Undergraduate Research Oral Presentation Abstracts

Suppression of Exosome Uptake by Derivatives of Stilbene

**Presenter:** Blake Schouest  
**Co-investigator:** Dr. Massimo Bezoari  
**Faculty Mentor:** Dr. Massimo Bezoari

Exosomes are small heterogeneous microvesicles that mediate intercellular communication and cell regulation. Evidence indicates that exosomes may enhance HIV pathogenesis by shuttling viral particles between susceptible T cells. Additionally, preliminary studies show that exosomes are more likely to fuse with activated T cells, compared to their non-activated counterparts. Exosomes often express host-derived intercellular adhesion molecule-1 (ICAM-1), which may interact with lymphotope function-associated antigen 1 (LFA-1) on T cells, thereby promoting viral delivery. ICAM-1/LFA-1 binding normally mediates lymphotope migration along endothelial cells during inflammation. However, due to LFA-1 upregulation following T cell activation, ICAM-1/LFA-1 interaction could explain the enhanced fusion of exosomes with activated T cells. Using AutoDock Vina™, natural and synthetic stilbene derivatives were docked to ICAM-1 to explore whether the small molecule inhibitors might prevent binding to LFA-1. Several stilbene compounds were identified that effectively bind ICAM-1. Disrupting ICAM-1/LFA-1 interaction could limit the dissemination of HIV among susceptible T cells. Taken together, these findings suggest that T cell activation may facilitate exosome uptake through LFA-1 upregulation, providing a mechanism for HIV’s infection of T cells in the absence of Env binding. Additionally, stilbene compounds may prove useful in preventing exosome fusion, thereby limiting HIV dissemination within the infected host.

Molecular Docking in Rational Drug Design: The Significance of Paracyclophane Scaffolds in Proteasome Inhibition

**Presenter:** Caleb Killer  
**Co-investigator:** Dr. Massimo Bezoari  
**Faculty Mentor:** Dr. Massimo Bezoari

The first naturally occurring [7.7]paracyclophanes were isolated from the Nostoc genus of cyanobacteria over two decades ago. Since then, variations of [7.7]paracyclophanes have been discovered in several species of cyanobacteria across the Nostoc genus and have been tested for their potency in proteasome inhibition. The use of computational chemistry permits the investigation of binding sites of these compounds as well as structural modifications that may result in greater efficacy and potency. In silico docking studies show that [7.7]paracyclophanes have noncovalent binding energies that are comparable to the FDA approved proteasome inhibitor carfilzomib and other candidate proteasome inhibitors. These docking studies include the use of two docking programs, GOLD© and AutoDock™ Vina, to determine the proteasome subunit preference of [7.7]paracyclophanes. The results reveal that [7.7]paracyclophane scaffolds form lower energy complexes at the beta2 and beta5 subunits of the constitutive proteasome. Additionally, the top scoring natural product, cylindrocyclophane AB4, was modified to include an electrophilic alpha,beta-epoxyketone trap. This addition resulted in a greater binding energy and permits covalent linkage between the active site and the [7.7]paracyclophane. The author gratefully acknowledges the support of the Richard Lounsbery Foundation in the form of a research professorship to the research director.

Culture, Obscenity, and Feminist Art: The Female Nude

**Presenter:** Cayla Mendow  
**Faculty Mentor:** Dr. William Housel

The naked female form can be an effective symbol of liberation from patriarchal oppressors because it neutralizes the hyper-sexualized and objectified image of women propagated by societal norms and the media; when a woman is unashamed to present her body publicly to defend her autonomy and convey the normalcy of nudity, she refutes the guilt of self-expression imposed by society. Social and political censorship hinders an accurate historical record of culture in America by stifling the voices of unpopular perspectives. This philosophy inspired eight acrylic paintings of nude women by Cayla Mendow.

Adversus Haereses: Gnostic Christianity and its Hostile Witnesses

**Presenter:** Zoe Barnett  
**Faculty Mentor:** Dr. Rondo Keele

The early church fathers Irenaeus of Lyons, Epiphanius of Salamis, and Hippolytus of Rome all wrote against the gnostic Christians, a group of heretic sects active in the early Christian church and the historical focus of my undergraduate thesis. In this presentation, I will give some historical background regarding the gnostic Christians my thesis focuses on. I will also examine the writing strategies used by fathers in the early church to discourage heretic behavior in their congregations.
Musical Ghosts: References and Associations in the Works of Luciano Berio and Alfred Schnittke, and an Original Composition  
**Presenter:** Jackson Harmeyer  
**Faculty Mentor:** Paul Christopher  

Since the waning of the Modernist drive in music beginning in the late 1960s and early 1970s, references to pre-existing music have become a prominent feature in many new compositions. The current presentation considers three representative works, including the third movement of Luciano Berio’s Sinfonia (1969) constructed entirely from references as diverse as Beethoven, Mahler, Schoenberg, and Boulez; the haunted waltz from Alfred Schnittke’s Piano Quintet (1976); and the first movement of my own Organ Symphony (2015) generated from a Gregorian Kyrie eleison chant. The project uncovers the structural logic behind why these composers make use of their references.

The Emergence of the New Orleans Tourist Identity  
**Presenter:** Morgan Byrd  
**Faculty Mentor:** Dr. Keith Dromm  

The end of WWII marked the beginning of a new era of New Orleans. The post-war years were characterized by conflict between progress and preservation in the French Quarter, an attempt to grow the city’s commercial activity, and the commodification of the city’s culture. The transformation of the city’s identity and tourist industry during the first half of the twentieth century provide a basis upon which post-war New Orleans emerged, building on the accomplishments of the first half, and shaping modern society. In this paper, I examine the authenticity and implications of the tourist identity that emerged post-WWII.

Southeastern Louisiana University  
**PID Control for a Wearable e-Braille Using a Force Sensing Resistor**  
**Presenter:** Tim Carambat  
**Faculty Mentor:** Dr. Mohammad Saadeh  

The objective of this research is to design a control system for a Braille-reading device with an electronic tactile display. The device is wearable on the dorsal side of the index finger. A miniature DC motor maintains the contact between the fingertip and the electronic tactile display through rack and pinion mechanism. A force sensing resistor (FSR) is used to provide feedback sensory of the tactile force at the user’s finger pad.  

Methodology: We identified six potential FSRs in order to select the best candidate for this task. We used a load cell to calibrate them through placing each FSR on top of the load cell. Certain pressure profiles were applied and readings from the FSR and the load cell were transmitted using a data acquisition board. After a suitable FSR was identified, we applied a PID control system to regulate the pressure through the motor.

Simulated signals were generated using the FSR mathematical models and compared to the experimental signals. Results show that using nonlinear system identification techniques have significantly modified the performance of the simulated models and achieved better representation of the FSR models. The PID control is still in the process of tune up the system.

Human Trafficking with Respect to the United States with A Concentration on Sex Crimes  
**Presenter:** Janell Cutrer  
**Faculty Mentor:** Dr. Peter Schrock  

Human Trafficking is defined as a modern day form of slavery involving the illegal trade of people for exploitation or commercial gain by the official website of the department of homeland security. Sex Trafficking is a form of human trafficking defined under federal law as a commercial sex act through ‘force, threats of force, fraud, or coercion.’ The main purpose of this presentation is to inform the audience of the severity of knowledge on this topic and to suggest ways to better minimize Human Trafficking with respect to sex crimes. My research is pulled from many scholarly journals, well known Criminologist, and Government informants. I will also briefly talk about a true study that I will still be in the process of conducting with actual juvenile female victims of trafficking in the U.S. My study will give insight on how the girls have been affected by the trafficking itself and also how rehabilitation safe houses have helped give hope to them for a better future. While I will be touching on how this international crime is important as a global issue, my main focus will be on the depths of sex trafficking within the United States.

Characterization of Thin-Film Substrate Interface with Optical Interferometry  
**Presenter:** David Didie  
**Faculty Mentor:** Dr. Sanichiro Yoshida  

A Michelson interferometer was used to characterize the elastic property of the film-substrate interfaces. The thin-film specimens were configured as an end-mirror of the interferometer with the film surface facing the beam splitter and oscillated with an acoustic transducer from the rear. The film-surface oscillation amplitude was evaluated from the reduction in the interferometric fringe contrast. The fringe contrast was evaluated in the spatial frequency domain via Fourier Spectrum of the intensity profile of the fringe image. Our specific interest was to test specimens in an oscillation frequency range of actual uses of thin-film products. Thus, the audible acoustic frequency range was used. The thin-film specimens used in this study were a Pt-film coated on a surface-treated Si substrate and the same Pt-film coated on an untreated Si substrate. The specimens were tested for comparison. The treated and untreated specimens indicated resonance-like behavior around 8 kHz and 11 kHz, respectively.
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The Ruskin Journey:
GIS Applications in the Digital Humanities
Presenter: Britney Jarreau
Co-Investigator: Taylor Oakley
Faculty Mentor: Dr. Ghassan Alkadi, Dr. David Hanson

Our objective was to sponsor a collaboration between English and Computer Science students by manifesting geographical information in the Early Ruskin Manuscript archive as a map/chronology based web application. The project weds a map to manuscripts describing the Ruskin family’s first major journey to the Continent. The project creates an interactive interface linking edited manuscripts to points on a historical map. In Fall 2015, computer science students worked alongside the ERM encoding team to design a map/chronology tool to experiment with incorporating GIS encoding into the existing ERM archive. In Spring 2016, we began reconciling the resulting designs and encoding the data in XML. As a result, we have arrived at a working copy of the web application which allows us to begin expanding the project to include a search engine and to consider how this tool may be applied to other travel-related documents in ERM.

Workflow Visualization and Learning
Presenter: Bibek Gautam
Co-Investigator: Sean Craft
Faculty Mentor: Dr. Wesley Deneke

The workflows that take place regularly in our daily lives, like getting dressed, brushing teeth, or driving to work, seem to follow a pattern with recurring interactions with objects. But computers remain ignorant of these workflows today. If these patterns, objects, actions and the interaction between the objects are recognized and represented properly then computers could be made situation-aware. In this work, we investigate modeling human activities as workflows with the goal to recognize common workflows, such as “getting ready for work”. Our work simulates a real-life scenario in a virtual world and studies the feasibility of the approach by getting an avatar to parse observed primitives. The success of this preliminary work demonstrates value for further investigation of workflow representations, recognition, and learning.

University of Louisiana at Lafayette
Investigating Mechanisms of Ototoxic Effects on Hair Cells using a Model Sea Anemone
Presenter: Fatima Fazal-ur-Rehman
Faculty Mentor: Dr. Patricia Mire

Ototoxicity is the harm induced on the cochlear or vestibular system of the ear that may cause hearing loss and tinnitus. There is no current treatment for ototoxicity, yet there are over two hundred medications that result in hearing loss. For example, drugs commonly prescribed to treat bacterial infections such as Gentamicin, and diuretics such as Furosemide, have been known to induce hearing loss. Moreover, when Gentamicin and Furosemide are used together, they have a synergistic ototoxic effect. The mode of action of these drugs is not clearly understood.

The research seeks to determine the pathway used by these drugs to induce hearing loss. The model organism used is Nematostella vectensis, a species of sea anemone. Sea anemones are simple marine invertebrates which possess hair cells used in prey detection that are remarkably similar to the hair cells of human ears. To test whether Gentamicin and Furosemide act on hair cells, anemones are exposed to these drugs independently and in combination. Phase-contrast microscopy is used to measure morphological features of mechanoreceptive hair bundles and to obtain density of bundles on the tentacles.

Calibration of the Heat of Pyrolysis for the Torrefaction of Bagasse
Presenter: John Pippins
Faculty Mentor: Dr. William Holmes

This presentation covers the current calibration of a lab-scale experiment with the purpose of determining the specific heat of bagasse in order to further research on the energy return from torrefaction. Research on the calibration of temperature change in gas over a length of packed bagasse will be presented. The pursuit of torrefaction as a possible option to increase the grindability, energy density, and hydrophobicity of biomass would allow for cofiring in current coal combustion facilities and decrease the dependence on coal. Currently the United States is largely dependent on coal as a source of energy, but the combustion of coal leads to greenhouse gas emissions. Using biomass as a fuel source along with coal introduces a renewable resource while decreasing the amount of greenhouse gas emissions per energy produced.

Marxist Theory and Corporate Social Responsibility:
A Look at the “Billions in Change” Campaign
Presenter: Kristen Petitjean

Professional ethics and corporate social responsibility have long been a source of contradiction and argument in the business place. How a corporation gives back to its shareholders and stakeholders can affect its reputation and set a precedent for expectations of future business practices. Underlying the stakeholder models of corporate social responsibility is a mix of utilitarianism and deontological concepts that help define why a business may choose to engage in corporate social responsibility. The Marxist theories behind The Communist Manifesto provide insight into the benefits of a business place that gives back to its people in equal share. The “Billions in Change” campaign is an extreme example of one corporation’s actions that showcase the outcomes of a well-crafted social responsibility program.
Graphene oxide sheets are synthesized from Graphite by using Modified Hummer’s Method, which basically involves oxidation and filtration of expanded graphite. Clusters of graphene oxide sheets were observed in the SEM images. Thereafter, seven different syntheses of hydrothermal method were conducted by stirring filtered graphene oxide, Tetrahydrofuran and DI water in an auto clave. Additionally, aluminum sulphate and TBAOH were added in some of the synthesizes to enhance the scrolling of the nanosheets. Every reaction was performed under variant temperature conditions. The study of the TEM images of the result showed the formation of some fully scrolled nanosheets ranging from 10nm to 20nm, some semi scrolled edges, along with some clusters of nanosheets.

The Aristotelian idea of the five senses is founded on remarkably outdated science and therefore requires reevaluation. Humans in fact possess multiple other senses and acceptance of this can lead to expanded conscious experience and an enriched life. Through a brief examination of Aristotle’s writing on the senses and a systematic evaluation of common methods of individuating the senses, this essay shows the indisputability of the existence of multiple senses outside the scope of the commonly recognized five. Material has been pulled from several articles excerpted from larger works as presented in a landmark anthology concerning the senses.

Digital Light Projection (DLP) Based Sterolithography (SLA) 3D Printer Design
Presenter: John Frank
Faculty Mentor: Dr. Charles Taylor

Stereolithography (SLA) represents an additive manufacturing method that uses light to selectively cure a photoresin for the purpose of creating a 3 dimensional structure. With successively cured layers, larger geometry can be achieved with this method. Using a digital light projection (DLP) chip, whole layers of the model can be cured in a single step as opposed to laser based methods that require the laser to line scan the model. This approach rapidly accelerates the printing process, while still maintaining a high level of accuracy in the part. The goal of this printer is to produce models of the cardiovascular system for benchtop flow studies. With many of the intended models being complex in nature, fused filament printing would not produce the needed resolution or finish required. A printer design that employs a standard classroom projector and hobbyist motor controls is presented. The underlying chemistry and discussion of the tested solutions to problems with this technology will be covered. With the growing presence of DLP SLA, many of the challenges with this method are limiting the success of these designs in the marketplace.

University of New Orleans
Graphene Oxide Nanostructures
Presenter: Cynthiya Shrestha
Faculty Mentor: Dr. John Wiley

Graphene Nanoscrolls are 3D structures of Graphene, which is a 2-D allotrope of carbon with hexagonal lattice packing structure. Due to its exceptional mechanical, chemical and electrical properties, graphene nanoscrolls have wide range of applications in nanotechnology and microelectronics. My research is mainly focused on the development and optimization of hydrothermal synthesis method for graphene oxide nanoscrolls. Although hydrothermal synthesis is a very time and energy efficient method of nanomaterial synthesis, up until now very little research has been done on hydrothermal synthesis of graphene nanoscrolls. Graphene oxide sheets are synthesized from Graphite by using the
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Participating fish in Lake Pontchartrain are tagged with transmitters emitting signals to hydrophones mounted on buoys in the lake. Data is collected periodically from the buoys by field agents and imported into the system. The retrieved data consists of detection objects detailing the locations, and timestamps for each fish. Moreover, some fish are tagged with satellite transmitters whose data is collected remotely.

The Telemetry project not only allows biologists and fishermen to monitor fish movements, but also allows them to have a better understanding of how different factors affect the fish movement patterns.

The project can be accessed by the public via the live site at https://louisianafisheries.net/telemetry.

### Game Development for Education:

**Designing Learning Tools Using Unity**

*Presenter: Ashim Sitoula*

*Faculty Mentor: Dr. Stephen Ware*

Video games, generally thought of as a playful pastime, can also be used as educational tools to bring about smarter ways of learning. They can not only provide students with an engaging and fun environment to learn from and heighten their curiosity, but also allow game developers to understand students’ thought processes as they attempt to solve a task within the game. By building upon this concept of video games with further feedback from the teaching community, it is possible to tailor specific behaviors of the game to go in line with the students’ needs and goals. An interactive platform for game development combined with a supportive community made Unity the software of choice for this project. The project, as part of the PURSUE Program, is currently undergoing research and development that focuses on understanding the working elements of Reading Rocket—a game designed for the stealth assessment of reading level in middle-school children. The design process resonates with the philosophy of the Narrative Intelligence Lab—that of investigating how computers can use narrative to interact more naturally with people. The final outcome will be an entertaining computer game that helps us better assess the learning outcomes of middle-school students.

### Ecocentric Watering System

*Presenter: Gabriel Singleton*

*Co-Investigators: Louis Cloutier, Matthew Hinkamp, Anthony LeBlanc*

*Faculty Mentor: Kim Jovanovich*

Only three percent of all of the Earth’s water is naturally freshwater, and the demand is increasing each year as the global population increases. The International Food Policy and Research Institute estimates that by the year 2025, farmers will struggle to meet the world’s growing agricultural demands. Much of the water that is consumed by humans is wasted simply due to system inefficiencies. This project addresses the issue of wasting water in irrigation by using moisture sensing technology along with a continuous weather data feed to optimize the output of water in gardening and farming. This ecocentric watering system will minimize the amount of water that is wasted in irrigation as opposed to watering systems that simply use timers or are manually operated. The main components in the design of the system are resistivity moisture sensors that are placed in soil, relay operated solenoid valves that control the flow of water to the soil, a flow meter that determines the water output of the system and its efficiency, and a microcontroller with internet capability that is programmed to operate the system. The construction of the prototype of the system is underway and will soon be able to demonstrate operation.
Grambling State University

Effect of Tip Distance on Conductivity of Thiophene-Functionalized Cobalt-Bisdicarbollide Cages

Presenter: Timothy Ismael
Co-Investigator: Benjamin Beach
Faculty Mentor: Dr. Pedro Derosa

Polythiophenes and Metalla(bisdicarbollide) carboranes are known to be conductive with high chemical and thermal stability. Metalla(bisdicarbollide) carboranes have shown interesting electrical properties due to its 3-D resonant structure and have been shown to improve conductivity in thiphene chains. In this work the conductivity of cobaltabisdicarbollide sandwich, with each carborane cage functionalized by a single thiphene, connected to gold electrodes is studied using a combination of Density Functional Theory and Green's functions. The occupied molecular orbitals near the Fermi level are found to determine the low bias transport characteristics of the molecule. It is observed that conductivity initially increases when molecule-tip distance increases from the equilibrium distance of 1.9 Å decreasing thereafter. The increase in conductivity is attributed to the shift of the conductive orbital towards the Fermi level as its population decreases, thus although as expected the longer junction decreases conductivity, the proximity of this MO to the Fermi level, lead to an early conduction.

Smart Thermostat for Event Facilities

Presenter: Alante Adams
Co-Investigator: Decarlos Smith
Faculty Mentor: Lane Elien

Thermostats are present in buildings to actively regulate the air temperature to a desired level. In most buildings, programmable thermostats are used to allow the user to set the desired temperature for specified time intervals for the seven day cycle. Our project provides a smart solution for an event based facility such as nightclub or civic center, where the air condition system is only used when there is an event. Our smart thermostat eliminates the need for someone to be present before, and after events to turn the air condition on and off. Our project uses a web interface to save future event bookings into a database in the cloud, which is then accessed periodically by the controller. The controller then scans the database for events and uses logic to turn the air conditioner on prior to the event, and off after the event, based on the information provided in the database. Our controller also has an override button that can be used to turn the air conditioner on and off, independent of a database event entry. For our controller we are using the Raspberry-Pi single board computer.

The Diagnosis-Remediation Connection:
A Field-Based Research Project

Presenter: Seara Buffington
Co-Investigators: Lyntoinette Jones
Faculty Mentor: Dr. Loretta Jaggers

The field-based research project serves as the culminating signature assessment for ED 431 (Diagnosis and Correction of Reading Difficulties). This project provides an opportunity for the candidates to apply and transfer the information presented during the semester to the diagnosis-remediation process in the actual classroom setting. First, candidates are assigned a student by the cooperating teacher at the on-site partnership school. Second, each candidate administers formal and informal assessments to gather data. Third, candidates analyze and interpret the results of the data collection process to identify appropriate strategies and resources for remediation.

Vex Robotics and Its Role in Line Tracking

Presenter: Michael Hendrix
Co-Investigators: Vanna Sok, Davon Williams, Gwendolyn Hall
Faculty Mentor: Dr. Yenumula Reddy

The objective of our project was to build a stable and functioning Vex robot. This robot will utilize line trackers and an ultrasonic rangefinder in order to navigate more efficiently. We designed the Robot in the shape of a square to provide stability. There was a wheel on each side of the robot to improve its movement and balance. C++ language allowed for the addition of new function to be simple and efficient. The process was useful in debugging the flaws found during the testing phase of the project. The line tracking robot was successfully completed to detect several white lines of various shapes and sizes, follow the line, and retrieve the object at the end and return back to the starting point with object.

Smart Phones Web-Project

Presenter: Bandar Alganmi
Co-Investigators: Ahmad Albadar
Faculty Mentor: Dr. Yenumula Reddy

A smartphone is nothing but a cell phone that performs and operates like a small computer. Some people say, the smartphone and tablets are becoming more used than standards computers such as desktops and laptops. According to statistics, almost nearly two-thirds of Americans are now smartphones user, which represents a huge market share for smartphones retailers and stores. Smartphones helped people in their life in many ways. For instance, user have a powerful tool in hand because they have the chance to use GPS, check email and website, listen to music or even use it as hotspots for connecting other devices with Wifi. The research is graphical user friendly product that helps the customer to compare and select the required phone.
Capacity Deionization Cell and Effect of Copper Wire Corrosion

Presenter: Ryan Joseph
Co-Investigator: Ashique Ahmed
Faculty Mentor: Dr. Sanjay Tewari

Capacitive deionization (CDI) is an electrochemical process which extracts ions from water through adsorption. The regeneration of exhausted electrodes happens through the desorption process. Carbon Aerogel has been used in this study as the electrode material. In capacitive deionization, two electrodes are kept at a separation of around 2-3 mm and a low electrical DC voltage of opposite polarity is applied to both electrodes resulting in a capacitor-like environment between them. The ionized water flows through the opening between these two electrodes. To maintain this fixed distance, the CDI electrodes must be stabilized and the cells need to be sealed. An inert sealant had to be selected to avoid any sort of contamination. Extra care had to be taken to ensure proper connection of the carbon to an external power source. Initially, in this work copper wiring was used to make this connection, but corrosion occurred and interfered with the system. Based on the results, a modified design using a graphite rod as the connector was adopted. The outcome of using different materials as sealants, problems encountered with the copper wire connectors and the remedial action of using graphite rods instead of copper wiring is presented here.

Differentiation of Mouse Embryonic Stem Cells for Cardiac Tissue Engineering

Presenter: Anna Whitehead
Co-Investigators: Nehal Patel, Dr. Jamie Newman, Mary Caldorera-Moore
Faculty Mentor: Dr. Jamie Newman

The leading cause of death in the United States is cardiovascular disease. Due to the limited regenerative capabilities of the heart, a heart transplant is often the most successful treatment. Current research is focused on stem cell-scaffold based tissue engineering to develop implantable cardiac tissue constructs. Embryonic stem cells serve as a potential cell source for these constructs or as a model for other cell types, such as induced pluripotent stem cells or adult stem cells. Pluripotent stem cells have yet to produce completely functional tissue. This study focuses on optimizing the method to produce cardiomyocytes suitable for cardiac tissue engineering. Cell differentiation will be evaluated using quantitative and semi-quantitative RT-PCR. Contractility will be analyzed using phase contrast microscopy and cardiac tracking software. In addition to optimizing conditions for cell culture and differentiation, tissue engineering relies on the identification of a biocompatible scaffold that enhances functionality and success of clinical applications. In order to achieve these goals, hydrogels will be used to create a scaffold that mimics the heart’s natural extracellular matrix. This study will increase the knowledgebase for stem cell-scaffold based cardiac tissue engineering, as well as serve as a foundation for future cell-substrate interaction studies.
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McNeese State University

Developing Effective Learning Techniques for Engineering Teaching in a Large Classroom Setting
Presenter: Tryfon Boukouvidis
Faculty Mentor: Dr. Dimitrios Dermisis

The goal of the proposed project is to improve teaching effectiveness in core engineering courses, which are currently taken by a large number of students. The increased number of students sets some challenges for the faculty members which include: (i) managing homework assignments and tests; (ii) managing distractions during lectures; (iii) difficulties in performing class activities such as group projects and enhancing critical thinking; (iv) diversity in the background and preparation of the students; and more importantly (v) losing the “personal touch”, which is the main advantage of McNeese comparatively to other universities. The proposed project includes the use of varying techniques, such as e-learning within the classroom environment, group in-class work, continuous feedback, and hybrid textbook notes that will allow interaction between faculty-student even within the context of large enrollments. Preliminary results indicate that out of the different learning techniques students are in favor of working in groups, having a group leader to help them understand the material under the supervision of the faculty. Also, continuous feedback and one-to-one sessions with the faculty may be deemed necessary in order to have additional impact on student performance. The techniques from this study can be utilized for other classes as well.

Explaining Variation in Municipal Recreation Policies
Presenter: Joseph Dronet
Faculty Mentor: Dr. Henry Sirgo

This research paper focuses on how local governments administer policy for recreation facilities, and which variables influence a local government’s expenditures for recreation facilities. We include a brief history of parks and recreation which indicates how and why they were originally created. In order to achieve our objectives, several articles from Journal Storage were analyzed for relevant information. It was found that policy effecting recreation facilities is often administered in one of three ways. Policy can be administered by a city’s recreation department, by a commission of volunteer citizens, or administered through a school system. Our findings also demonstrate that demographics, income, and labor variables regarding the population of an area influence a local government’s expenditures for recreation facilities. This information shows the importance of the relationship between local governments and recreation facilities.

Evaluating the Effect of Ov-Synch Vs. Co-Synch on Artificial Insemination Pregnancy Rates in Beef Heifers
Presenter: Bryan Haley
Faculty Mentor: Dr. C. Edward Ferguson

The objective of this study was to determine difference in pregnancy rates when using a regular Artificial Insemination (AI) synchronization Protocol, where Gonadotropin Releasing Hormone (GnRH) is given at time of Artificial Insemination (Co Synch), versus giving GnRH 5 hours prior to time of Artificial Insemination (Ov-Synch). This study was performed at McNeese State University’s Fuller Farms in Kinder, Louisiana. We used 90 beef heifers (Brahman cross, Angus cross, Angus) that weighed an average of 815 lbs. Treatment 1 (n = 48) used a regular co-synch plus CIDR (Controlled Internal Drug Release) where GnRH was administered at the time when the heifers were artificially inseminated. Treatment 2 (n = 42) used a co-synch plus CIDR and GnRH was administered 5 hours prior to A.I. The pregnancy rates were measured thirty days after the A.I. date by using ultrasonography. The pregnancy rates for both treatment groups were 33%. This indicated administration of GnRH 5 hrs. prior to A.I. in an attempt to reduce delayed ovulation as a result of handling stress during breeding was not effective.

Effects of Promolux Platinum LED on Shelf-Life of Ground Beef Patties
Presenter: Eric Santini
Faculty Mentor: Dr. Wannee Tangkham

The objective of this study was to determine the effects of three light sources, Promolux platinum LED (PPLED), fluorescent (FLS) lighting, and no light (control), on shelf-life properties of ground beef patties. Treatments were evaluated for % drip loss, pH value, % moisture content, visual and instrumental color (L*, a* and b* values), lipid stability (TBARS), aerobic plate count, yeast/mold, Escherichia coli, Salmonella spp. and Listeria spp. every 3 days for 9 days. Results showed that % drip loss was lower in the control treatment (6.72%) at day 9. No difference (P > 0.05) was found in visual color appraisal between treatments based on evaluations by trained color panelists (N = 7) from days 1 to 5. The redness a* value was slightly greater in the beef patties under PPLED lighting (8.16) than FLS (7.11). The control treatment exhibited lower TBARS values (1.81 mg MDA/kg) than the remaining treatments. The counts of APC in the beef patties under PPLED lighting (5.60 log CFU/g) were lower (P < 0.05) than FLS (5.77 log CFU/g). There was no yeast/mold, E. coli, Salmonella spp. and Listeria spp. found in this study from days 1 to 5.

Virtual Reality Integration
Presenter: Ethan Jones and Tyler Morgan
Faculty Mentor: Kay Kussman

There is large scale industry interest in virtual reality concepts and peripherals. Companies such as Sony, Samsung, Oculus VR, and HTC are heavily invested in the future of virtual reality and its utilization. Currently, the most popular use of virtual reality peripherals is video games. Because of this trend the focus of our research project is to integrate the Oculus Rift Development Kit 1 into an existing game development project, titled “The Floor is Lava.” This game was produced in Unity without the use of virtual reality peripherals or VR as a future development concept.
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In integrating virtual reality, we would like to modify the game to become a more immersive experience and optimize the game according to the specifications of the Oculus Rift Development Kit 1.

**Nicholls State University**

**Redesigning of Christ the Redeemer Catholic Church Parking Lot**
*Presenter: Christopher Galloway*
*Co-Investigator: Stephen Flynn, Dr. Balaji Ramachandran, GEOM 104*
*Service Learning students from Sp. 2015*
*Faculty Mentor: Dr. Balaji Ramachandran*

The main purpose of this service learning project is to redesign the existing parking lot at Christ the Redeemer Catholic Church. The main objective is to increase the amount of parking spaces, while allowing for adequate flow of traffic through the lot. The redesign incorporated local ordinances and American Association of State Highways and Transportation Officials (AASHTO) design standards. The field method included a topographic survey of the existing parking lot. The existing parking lot survey data was imported into AutoCAD for further analysis. Three possible design alternatives were proposed to the church board. The first design expanded the parking lot through removal of trees, concrete medians and one entrance/exit. This design created 163 parking spaces. The second design proposed removing the concrete medians. This design created 122 parking spaces. The third design proposed removing two entrances/exits, concrete medians and trees. This design created 167 parking spaces. The first proposed design had four less spaces than the third design, but provided two entrance/exit points for the parking lot. The second design provided the fewest spaces, but kept the existing old cypress trees. The third design allowed for the most parking spaces, but limited the lot access to one entrance/exit.

**Sheath: 3D Printing Applications for Increased Blade Longevity**
*Presenter: Arlo Spear*
*Faculty Mentor: Chef Monica Larousse*

Ask anybody in the foodservice industry what you need in a kitchen. Answers will vary, but a sharp knife will be the number one answer, just above good shoes. Taking care of a knife when you’re not using it is just as important as when you are cutting. A good knife cover is a major component needed for knife care. The problem with knife covers on today’s market is that they aren’t made for specific knives; they are catchalls. This leads to inconsistent protection of the knife’s edge and results in more frequently needed sharpening, decreasing the knife’s lifespan. The goal of this project was to design knife covers that are designed to fit firmly over the edge and spine of the blade of individual knives using 3D printing and design technologies. The literature review of 3D printing investigates the uses of 3D printing technologies. The experiment yielded several cases that fit the blade of the knife and showcased a personal picture that represented the knife’s owner. With chefs’ boisterous personalities, coupled with their love for their tools, we created a product that expresses these characteristics while responding to the ever growing need of specialized knife covers.

**Effects of Triclosan on Activity of N-acetyl-B-glucosaminidase in the Epidermis of the Fiddler Crab, Uca Pugilator**
*Presenter: Abigail Hagen*
*Faculty Mentor: Dr. Enmin Zou*

Triclosan (TCS), an antimicrobial agent frequently found in aquatic environments, has recently been shown to inhibit crustacean molting. The present investigation sought to understand whether the molt-disrupting effect of TCS arises from the disruption of molting hormone signaling. Because of the structural similarity of TCS to both polychlorinated biphenyls (PCBs) and polybrominated diphenyl ethers (PBDEs) capable of disrupting molting hormone signaling, it was hypothesized that TCS would also act through disrupting molting hormone signaling in Crustacea. Exposure of fiddler crabs, Uca pulgillator, to TCS at 10 - 250 µg/L for six days had no effect on activity of epidermal N-acetyl-β-glucosaminidase (NAG), a biomarker for molting hormone signaling. However, TCS at 2500 µg/L significantly increased enzymatic activity, suggesting that TCS at this environmentally unrealistic concentration is capable of enhancing ecysteoid signaling in vivo. The underlying mechanism for this stimulating effect on epidermal NAG activity needs to be investigated.

**Diet Comparison of Bowfin Amia Calva Populations from Two Hydrologically Different Louisiana River-floodplain Systems**
*Presenter: Brandon Bergeron*
*Co-investigator: Dr. Christopher Bonvillain*
*Faculty Mentor: Dr. Christopher Bonvillain*

The upper Barataria Estuary (UBE) and Atchafalaya River Basin (ARB) are separated by less than 25 km, but have very different hydrologic regimes that can influence trophic dynamics in these systems. The ARB experiences an annual flood pulse associated with the Mississippi River. However, anthropogenic modifications to the UBE have eliminated waters from the annual flood pulse, and precipitation and run-off events are the only drivers of floodplain inundation. The purpose of this study was to examine the stomachs of bowfin Amia calva from the UBE and ARB to examine differences in diet constituents. Bowfin (n=169) from both systems were collected monthly between July and December 2015 by boat electro-fishing. Empty stomachs were excluded from analysis, and the contents from 82 stomachs were identified and weighed. Crayfish was a constituent in 70% of ARB bowfin and 53% of UBE individuals with stomach contents. UBE bowfin had higher percentages of fish (24%), non-crayfish invertebrates (24%), and reptiles (5%) compared to ARB individuals (9%, 25%, and 2% respectively). Our results suggest that the different hydrologic regimes experienced in the ARB and UBE may influence trophic
**Undergraduate Research Poster Presentation Abstracts**

**Growing in Recovery: A Service Learning Case Study**  
**Presenter:** Heidi Rodrigue  
**Co-investigator:** Dr. Amanda Eymard  
**Faculty Mentor:** Dr. Amanda Eymard

This qualitative case study utilized heuristic phenomenology to explore the potential impact of initiating a garden at a halfway house. For the service learning project, a garden was developed by nursing students in collaboration with clients at the facility. During this project, one client emerged as the primary caretaker of the garden. This male client, undergoing rehabilitation for drug abuse, became the subject of the case study. Over a period of five months, the subject was interviewed extensively during several different encounters to gain an understanding of his lived experience regarding drug abuse, rehabilitation, and the garden. The interviews were transcribed, and then line by line analysis was performed by the nursing student and faculty mentor. Coding was implemented to identify five themes: new beginning, growth, bumps in the road, hard work, and fruits of labor. Over the course of the case study, the student discovered correlations and illustrates these with a five month timeline. In conclusion, the subject and the garden grew and flourished as a result of the service learning project involving a few plants, water, and much hard work and dedication.

**Northwestern State University**

**The Change in Cardiovascular Endurance and Body Fat Percentage of Drum Corps Athletes**  
**Presenter:** Aaron Bradford  
**Faculty Mentor:** Dr. Margaret Cochran

The Drum Corps International summer tour is physically and mentally challenging, requiring performers to rehearse 8 to 12 hours per day over 12 weeks. Coordinating musical performance with marching and dancing mirrors the physical demands of athletes in competitive sports. Improvements in cardiovascular endurance were measured in 51 members of the Blue Knights Drum and Bugle Corps, using the PACER fitness test and the one-mile run/walk. A Jackson-Pollock 3-site method was used to calculate body density, which was then converted to body fat percentage (%BF) using the Siri and Brozek equations. Siri %BF dropped significantly from week 2 (M = 12.1, SD = 5.8) to week 11 (M = 10.4, SD = 5.7; t(29) = 3.3, p = .002). Similarly, Brozek %BF decreased from week 2 (M = 12.4, SD = 5.4) to week 11 (M = 10.8, SD = 5.3; t(29) = 3.3, p < .002). Mean VO2 max increased significantly from 49.6 mL/kg/min (SD= 5.4) to 52.0 mL/kg/min (SD= 6.2; t(24)=3.5, p<.001). Times for the 1 mile run/walk improved from 454.3 s (SD = 85.3) to 420.7 s (SD = 60.4; t(26)= 4.9, p<.001). The final levels of athleticism of the participants were comparable to collegiate athletes.

**Integrative Medicine: Opinions, Current Knowledge, and Implications**  
**Presenter:** Rose Tusa  
**Faculty Mentor:** Dr. Curt Phifer

The field of integrative medicine, which includes treatments that are both alternatives and complementary to traditional medical practices, is growing in popularity. However, integrative medicine faces much criticism when it comes to specific treatments and effectiveness.

This study surveys both patients and physicians in order to investigate their opinions on the field of integrative medicine. To date, 272 patients and 14 physicians have completed the survey. Results show that although physicians and patients did not differ statistically in their familiarity with integrative medicine, physicians view integrative medicine more favorably than patients. Patients and physicians do not have significantly different opinions on the principles and concerns of integrative medicine.

**Changes in Narcissism across Generations and Their Relationship to Perceived Parenting Styles**  
**Presenter:** Bria Williams  
**Faculty Mentor:** Dr. Margaret Cochran and Ms. Brittany Blackwell

Narcissism is described as the tendency to consider one’s self to be better than others and to engage in self-centered thinking and behavior. Generation Y has been labeled more narcissistic than usual, and this change may be motivated by a change in parenting style across generations. A demographic survey, the Narcissistic Personality Inventory (PNI), and the Parental Authority questionnaire (PAQ) were given to faculty and students above the age of 18 at Northwestern State University of Louisiana (N=258) to discover if Generation Y has become more narcissistic and if a generational shift in dominant parenting style is related to this Narcissism increase. The participants were separated into age groups (generation), and correlations between generation, pathological narcissism, and parental influence were made based on scores on the PNI and PAQ. Age group is significantly correlated to Narcissism (r(257) = .416, p < .001), Permissive parenting styles (r(257) = .395, p < .001), and Authoritative parenting styles (r(257) = .248, p < .001). Individuals born from 1991-2000 (M(139) = 24.85) have significantly different ratings of Permissive parenting than any other age group. Generation Y appears to be the most narcissistic generation yet raised by more permissive parents than previous generations.
Undergraduate Research Poster Presentation Abstracts

Southeastern Louisiana University

Sampling Strategies for Equine Intestinal Microbiota
Presenter: Kalie Beckers
Co-Investigators: Christopher Schulz, Dr. Gary Childers
Faculty Mentor: Dr. Gary Childers

Horses are hindgut fermenters that rely on gut microbiota for converting plant fiber into usable substrates. Sudden changes in horse diet can result in laminitis or colitis, which has been associated with rapid changes in gut microbiota. Despite a great deal of research, there is no universally accepted protocol to conduct studies of equine gut microbiota, although fecal samples are commonly used. The goal of this study was to examine the effect of feces ‘freshness’ and processing on microbiota composition. Horse feces were sampled at different time intervals before freezing, and sampled from the exterior surface, or homogenized. Microbial Composition was estimated using 16S rDNA amplicon libraries and sequenced with an Ion Torrent PGM and classified using Greengenes taxonomy. In the time interval study, significant increases in aerobes occurred rapidly after fecal deposition and included taxa that were known to be contaminants in the American Gut Project. To conclude, there was a significant change in composition as the fecal samples were aged, but there was no difference in the composition of the collection techniques between surface and homogenized samples. Another result of this study is that a method has been developed to detect horse fecal samples that have been contaminated.

Catalytic Synthesis of 2-(4-nitrophenyl)benzimidazole
Presenter: David Cox
Faculty Mentor: Dr. Phillip Voegel

The catalytic synthesis of a benzimidazole derivative, 2-(4-nitrophenyl)benzimidazole, was completed using twelve metal phthalocyanine, pyridinoporphyrazine, and pyrazinoporphyrazine catalysts with the objective of optimizing its formation. The product is formed through a simple one pot reaction by combining o-phenylenediamine and p-nitrobenzaldehyde in ethanol in the presence of a catalyst. The product precipitates when the reaction mixture is cooled and is then collected by filtration and dried. The mass of the dry product was measured and the percent yield of the reaction calculated. Diamond ATR Fourier Transform Infrared Spectroscopy and Nuclear Magnetic Resonance Spectroscopy of the product demonstrates the expected formation of 2-(4-nitrophenyl) benzimidazole. Percent yields for the reaction using twelve different catalysts and a two hour reaction time ranged from 72.2 to 98.0% and compare favorably to 80% yield reported in the literature using NH4Cl as a catalyst. An optimal yield of 98.0 % was obtained with copper phthalocyanine as the catalyst. The reactions are currently being repeated using progressively shorter reaction times to select the catalyst that will produce high yields most rapidly.

Competitive Effects of Geckos on Tree Frogs
Presenter: Aaron Sullivan
Faculty Mentor: Dr. Christopher Beachy

The scope of this experiment was to test the hypothesis that geckos are a cause of population declines in tree frogs. Twelve houses were selected for the experiment as test sites. The houses were broken into two categories based on the species residing there. Six of the houses had a population of tree frogs while the other houses had geckos. The houses were separated into a control and experimental group. The opposite species were placed on experimental houses, while the controls were left alone. Data were collected by taking weekly counts of the populations on the houses. The results will yield an effect in population sizes based on the interaction between the two species. This will lead to conclusions as to whether or not geckos do play a role in tree frogs leaving these areas.

From Southeastern to the Serengeti:
A Service-Learning Safari
Presenter: Jessica Casanova
Co-Investigator: Emily Wilcox
Faculty Mentor: Dr. Kellen Gilbert

In our Culture and the Environment (ANTH 401) class, a Real World Ready course, we are examining human-wildlife conflict. Our focus is on East Africa and the cultures that live amongst elephants populations. Via Skype we are meeting with wildlife management students and conservationists in Tanzania and are working on a survey development project for a non-governmental organization. We present here the activities and challenges of the class.

Perceptions of Norms and Prosocial Behavior in 2 Fan Communities
Presenter: Nicole St. Martin
Faculty Mentor: Daniel Chadborn

Individual’s act prosocially for a variety of reasons, these reasons include the behaviors the individual perceives concerning other group members behaviors (injunctive) and the underlying message their group is built upon (descriptive). Several prominent fan communities have made headlines due to their engagement in charitable giving and this study sought to examine the motivations and perceptions of norms that might motivate those fans to give. Fans (n = 814), from two fan communities: Bronies (n = 559) and Roosterteeth (n = 255), collected through online surveys were asked a series of questions concerning their engagement in Prosocial behavior and the reasons why they gave. Results found that while Roosterteeth fans scored higher on measures of injunctive norms, Bronies reported higher giving in association with descriptive norms. Results give insight into how social communities can influence giving behaviors in different ways based on group composition and group values.
**University of Louisiana at Lafayette**

**Android Smartphone-Based Autonomous Swarm Technology**  
*Presenter: Matthew Furka  
Co-Investigator: Alex Miller  
Faculty Mentor: Dr. Paul Darby*

The Andy-X research group is a team of undergraduate and graduate students who have been working in the field of mobile grid computing since 2013, led by Dr. Paul Darby. We seek to design a means by which a collection of Android smartphones can autonomously complete assigned objectives with minimal input from users, using an ad-hoc network to connect the devices. We have managed to design an Android application along with hardware to interface with in order to test this concept. The application allows any collection of phones to collaborate by communicating with each other and sharing important information, such as sensor data, location, and available hardware. We have run several small experiments to show the feasibility of these communications, yielding positive results, and this will be improved as we implement ad-hoc connectivity and a new message coding scheme. Because the phones will be able to interface with any hardware module, such as cars, drones, etc., the applications of these autonomous “swarms” of phones range from data acquisition to military/industry to humanitarian aid efforts.

**Calcium Imaging of coCultured GABAergic Interneurons with FGFR1 Knockout Astrocytes**  
*Presenter: Hayden Torres  
Faculty Mentor: Dr. Karen Smith*

Astrocytes in the cerebral cortex have many functions that support neuronal integrity. One such function is maintaining ionic homeostasis of the extracellular fluid; this may involve the regulation of the ionic environment, release of neurotransmitters or rapid reuptake of excess neurotransmitters. Alterations in astrocyte function could affect the associated neuronal field, in turn, effecting neuronal activity or neuronal survival. We previously published that transgenic FGFR1Flox/Flox;NestinCre mice have a decreased number of cortical interneurons. Interneurons grown on FGFR1-Flox/Flox;NestinCre mouse astrocytes presented smaller soma size and fewer dendritic processes when compared to their littermates. The physiology underlying this morphological phenotype is unknown. One possible hypothesis is FGFR1-Flox/Flox;NestinCre cortical astrocytes are unable to maintain the proper extracellular environment for proper function and/or survival of these interneurons. A coculture model using P2-P4 FGFR1Flox/Flox;NestinCre knockout mice or control littermate astrocytes to form a feeder layer for embryonic medial ganglionic eminence derived Gad-67 GFP + labeled GABAergic interneurons was developed to better understand the function FGFR1 has in astrocyte physiology. Techniques using intracellular calcium imaging with Fluro 3-AM, revealed calcium waves in neurons and astrocytes of knock out and control mice. Movies of these waves were analyzed using Image J.

**Pecan Island Freshwater Introduction Restoration Project Feasibility Study with Channel Design**  
*Presenter: Jonathan Trahan  
Co-Investigator: Robert Miller  
Faculty Mentor: Dr. Emad Habib*

The two main reasons for coastal land lost in Louisiana are a lack of sediment depositions from inland sources and salt water intrusion from the Gulf of Mexico. The main purpose of the research conducted on Pecan Island, Louisiana was to assess the feasibility of reducing the salinity levels within Pecan Island’s chenier sub-basin by an amount sufficient enough to change the water classification from intermediate to fresh. During the first stage of the research, Microsoft Excel was utilized to produce an empirical-mechanistic model based on known hydraulic equations and calibrated using time series data taken from three point sources in or near the project area. Based on this model we were able to conclude that the water classification could be lowered to fresh (less than 2 ppt) only during a drawdown period scheduled from April to July. The second phase of research involved using the Hydraulic Engineering Centers River Analysis System (HEC-RAS), created by the US Army Corps of Engineers, to model open channel flow through a 7000 foot conveyance channel purposed by the ME-23 project as well as to observe the effects of the number, shape and size of culverts, channel roughness, and channel size.

**Carbon Based Nanocomposites: Morphological and Crystallization Behavior Studies**  
*Presenter: Andrew Conlin  
Co-Investigator: Christian Gary  
Faculty Mentors: Dilip Depan, William Chirdon, Ahmed Khattab*

In this study, low-density polyethylene (LDPE) crystalline structures produced via a solution-crystallization method on carbon nano-fillers were characterized. The nano-fillers used in this study were carbon nanotubes (CNTs) and carbon nanofibers (CNFs). The effect of dimensionality (diameter of carbon fillers) and polymer concentration was studied. The morphology of the nanohybrids was characterized by scanning electron microscopy (SEM), while differential scanning calorimetry (DSC) was used to quantify the amount of crystalline polymer. The LDPE crystals grown on CNTs had significant morphological differences from those grown on CNFs. The formation of highly inter-connected lamellae is a very unique attribute related to our novel crystallization approach. Petal shaped polymer wrapping was observed in the case of polymer crystallized on graphene. The polymer crystals were found to periodically decorate the CNTs with a nanohybrid shish-kebab (NHSK) architecture, in which CNTs acts as a shish, while LDPE crystals were arranged as circular disks on the CNTs. This unique combination of polymer crystallization and inter-connected crystals offers tremendous improvements in mechanical properties of high performance materials.
Gender and Greek Status on Bystander Attitudes
Presenter: Maria Cordova
Co-Investigators: Melanie Schanke, Sara Gibson, Brittany Guillot
Faculty Mentor: Dr. Amy Brown

The current study addresses college students’ perceptions and intentions regarding bystander intervention when a potential rape scenario is presented. The study attempted to further explore whether gender and Greek status affected bystanders’ willingness to intervene, confidence in their ability to intervene, and concern for the victim of a potential rape scenario. 287 college students (39% male, 61% female, 56% Greek, and 44% non-Greek) read a scenario in which they imagined themselves at a party witnessing a situation where a female appeared to be potentially sexually assaulted by a fellow male. They then answered several questions about how they perceived the situation and how they might respond to it. Results indicated gender differences in both confidence and concern, where men reported more confidence in their ability to intervene, F=37.71, p<.0001, and women reported more concern for the victim than men, F=6.33, p<.01. A third significant finding indicated non-Greek students reported more willingness to intervene than Greek students, F=4.54, p<.03. Our analyses provides additional important information about bystander attitudes among college students. Implications of our findings may aid in the development and implementation of sexual violence prevention programs, especially with respect to gender and Greek status.

University of New Orleans
Characterization of the Protein Encoded by unk9, a Conserved Gene of Unknown Function in Synechococcus sp. RS9916
Presenter: Suman Pokhrel
Co-Investigator: Adam Nguyen
Faculty Mentor: Dr. Wendy Schluchter

Light harvesting antennae complexes, phycobilisomes (PBS), are anchored to the thylakoid membranes in cyanobacteria. The outer rods of the PBS are composed of the phycobiliprotein called phycoerythrin (PE). Some species of Synechococcus contain two types of PE in the distal rods, phycoerythrin class I (PE I) and phycoerythrin class II (PE II). Both PE I and PEII bind phycocerythobilin (PEB), and PE II binds both PEB and phycourobilin (PUB). These bilins are attached to PE by phycobilin lyase enzymes. The operon encoding various PE II-specific genes has a conserved gene of unknown function called unk9 (Six et al., 2007). The 332bp gene, unk9, lies adjacent to mpeY in the genome and encodes a protein which is uncharacterized, but is conserved in all PE-II containing organisms.

A histidine-tagged (HT) form of unk9 was cloned into the pCOLA vector in order to produce recombinant HT-UNK9 protein in E. coli. Because the unk9 gene is adjacent to mpeY, we hypothesized that HT-unk9 may interact with other putative lyases such as MpeY or MpeU, affecting their activity. Recombinant protein co-expression experiments were completed to determine the function of Unk9. References: Six et al. Genome Biol 8.12 (2007): R259.

Developmental Plasticity of Grasshoppers Fed Different Diets
Presenter: Austin Culotta
Faculty Mentor: Dr. Jerome Howard

Developmental plasticity is an important adaptive mechanism for organisms that experience environments that vary over time. We asked whether the generalist grasshopper Melanoplus differentialis was capable of adaptive change in morphology when fed different diets. We predicted that grasshoppers fed a harder diet would allocate significantly more energy to mandibles and mandibular muscles than those fed a softer diet. We measured body dimensions to determine if a developmental tradeoff existed between investment in feeding structures and other body structures. We found that females fed the hard diet were generally larger in body dimensions than females fed the soft diet. In contrast, males fed the hard diet were generally smaller in body dimensions than males fed the soft diet. The results did not support the idea that this species shows developmental plasticity in energy allocation to different body parts, but does suggest that sex-specific responses to food characteristics alter development. We suggest that female development is keyed to reaching a body mass threshold required for reproduction, regardless of development time, while male development may be keyed to reaching adulthood as quickly as possible, regardless of size, to maximize access to mates during adult life.

Search for the Nuclear Localization Signal in the Yeast mRNA Methyltransferase, IME4
Presenter: Christian Monroy
Faculty Mentor: Dr. Mary Clancy

The IME4 gene in S. cerevisiae (yeast) codes for a nuclear protein that is responsible for methylating mRNA in the nucleus. Equivalent proteins are found in most eukaryotes. However, the IME4 protein does not contain any known nuclear localization segment (NLS); through this experiment we hope to identify the portion of the protein that serves this function. Based on the results of previous experiments, we hypothesize that the NLS is in the second half of the protein (C-terminal half). In order to test this, we attached the C-terminal coding half of the IME4 gene to a plasmid that encodes green fluorescent protein (GFP); because GFP does not undergo nuclear localization naturally, if it is found in the nucleus our hypothesis will be supported. The first step in this process, was to amplify the C-terminal half of IME4 using polymerase chain reaction (PCR). Then, we inserted the PCR product into plasmids encoding GFP; these plasmids were then evaluated using agarose gel electrophoresis to confirm them and transformed into yeast cells. After the transformation was completed, the cells were analyzed using fluorescence microscopy and it was observed that the GFP localized in the nucleus, thus supporting our hypothesis.
Synthesis of Functional Recombinant Subunits of Phycoerythrin II
Presenter: Jacob Frick
Co-Investigator: Christina Kronfel
Faculty Mentor: Dr. Wendy Schluchter

Cyanobacteria possess light-harvesting complexes called phycobilisomes (PBS). Chromophores, called bilins, direct light to the chlorophyll-containing reaction centers for photosynthesis. These bilins are covalently attached to the phycobiliproteins by lyases. Synechococcus RS 9916 is a marine species of cyanobacteria that lives deep in the water column and can undergo chromatic acclimation, where it can alter its pigments to best absorb the available light. It uses phycourobilin and phycoerythrobilin to capture the blue and green light, respectively. The proteins of interest, MpeA and MpeB, are the alpha and beta subunits of phycoerythrin II, which is the outermost rod protein in the PBS complex.

The goal was to produce and test a construct that contains both mpeA and mpeB in one plasmid, each fused with a hexa-histidine tag to allow for easy purification. The clones were transformed into E. coli to overexpress the proteins of interest, which was verified by SDS-PAGE. The most productive clones were then co-expressed in E. coli with known and putative lyases and bilin synthesis genes to validate the clones. Though mpeA and mpeB have been cloned and expressed separately, the goal is to produce these proteins together, as they exist in cyanobacteria, for use in further research.

Near-infrared Spectroscopic Measurement of Cotton Micronaire In-situ
Presenter: Thomas Miller
Faculty Mentor: Kim Jovanovich

The USDA classes every bale of cotton produced for key attributes including micronaire. Micronaire, a measurement of fineness and maturity, is typically measured via mass-compression and air permeability. Near-infrared (NIR) spectroscopy has been employed to measure micronaire. Cotton warehouses do not have testing data to help organize bales when they arrive resulting in randomly arranged bales that require additional time and energy to assemble shipments. Additional bale movements increase labor and energy costs as well as the chance of damage to the bale and potential for contamination. Micronaire measurement on-line at the gin could allow for warehouses to organize bales according to micronaire before receiving official classing data. A device composed of multiple NIR spectrophotometers is to be utilized in a commercial cotton gin for the 2016 season to measure approximately 30,000 bales. The device must withstand the rigorous environment of a cotton gin, which are significantly different from the laboratory environments of previous research. Readings will take place at the bale press and take approximately 0.5 seconds. NIR-based readings and micronaire results from USDA will be used to develop a model with correction factor for consideration of conditions will be established for laboratory micronaire readings to NIR in-situ measurements.
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