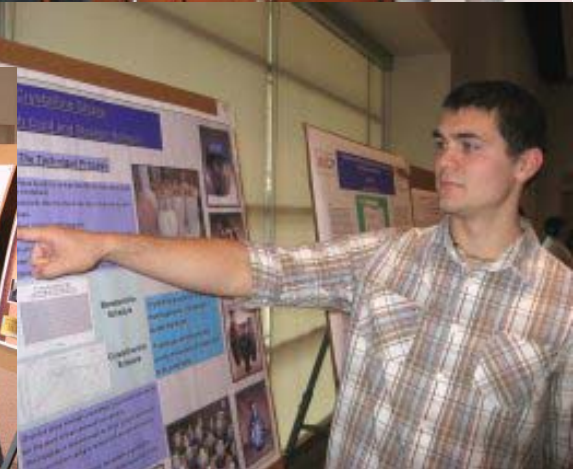
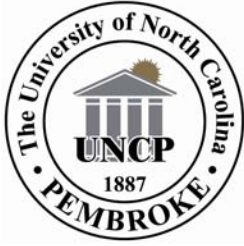


# FOURTH ANNUAL UNC-PEMBROKE UNDERGRADUATE RESEARCH AND CREATIVITY SYMPOSIUM



APRIL 7TH, 2010

*PROGRAM  
WITH ABSTRACTS*



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April 7, 2010

Dear Students and Colleagues,

The UNC Pembroke Undergraduate Research and Creativity Center cordially welcomes you to the Fourth Annual PURC Symposium, a campus-wide celebration of undergraduate research and creative endeavors. We are pleased to include 68 presentations of scholarly ventures by approximately 111 students and 39 faculty mentors, representing 19 academic departments.

The mission of PURC is to stimulate, support, and promote inquiry, discovery, and creativity in scholarship and the arts through mentored research experiences with faculty and other regional, national, and international scholars and professionals. The Center facilitates and coordinates preparation in research skills necessary for professional fields and graduate study.

Participation in undergraduate research continues to grow at UNCP. During this academic year, at least 30 students presented research or creative works at state and national conferences. Please join us in acknowledging the accomplishments of UNCP students.

The PURC Center is very pleased to announce that Progress Energy is our first corporate sponsor. Progress Energy has committed to a three year sponsorship of PURC and other UNCP programs. Their contributions will help the PURC Center continue to provide UNCP students with extracurricular scholarly opportunities.

Many thanks go to all the students and faculty mentors, whose works are represented here today, to Lisa Smith, PURC's administrative assistant, to the PURC advisory council for all of the hard work they have done to help bring this event to you, the Office of Academic Affairs, Provost Harrington, and Chancellor Jenkins. Thanks, also, to the Director of UNC Greensboro's Office of Undergraduate Research, Dr. Mary Crowe, and the UNC Chapel Hill Graduate School's Director of Diversity, Recruitment, and Retention, Mr. Roy Charles for their participation in this year's PURCS..

It is our desire that the PURC Symposium will be a launching pad for student participation in research and formal presentation venues. So, please plan to take your works to local, regional, national, and international meetings.

Best wishes,

Lee Phillips, Ph.D.  
Associate Director – PURC  
Associate Professor of Geology

Jesse Peters, Ph.D.  
Director – PURC  
Dean, University Honors College

# Pembroke Undergraduate Research and Creativity Symposium

April 7, 2010

## Schedule of Events

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### 9:00 – 9:10 Greetings – with morning refresher

Interim Chancellor: Dr. Charles Jenkins  
Provost and Vice Chancellor for Academic Affairs: Dr. Charles Harrington  
Director PURC: Dr. Jesse Peters

### 9:10 – 10:00 Importance of Undergraduate Research and Creative endeavors when applying to Graduate School

Dr. Mary Crowe, Director, Office of Undergraduate Research, UNC Greensboro  
Mr. Roy Charles, Director of Diversity, Recruitment, and Retention, UNC Graduate School  
Mr. Jorge Piocuda, UNCP Psychology Major

### 10:00 – 11:15 Morning Poster/Exhibit Session

Posters and Exhibits will be present all day. Authors will be present during this time.

### 11:20 – 11:50 Morning Oral Presentations

11:20 – 11:35 Development of a Spectroelectrochemical Assay for Serum Bilirubin  
Megan Alexander

11:35 – 11:50 The Band Gap of Liquid Water Based on the Dispersion of the Verdet Constant  
Samantha Hutcheson and Stuart Hanmer

### 11:50 – 12:05 Deli Lunch Service

### 12:05 – 12:30 Student Performance

*Tru Tale* by Michael Nelmark  
Charlotte Cassidy, Nikki Frabott, Sean Jaenicke, Elisha Lawson, Hamel Lee, Jonathan Lightfoot, Jalessa Malloy, Nina Oviedo, Kayla Oxendine, Joshua Posey, Gail Vincent

### 12:35 – 1:00 Plenary Speaker

Empirical and Theoretical Investigations into the Stealing Behavior of a Dung Beetle.  
Dr. Mary Crowe, Office of Undergraduate Research, UNC Greensboro

### 1:00 – 1:30 Afternoon Oral Presentations

1:00 – 1:15 Screening *Photobacterium luminescens* for Antibacterial Properties using a Modified Version of the Kirby-Bauer Method

Floyd Inman

1:15 – 1:30 Aaron Stallworth

Yanissa Perez de Leon

### 1:30 – 2:00 Final Poster viewing

## Program Presenters



### **Dr. Mary Crowe**

Dr. Mary Crowe is the Director of the Office of Undergraduate Research at The University of North Carolina at Greensboro, a position she has held since spring semester 2006. She has extensive experience in mentoring undergraduate students and currently involves them in her research on dung beetles. She is a member of the Board of Governors for the National Conference of Undergraduate Research (NCUR), a member of Project Kaleidoscope, and a councilor for the Council of Undergraduate Research (CUR).



### **Mr. Roy A. Charles**

Roy A. Charles (Cambridge, MA) is the Director of Diversity, Recruitment, and Retention at the University of North Carolina at Chapel Hill. Additionally, he is a PhD Student, in the Educational Psychology, Measurement, and Evaluation (EPME) program at the same institution, where focuses on motivation in education for under-represented minority, first-generation college, and underserved-population students, specifically as it relates to the effects of undergraduate research experience program participation; graduate school aspirations, persistence and matriculation; academic and research career choice; and academic/scholarly identity. Prior to coming to UNC-CH, he held the position of Assistant Dean for

Graduate Students at the Massachusetts Institute of Technology (MIT) where he managed the graduate recruitment efforts and the MIT Summer Research Program (MSRP). Prior to that, he held the position of Director of K-8 programs for the Massachusetts Pre-Engineering Program (MassPEP), an independent non-profit that trained and assisted public school teachers in fostering interest in STEM fields among their students. Lastly, Roy holds a Bachelors of Science degree in Business Administration from Roger Williams College (Bristol, RI), and a Masters of Education in Educational Studies & Non-Profit Organizational Management from Cambridge College (Cambridge, MA).

# PURCS Abstracts 2010

## Poster / Exhibit Session

### 1. Bird-Head

**Presenter(s):** Armstrong, Jeremy

**Faculty Advisor:** Mr. Brandon Sanderson

**Discipline:** *Art*

My Name is Jeremy Armstrong and I am Currently a Junior at the University of North Carolina at Pembroke. I am studying for a Bachelors in Art with a digital concentration, Sculpture secondary concentration and working towards a Minor in Media Integrations. The time spent in the Art Department I have come into contact with a wide variety of tools and vocabulary to help me be successful in not only further classes but life in general. The professors here have taught me a great deal of knowledge and insight into many techniques to stay ahead of the game by using tools from outside the art department such as Mathematics, History, Science, Music, and other general education subjects.

The piece, "Bird Head", I have submitted into this exhibition is a sculpture of a eagle-like, griffin-like creature. Using soap stone and a vast amount of files, grinders, and chisels I formed the undercuts and lines needed to create the image. I first had to understand the geology and elements of the stone so that I know how to approach it and not jeopardize the integrity of the stone. I then had to understand how to use the tools provided to grind and file into the shapes and lines I wanted. Living in Pembroke, I often come across an image of the Eagle and this inspired me to take this direction. The Eagle is a symbol of not only pride but of this country, and the Griffin, whose characteristics of a strong broad jaw and intimidating appearance also gave me more inspiration because of its symbol of strength. I covered the sculpture in a high gloss sheen to help bring out some of the qualities and give the stone a fresh look without taking away from the natural look of the stone itself.

### 2. The Catalyzing the Reaction: High School Seniors —> College Chemists

**Presenter(s):** Brassard, Kimberly

**Faculty Advisor:** Dr. Brian Postek

**Discipline:** *Chemistry*

The purpose of this investigation was to determine if college chemistry professors feel their students are prepared for the work expected of them, and to determine if introductory students feel they have been adequately prepared by their high schools to complete college-level chemistry work. Data was gathered from professors of the UNCP Chemistry Department regarding their feelings on the level of preparation displayed by their students. From the interview, significant data indicated that the professors felt their students lacked a very general understanding of laboratory practices. A survey was administered to General Chemistry I students to determine if they were prepared for laboratory techniques and for writing lab reports. Results of the survey indicated that students did not feel they were very prepared for college-level chemistry laboratories. It appears that both professors and students do not feel the level of preparation is adequate.

High school teachers were also interviewed, with results indicating that they felt they were not able to prepare students for college chemistry laboratories adequately. Responses included that there were

lack of resources and that more time had to be devoted to preparation for the EOC. Ideas as to how UNCP could help high schools are to offer days for high schools to bring their students into a chemistry lab, or for a group of university representatives to travel to the high schools and give demonstrations to chemistry classes.

3. Effect of High Carbon Dioxide Levels on Colony Formation Efficiency and Diversity of UTI-Causing Microorganisms

**Presenter(s):** Brassard, Kimberly

**Faculty Advisor:** Dr. Marilu Santos

**Discipline:** *Biology*

Despite the wide occurrence of capnophilic bacteria, CO<sub>2</sub> is not conventionally supplied to cultures from environmental samples (Ueda et al, 2008). This led us to speculate that some human urine micro flora whose growth is dependent on high levels of CO<sub>2</sub> have not been isolated and have remained uncharacterized despite their culturability. This study was conducted to investigate the effect of high levels of CO<sub>2</sub> on the colony formation efficiency and diversity of urinary tract infection (UTI) - causing bacteria. We predicted that UTI-causing bacteria would demonstrate enhanced growth and diversity when exposed to elevated CO<sub>2</sub>.

Appropriately diluted samples of human urine and actively growing UTI-causing bacterial cultures, namely *Escherichia coli*, *Staphylococcus aureus*, *Candida* yeast, *Proteus vulgaris*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Enterobacter aerogenes*, and *Micrococcus luteus* were applied to 0.45 um nitrocellulose filters to determine microcolony counts (mcfu) and on LB-agar plates to determine colony counts (cfu). The plates were incubated at 37C for 8 to 24 hr in ambient air conditions and in 5% CO<sub>2</sub>. The growth on plates with test organisms and human urine yielded a wide range of difference from -3% to 104%. Based on the data, all of the five test microorganisms and 6 out of the 15 urine samples yielded higher cfu in 5% CO<sub>2</sub>. With the exception of *K. pneumoniae*, all samples tested showed higher mcfu than cfu at elevated CO<sub>2</sub> conditions.

Our study provides empirical evidence that growth of UTI-causing bacteria is enhanced by high CO<sub>2</sub> level and that there are bacteria in human urine that can only form microcolonies and hence remain undetected on standard agar plates. We are currently estimating the diversity of microorganisms present in human urine by polymerase chain reaction (PCR) using universal primers for the 16SrRNA gene.

4. Women at Work in the West: 1840-1860

**Presenter(s):** Cashwell, Amanda

**Faculty Advisor:** Dr. Ryan Anderson

**Discipline:** *History*

Modern popular culture portrays women in the West as romantic figures—standing in front a log cabin, their long flowing hair draped over their shoulders as they tend to chickens and cattle graze nearby on the open range. However that may be, their diaries, journals, letters, and essays reveal a more complex way of life. Constant toil and unexpected tribulations filled their lives. Bent on “civilizing” the West without the familiar comforts of Victorian culture, many women were changed by their new lives. The people who succeeded making new homes in the West did so by adjusting, rather than conquering their new environment.

5. Class System Based on Race

**Presenter(s):** Cihla, Talia

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

Class systems based on race is an issue within *Devil in a Blue Dress* by Walter Mosley. Daphne Monet, a main character in the novel, is seen as an elegant white woman that many characters desire. In the end, the reader discovers that she is actually mixed and not full blooded Caucasian. Easy Rawlins, is seen as lower class due to his African American race. On the other hand, all the higher class people in the novel are white.

I would like to research the issue of race and why it is such a major issue within the novel. Daphne was once desirable, but if the characters knew she had been mixed with African American blood all along, she would not have been so sought after and be put into a lower class. Research on race within the novel can help explain why the class systems are based on this topic. I will be researching class systems and what they mean in the novel.

6. Calpain-Mediated Cytoskeletal Cleavage for Evaluating Events of Excitotoxicity, Protein Accumulation Stress, and Aging

**Presenter(s):** Cooper, Joanna  
Hwang, Jeannie  
Holland, Ginny  
Dr. Meagan Wisniewski  
Dr. Vinogran Naidoo

**Faculty Advisor:** Dr. Ben Bahr

**Discipline:** *Biotechnology*

The calcium-dependent protease calpain has been linked to a variety of neurodegenerative conditions, and is thought to elicit an apoptotic caspase cascade by acting on procaspase-12. Pathogenic activation of calpain can be monitored by its cleavage of the cytoskeletal protein spectrin, which results in breakdown products (BDPs) unique to areas of cellular deterioration. Development of selective antibodies against the calpain-mediated spectrin fragments in the 1990s allowed for the sensitive measure of early cytoskeletal damage, as well as the sensitive assessment of potential neuroprotective agents that reduce neuronal compromise. Peptidyl epitopes newly exposed by calpain (QQEVY for anti BDPN and GMMPR for anti BDPC) produced antibodies that specifically recognize cleavage products of ~150 kDa in excitotoxic and aged brain tissue. We routinely exploit the sensitive BDP marker in hippocampal slice models of excitotoxicity and protein accumulation stress as part of the development of neuroprotectants, screening for improved endocannabinoid modulators (*J Pharmacol Exp Ther* 322:1059-66, 2007), lysosomal regulators (*J Neuropathol Exp Neurol* 61:640-50, 2002; *J Mol Neuroscience* 34:131-9, 2008), and Ampakines (positive modulators of the AMPA receptor-MAP kinase axis linked to cell survival). Recent work on the latter found that Ampakine CX691 protects against excitotoxic spectrin proteolysis in hippocampal slice cultures. In line with the close correspondence between spectrin breakdown and synaptic/neuronal compromise, CX691's ability to reduce BDP also followed the improved maintenance of pre- and postsynaptic proteins. As often is the case, the ability of the neuroprotectant to reduce excitotoxic cytoskeletal damage corresponded with its ability to prevent neuronal death. These and other results indicate the value of assessing spectrin-targeted calpain activity for developing therapeutic agents.

7. Simply Simple

**Presenter(s):** Daniels, Kendra

**Faculty Advisor:** Mr. Adam Walls

**Discipline:** *Art*

I create to help myself better understand how humans convey emotions through their body language and psyche. Every human has a different way of expressing emotion verbally but very few can control how their emotions are expressed in the way they think or carry themselves. My work generally begins with sketches inspired by the way someone spoke, walked, or even looked at someone and how the receiving someone received. Many sketches may stay sketches, but just as many continue on to be detailed and connected to words, color, thumbnails before becoming a finished work. The finished work could be as detailed as a page right out of an anatomy book to as abstract and deconstructed as the sculpture presented today.

8. Blurring the Border: Male vs. Female in Bram Stoker's Dracula

**Presenter(s):** Davis, Daniel

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

Each time period has had some generalized "role" that both males and females were expected to adhere to. However, the dichotomy of male vs. female is not as clearly divided as one may think. During the latter portion of the Victorian era, women were stereotyped as submissive, weak and emotional, while men were typically catalogued as powerful and courageous. Bram Stoker's novel Dracula challenged these conventions. Women featured in the novel, such as Mina Harker, exhibit both bravery and intelligence, which contributes tremendously to the destruction of Dracula. The men of the novel are often found weeping, with Dr. Van Helsing continuously assuring them that they are still strong men. My research would involve discovering the stereotypical roles and guidelines that both males and females were expected to obey during the late nineteenth century and how Bram Stoker's Dracula challenged these societal norms.

9. Hormones in Artificial Media Incite Variable Responses in Tobacco Callus and Regenerated Plantlets

**Presenter(s):** Dial, Tiffany Noel

**Faculty Advisor:** Dr. Velinda Locklear Worriax

**Discipline:** *Biology*

Growth of plants that are non-transformed genetically is enhanced by certain plant hormones in artificial media. Auxins are used to promote initiation of adventitious roots while cytokinins are added in culture for shoot formation. Two different media, Tobacco Root and Shoot (TRS, containing the auxin, Indole-3-acetic acid, and the cytokinin, Kinetin) and Woody Plant Media (WPM, lacking any hormones) were used to establish growth from tobacco callus or regenerated plantlets. Results indicate that shoots develop on pieces of callus grown on TRS media but not on WPM regardless of the size of the callus pieces. However, when tobacco plantlets are applied to media, adventitious roots form in both media. When tobacco plantlets are applied to TRS, plant shoot growth occurs both above and below the surface of the media. Growth of shoots on plantlets placed upon WPM occurs only above the surface of the media. The authors gratefully acknowledge financial support from the NC Louis Stokes Alliance for Minority Participation, The American Society for Cell Biology, and the Biology Department of UNCP.



10. "Fright Flight", Print Created by Etching a Zinc Plate

**Presenter(s):** Dooling, Trisha

**Faculty Advisor:** Mr. Brandon Sanderson

**Discipline:** *Art*

In the summer of 1994, while flying home from my grandfather's funeral, the plane I was in experienced severe turbulence and partial engine failure. Overhead cabins spilled out contents, interior cabin lights went out, passengers were screaming, crying or becoming physically ill, oxygen masks were deployed and one of the flight attendants sat behind my seat screaming, "We're all going to die!" Thankfully, we landed safely, though we were directed to leave the plane through emergency exits. This event was a catalyst for a spiritual journey as well as a start point in my realizing how we seemingly have little control over our mortality.

I chose to encapsulate the action in the image within the shape of an airplane window. Over the years, I have formed the impression that either the plane was somehow sentient, attempting to defy the laws of physics or was the precocious son of some unfeeling deity, who was playing with the craft like a toy. The background has running lines of text that when decipherable, convey some of the streams of thought that were going through my mind during the flight. The text also is a connection to how I behaved during the height of the ordeal. Using a permanent marker, I had very methodically written my name on various parts of my body, hoping to make it easier to present my husband with something tangible to grieve over. The arm that appears to be pulling the plane down symbolizes the passenger who had sat to my left and grabbed my forearm so hard, I bore her fingerprints for weeks.

I have just begun to learn other methods of printmaking such as woodblock carving, drypoint, aquatint and stone lithography. I enjoy the versatility of the etching medium and look forward to further exploring its potential.

11. Stock Market Structures in Qatar and Bahrain

**Presenter(s):** Doyon, Franchesca

**Faculty Advisor:** Dr. Ramin Maysami

**Discipline:** *Economics*

As countries nationwide are suffering from the current economic crisis, emerging markets in countries such as Qatar and Bahrain are benefiting from increasing economic growth and development. Such economic growth and development can be attributed to the strong growth in the oil sectors in both Qatar and Bahrain. Oil exports are the primary determinant of aggregate demand; they largely determine foreign earnings as well as governments' budget revenues and expenditures. Aggregate demand influences corporate output and domestic price levels, which in the long run impacts corporate earnings and stock market share prices.

Stock markets in Qatar and Bahrain have been subject to increased reform and regulation. Increased financial integration and interdependence has in turn resulted in increased capital mobility in the Gulf Cooperation Council (GCC), in which Qatar and Bahrain represent two of the six members. The development of a proper legal and regulatory system for the efficient management of financial resources has been stressed in recent years; Bahrain has a long-established stock exchange, where Qatar's stock exchange was established only in 1995. The regulations and systems of Qatar and Bahrain both seek to govern the daily market activities as well as enhance transparency and disclosure principles. Bahrain's stock exchange (BSE) also seeks to present investors with the opportunity to raise

equity financing and Qatar's Doha Securities Market (DSM) seeks to provide investors with high quality and quick-to-market solutions that address their needs.

12. Using the Galilean Satellites to Determine Longitude of Pembroke, NC and Tomsk Siberia

**Presenter(s):** Everhart, Michael

**Faculty Advisor:** Dr. Jose D'Arruda

**Discipline:** *Physics & Astronomy*

We report on a joint on-going project of two universities, UNCP and TSPU, to record the ephemeris of the moons of Jupiter and from that data, the longitude of our two locations. With an ephemeris for Jupiter satellite transits and occultation that is accurate for the time at the Royal Greenwich Observatory, you can synchronize your clock to the observatories by watching the scheduled event. The difference between your local time and Greenwich local time reveals your longitude. We will present both of our data and from that data determine our respective longitudes.

13. Dextromethorphan: Developing a Solid-Phase Extraction Method

**Presenter(s):** Ferrer, Alexandria  
Smith, Thelietha

**Faculty Advisor:** Dr. Meredith Storms

**Discipline:** *Chemistry*

A high-performance liquid chromatography method has been developed for the determination of dextromethorphan in hair. The separation and quantitation are achieved on a phenyl column (4.6 x 150 mm) using a mobile phase of 60:40% v/v 6.25 mM sodium phosphate buffer (pH 3.0) and methanol at a flow rate of 1.0 mL/min with UV detection at 226 nm. Various SPE cartridges were employed for the extraction protocol. The optimized SPE-HPLC will be employed to determine the effects of cosmetic treatment on the concentration of dextromethorphan in hair.

14. Tragic Iraqi Woman

**Presenter(s):** Fisher, John

**Faculty Advisor:** Ms. Janet Hopper

**Discipline:** *Art*

This is an Ink and Wash drawing. I used several gesture drawings and studies that I'd done of the model Elizabeth Claret in Figure Drawing class as reference. I also used loose sketches based on the Rusafa District in Baghdad that I did from memory. From this assortment of sketches I composed this drawing. It depicts one of the many terrible moments that happened so often over there during my tours in Iraq and that remain glued to my mind's eye.

15. Criminality: Examining Racial and Gender Stereotyping

**Presenter(s):** Foote, Sarah

**Faculty Advisor:** Dr. Shilpa Regan  
Dr. Kelly Charlton

**Discipline:** *Psychology*

Currently in the United States, racial and gender stereotyping cause the incarceration of innocent individuals based on erroneous eyewitness accounts, racial and gender profiling, and attribution errors (Khan, Byrne, & Livesay, 2005; Welch, 2009). Individuals are prosecuted based on their gender and ethnicity rather than the crime that they may have committed. For example, African American men are disproportionately accused of crimes compared to other ethnic groups, and receive harsher sentences compared to similar criminal counterparts. The purpose of this study was to determine if specific criminality traits and crimes are associated with an ethnicity (i.e., Caucasian/White, African American/Black, Asian, Middle Eastern, Hispanic/Latino) or gender (i.e., male, female). Results indicated that criminality was differentially associated with ethnicity. Moreover, the gender of the ethnicity also influenced whether participants believed an individual committed a crime. Specifically, participants from this study appeared to profile Hispanic and Middle Eastern males and White females as criminals compared to other ethnicities. In addition, participants disproportionately attributed criminal personality characteristics (e.g., anger, risk taking, lack of empathy, and impulsivity) to those ethnicities. Results from this research may be important for the accuracy of eyewitness testimony given that participants attribute specific ethnicity and gender to crime.

16. Milliken Park: Unity of the Community

**Presenter(s):** Fowler, Kayla  
Boring, Ashley  
Thomas, Jamie  
Newton, Jessica

**Faculty Advisor:** Dr. Marian Wooten

**Discipline:** *Health, Physical Education and Recreation*

UNC-Pembroke was asked to work with the town of Robbins, North Carolina through the North Carolina Step Grant, in order to increase the town's recreational and economical potential. Our team was given the task of renovating and improving Milliken Park. The park sits in a residential area just up the street for the town hall. The current park contains a baseball/softball field, basketball courts, a playground for young children, tennis courts, walking trail and a picnic area.

After talking to town officials, visiting the town and Milliken Park, we had a better understanding of the need to reconstruct and improve the current facilities. Our proposed design includes improvements to all existing elements and the addition of further recreational components.

Outcomes will be to improve Milliken Park, bring more of the surrounding community to the park for usage, increase overall health of the citizens of Robbins, improve the town's economic ability, and build the unity of the community.

17. Analyzing the role of the SET2 gene within the H2A.Z mutant histone Variant during transcription elongation in *Saccharomyces cerevisiae*

**Presenter(s):** Gambrel, Sarah  
Abengowe, Francina

**Faculty Advisor:** Dr. Maria Santisteban

**Discipline:** *Biology*

It is known that H2A.Z has two roles in yeast roles, to poise genes for transcription initiation in euchomatin and to protect euchomatin from silencing. However, other transcriptional effects in yeast as

well as other organisms are unknown. Budding off the work of Dr. Maria Santisteban and Francina Abengowe, my research will consist of figuring out if the SET2 gene within the H2A.Z is the suppressor of a synthetic lethality caused by the double mutant *htz1 RPB2-2SL*. If the SET2 gene is the suppressor, the precise mechanism that occurs is unknown, and I will be seeking to understand how this mechanism occurs, and why.

18. Public Service Announcement: Type II Diabetes Prevention in Adults

**Presenter(s):** Garrett, Mary

**Faculty Advisor:** Dr. Jennifer Bonds-Raacke

**Discipline:** *Psychology*

I have created a Public Service Announcement (PSA) to address adults who are at-risk for Type II Diabetes using concepts from social marketing and the psychology of mass communication. The model has been created to address the perceived severity and susceptibility of the disease with the obstacles and positive effects of social marketing in mind. My intention with this PSA is to encourage viewers to start living healthy with small changes through an attainable plan aimed at increasing the viewer's sense of self-efficacy. To do this, I address the following: (a) misconceptions, (b) salience and autonomy while balancing positive influences of reaching the correct population, (c) exposure time, and (d) frequency. I have incorporated aspects of Bandura's theory into my project such as reciprocal determinism, self-efficacy, and social norming. My website goes further to address specific steps and provides a structured process for the individual stages. Support for the potential success of a PSA directed at Diabetes prevention was not hard to find. I present three studies in particular that refer to the relevance of lifestyle changes with self-efficacy, personal perceptions, and autonomy to support my approach.

19. The Life of a New Woman Took Shape During WWII

**Presenter(s):** Godwin, Sabrina

**Faculty Advisor:** Dr. Ryan Anderson

**Discipline:** *History*

World War II propaganda depicted Rosie the Riveter as the typical wartime woman worker. But the popular kerchief-wearing blue collar woman does not accurately portray the experiences of Johnnie Welton, Dr. Ruth Loving, and Willie Mae Cotright—three African-Americans who volunteered for military service. These women both gained new opportunities and faced familiar racial boundaries when they contributed to the war effort. Period interviews and visual culture reveals that they are best understood as “types” of Rosies, rather than as alternative versions of women at work. In the end, their efforts demonstrate that there was no one way a black woman helped the war effort, and that her efforts helped shape future opportunity for all American women.

20. Does Your Personality Predict Your Game Play Style?

**Presenter(s):** Guynn, Gabriel

**Faculty Advisor:** Dr. Kelly Charlton  
Dr. Shilpa Regan

**Discipline:** *Psychology*

The current study seeks to use a US sample of game players and examine several variables as they related to gaming style. One hundred and sixty nine Introductory Psychology students participated. One

hundred and five of those students (60 males and 45 females) indicated that they played some of video game and thus were included in the current analyses. We view gamers as anyone who indicated that they played computer or console games (example games that participants played were: "The Sims", "Guitar Hero," and "World of Warcraft"). Participants filled out several measures, including: 1) the Big Five (IPIP: Goldberg, et al., 2006), 2) The Ambivalent Sexism Inventory (Glick & Fiske, 1996) and 3) a variety of questions about their gaming habits and play style (for example, "I prefer to spend my time online in huge communities, "I play for bragging rights," and "groups don't matter to me"). For example, we asked about the kinds of computer games they play, how many hours a week the games are played, what kind of behaviors exhibited in both Massively Multiplayer Online (MMO) and First Person Shooter (FPS). Finally, we asked for basic demographic information. A factor analysis of the game style questions revealed four distinct factors, Competitive game play, Skill improvement, Independent play and Small interpersonal group play. When we examined the results for the four play style factors, significant relationships were revealed for the Skill Improvement, Competitive game play, and Independent play factors only. People who scored higher on the Skill Improvement factor also scored higher on Agreeableness, Conscientiousness, and Benevolent Sexism. Those who scored high on the competitive game play factor also scored high on Intellect, Hostile Sexism, Benevolent Sexism, and Emotional. Our findings have implications for understanding how personality influences social interactions in gaming communities.

21. Ft. Fisher the Last Stand

**Presenter(s):** Holland, Curtis

**Faculty Advisor:** Mr. Nathan Phillippi

**Discipline:** *Geography*

As for my presentation outline, introduce North Carolina as a whole in the situation of the Civil War, so people understand that North Carolina was not really important to the Union forces. Then some other factors like being surrounded by states that believed in slavery etc. Then moving towards Wilmington, as the last hold of the Civil War for the Confederates. Then what really kept Wilmington alive which was Fort Fisher, and Union Forces were focused on the railroad from Goldsboro to Richmond VA. Also, what kept the Fort opened what it being on an Island, and the Frying Pan Shoals which was only 10-25 feet deep. After traveling to Fort Fisher which I have attached some photos, the weather was horrible. Wind gusting, sand, and bugs would kill someone. Not to mention, the Union forces had old wooden Navel Ships, compared to the South who had blockade runners that could go in shallow water. That was a major reason Fort Fisher was such a strong hold for the South. Not to mention the cannons they used on the land were over eight feet long and could do some damage.

22. Averagesboro Battlefield: The Use of Physical Terrain in Military Tactics

**Presenter(s):** Holt, Justin

**Faculty Advisor:** Mr. Nathan Phillippi

**Discipline:** *Geography*

Terrain plays a large part in deciding who wins a battle. The battle at Averagesboro is one of the least known battles of the Civil War, and was the prelude to the battle of Bennettsville, the last battle fought between the Confederate and Union Armies. Though there are historical books about this battle, there has not been a spatial analysis conducted looking at just the use of the terrain and its geographical significance.

Averasboro is a good example of how a small force effectively using terrain can slow the advancement of an army that is twice its size. The Confederate Army set up a choke point between the Black and Cape Fear Rivers, just north of Fayetteville, NC, in order to attack the left wing of the Union Army in an attempt to slow their advance to Goldsboro, NC where they would have been able to capture the last remaining railroad junction and source of supply to the Confederate army. This paper is going to analyze the effectiveness of the terrain within this area to determine why it was used as the area for the battle, and how it was used in effect by the Confederate command to defeat an army that was twice its size

### 23. A New Look to an Old Artwork

**Presenter(s):** Hooker, Kasey

**Faculty Advisor:** Mr. Brandon Sanderson

**Discipline:** *Art*

I am a junior art major. My primary area of concentration is digital art with a secondary concentration in printmaking. I'm minoring in media integration studies, as well. In my artwork I always try to find a way to make the viewer wonder or ask questions about something they may already know or be familiar with. In this way, I try to add a sense of mystery to my work. I often use human or other organic elements combined with mechanical or technological elements in a way as to create something that seems unnatural yet still familiar. Most of my work is fairly dark, usually in color but sometimes in content as well. The lack of light focuses the viewer on exactly what I want and leaves them wondering about the parts they cannot see.

#### Four Horsemen

I based this piece on one by the German artist, Albrecht Dürer (1471 -1528). I used the basic layout and subject matter of his wood engraving to make my etching; however, I changed the background and appearance of the horsemen, to give the image more modern features. I added the city skyline and the mushroom cloud explosion in the background to add one contemporary idea about the apocalypse, nuclear war. I chose to replace the people being trampled in his foreground with a representation of the globe to indicate the global nature of such an apocalypse. I also changed the appearance of the four horsemen to something I thought would be more fitting of those who would bring about such destruction.

### 24. Non-Traditional Students in the Writing Center

**Presenter(s):** Inderbitzen, Daniel  
Wisenhunt, Chase  
Steiner, Jacob  
Wise, Ryan  
Howard, Tre

**Faculty Advisor:** Dr. Teagan Decker

**Discipline:** *English*

Our current research project uses focus groups as well as surveys to identify the writing practices and writing support needs of non-traditional students in our writing center. We arrived at this topic by first conducting an open discussion among our staff about what we might productively research in our center. We then worked collaboratively to identify research directions, research methods, and research questions. The tutors brainstormed until settling on our particular project. Our methods of research once the study begins include group discussion sessions and personal interviews in order to gain a better understand of a non-traditional student's life as a writer readjusting to the academic world. While the

project is still being processed, some information has been found and will be presented. Some of the things that we hope to find involve the kinds of obstacles non-traditional students have to go through when coming back to school after a long break such as not being able to type a paper properly on a computer or using outdated grammatical rules. With a better understanding of the hurdles non-traditional students have to go through the tutors will be able to adapt their teaching methods to apply more directly to the needs of non-traditional students.

#### 25. Mass Production of the Beneficial Nematode, *Heterorhabditis Bacteriophora*, in Submerged Culture

**Presenter(s):** Inman III, Floyd

**Faculty Advisor:** Dr. Len Holmes

**Discipline:** *Chemistry*

The goal of this work is to mass produce, in liquid media, a submerged culture of the beneficial nematode, *Heterorhabditis bacteriophora*. Initial shake flask cultures were scaled up to 10 L in a Sartorius-stedim Biostat B® Plus fermentation system. The culture conditions that were controlled by the system include pH, pO<sub>2</sub>, agitation, and temperature. Microscopic observations and nematode density counts were collected over a four week period to evaluate the growth and development of the nematodes in liquid culture. To evaluate nematode development, the nematode life cycles were used as markers. The system was inoculated with approximately 1,000 infective stage 3 juveniles (IJs) per mL of media and nematode development was observed within three days after inoculation.

#### 26. Rembrandt's Wandering Hand

**Presenter(s):** Johnson, Candace

**Faculty Advisor:** Mr. Brandon Sanderson

**Discipline:** *Art*

In this image I studied the prints of an old master and used one of his compositions to create a contemporary version of the print. I wanted to do a copper etching so I immediately thought to use Rembrandt because line etchings were one of his specialties. I examined numerous prints by Rembrandt and did five preliminary sketches to understand his methods of mark making. In Rembrandt's etchings use lines not to regurgitate visual reality but express the energy or emotion of a certain situation. After I felt that I understood his mark making techniques I had to choose a print with a composition that I felt inspired by. The prints that caught my eye were the ones of a sexual nature. These stood out to me because even the most conservative and traditional art critic respects Rembrandt as an old master and would feature his work in any upscale gallery, despite the sexual imagery in his work.

There were two prints in particular that caught my attention. One was called the French Bed and the other was called Monk In A Cornfield. Both were images of a man and woman engaged in intercourse. I found this aspect of Rembrandt's work intriguing. The marks are so beautiful that you do not even notice the content of the pieces at first. The sexual element sneaks up on the viewer. I wanted to create a print in this same vein of thought. To have sexual content in a piece that is done in such an unassuming manner that one does not notice it at first. I ended up choosing Rembrandt's Woman Reading etching. In the original version there is a woman sitting at a table reading a book while grasping her bosom. I appropriated this composition and made the woman nude and changed the book to a pornographic magazine. One hand still grasps her bosom but her other hand is in her lap leaving the viewer to wonder what she's doing with it.

27. Activating Plasticity: Generating Neural Response in Cognition

**Presenter(s):** Kelsh, Jason

**Faculty Advisor:** Dr. John Raacke  
Dr. Shilpa Regan

**Discipline:** *Psychology*

This paper will explore brain plasticity at a fundamental level in terms of growth and activity over a lifespan. The aspect of neural degeneration and cognitive deficits associated with brain damage is the underlying focus of this paper. What hinders this field of study is the lack of information and research involving suited therapies. The importance of understanding plasticity is necessary and stressed in an attempt to elucidate and build on hypothesized outcomes and create paradigms of rehabilitation. Emphasis is on physical exercise and training to improve cognition. By reviewing tasks that have shown to be effective in increasing cognition, it is proposed that exercise will have the greatest affect on overall cognitive function and show durable results. It is also believed that task related mental exercises will impact only those regions of the brain specific to the training. Concepts integrating theories of neural plasticity are touched on. Also, proposed in this review are the existence of extraneous factors that may facilitate in the occurrence of neurological response; the correlation between physiological disposition and experience driven results.

28. Synthesis of Biodiesel Using Morpholine

**Presenter(s):** Kingsbury, Nathaniel  
Gilchrist, Donna

**Faculty Advisor:** Dr. Cornelia Tirla

**Discipline:** *Chemistry*

Biodiesel is currently produced using vegetable Oils; Methanol and Potassium Hydroxide this reaction can be very expensive because it produces a lot of waste products. The Potassium Hydroxide is eliminated with the waste and thus more must be used for further reactions, which add to the cost. This situation brings to light the cost-effective problems with biodiesel. In an effort to solve this dilemma Heterocyclic molecules were used in this project to replace the Potassium Hydroxide. These compounds have the potential to be recovered at the completion of the reaction. The Heterocycle used in this project is Morpholine is basic and can be recovered.

29. The Transesterification of Soybean Oil by Continuous Enzymatic Process and by Sonification

**Presenter(s):** Leviner, Eric

**Faculty Advisor:** Dr. Siva Mandjiny  
Dr. Tom Dooling  
Dr. Cornelia Tirla  
Dr. Rachel Smith

**Discipline:** *Chemistry*

In this study methyl acetate has been used to produce biodiesel by continuous enzymatic process with the immobilized lipase, Novozyme-435. The conditions maintained for this Transesterification reaction were 6hrs at 55oC with 6:1 molar ratio of methyl acetate to soybean oil. Also in this work a technique is developed and is in progress to determine the conversion of oil to biodiesel by NMR. The enzyme activity was monitored over a period of one year and it was observed that there was no significant loss in activity. The advantage of this process are of two fold, one being that there is no separation problem



and the other is that the triacetin produced mixes well with the biodiesel. Also in this study the kinetics of transesterification of corn oil to biodiesel by sonification was carried out by NMR.

### 30. Micropropagation of Indigenous Plants

**Presenter(s):** Locklear, Brittany

**Faculty Advisor:** Dr. Len Holmes

**Discipline:** *Chemistry*

Micropropagation is a technique that utilizes cuttings from a parent plant for rapid multiplication of clones. These parental cuttings are very sensitive to many environmental factors and require a hard cleaning phase to sterilize and clean before implantation into solid media. The following growth hormones were added to increase the rate of production: Ga3, BA, and IBA. The cuttings go through four growth stages before they are able to be transplanted into soil. The stages are listed as the following: Stage 1- Establishment; Stage 2-Multiplication; Stage 3- Rooting; Stage 4-Hardening off. To achieve rapid growth, additional growth hormones and antimicrobial fighting agents are used. The following plants were micropropagated: african violet, mini roses, asiatic lilies, boston fern and holly bush.

### 31. Using Bioluminescence and Fluorescence as Tools to Study Shear Forces and the Effects of Alternate Gravity on Microorganisms.

**Presenter(s):** Locklear, Johnathan

**Faculty Advisor:** Dr. Len Holmes

**Discipline:** *Chemistry*

The purpose for the proposed research is to determine Lumbee burial patterns within Robeson County. Field observations have shown that cemeteries old and new appear outside a church or near a home. Since it is against federal regulations and cultural norms to bury the deceased near a house, this pattern is very relevant within the county; in particular this appears to be associated with the cultural practices associated with the Native American group, the Lumbees. It is predicted that the grave locations are based on family relationships that share the same last name and the same religious beliefs. Field observations will consist of visiting gravesites to determine the cemetery design, orientation of the graves, grave markers, and symbolism used. Next, data will be recorded by using a GPS receiver to map out the burial occurrences. A statistical analysis will be performed to determine spatial orientation to the nearest church from an off site burial. Along with the data will be several images for local cultural knowledge.

### 32. Natural Beauty

**Presenter(s):** Locklear, Sonney

**Faculty Advisor:** Mr. Adam Walls

**Discipline:** *Art*

In this piece of work, I was inspired by multiple aspects. I wanted a better understanding of natural stone and a better understanding of the processes that was used in the sixteenth century. There were no power tools used in this piece; files, hammers, sandpaper, and chisels were used to create this form. Another major influence was influence was the natural make up of the female body. I decided to leave some parts defected because from my understanding, there isn't a natural female body that's perfect.

33. Optimizing a Stability Indicating HPLC Method for the Determination of Dextromethorphan

**Presenter(s):** Lowery, Iner Tommaleta

**Faculty Advisor:** Dr. Meredith Storms

**Discipline:** *Chemistry*

Dextromethorphan is an antitussive (cough suppressant) found in over 120 over the counter medicines. Since hair has become a more prevalent biological matrix, the use of cosmetic treatments to deliberately remove drugs from hair have been reported. Therefore, forced degradation studies were conducted by exposing dextromethorphan to heat, hydrogen peroxide, acidic and basic conditions for different time periods to identify potential degradation peaks in an effort to optimize a stability indicating HPLC assay. Additionally, the HPLC method was employed to study the influence of commercially available cosmetic treatments on the stability of dextromethorphan by incubating the drug with a bleaching product and hair dye at room temperature.

34. Analysis of a Classical Driven and Damped Oscillator (Mass on a Spring) Under the Influence of a Sweeping Driver Frequency

**Presenter(s):** Maloy, Donald K.

**Faculty Advisor:** Dr. William Brandon  
Dr. Tom Dooling

**Discipline:** *Physics*

Experimental and computational based methodology has been developed to investigate a system being forced to oscillate with a linearly swept (continuously varying) frequency. First, a novel low frequency spectrum analyzer in combination with "NCH Tone Generator" PC soundcard freeware and Pasco's Data Studio software was designed and implemented. The instrument allows amplitude measurements of a mass connected to a spring being forced to oscillate as the frequency varies (essentially a low frequency spectrum analyzer for the classical driven oscillator). In addition, accurate computer based simulations, providing additional insight into the underlying physics of the system, have been carried out using Easy Java Simulations (EJS).

35. Independence: Not So Independent After All?

**Presenter(s):** Manello, Desiree

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

Race and independence play a huge role in Devil in a Blue Dress. Easy Rawlins is a black man who lives in Los Angeles in 1948. He is a war veteran who is just trying to make it on his own in a society full of superior white people. He finds himself working not only with, but for, a white man in hopes of locating a young lady, Daphne Money (who happens to be half-white). Because he has been laid off from work, he is doing this job to get money to pay his bills.

It's very important that Mosley used the characters he did. It's not only about race and independence; it's also about social class. When Mosley created Easy and put him in the situation that he was in, he was saying that sometimes independence comes at a cost (kind of like the old saying you gotta do what you

gotta do). Easy believes that because he takes care of himself, he is an independent man. In reality, Easy is not that independent because he has become dependent on others to survive once he loses his job.

My research will primarily focus on what independence was like in 1948, not just African-Americans but for the Caucasians as well. I will focus on the idea of independence and how it is defined through the novel, particularly through the characters of Easy and Daphne. In order to do this, I will do a character analysis of both Easy and Daphne—one is a black man, the other is a half-white woman. I will then compare and contrast the two to determine how their idea of independence differ from one another as well as the overall meaning the Mosley was trying to get across.

### 36. HPLC Method Development and Optimization for the Analysis of Dextromethorphan

**Presenter(s):** Marshall, Lauren  
Ferrer, Alexandria

**Faculty Advisor:** Dr. Meredith Storms

**Discipline:** *Chemistry*

A high-performance liquid chromatography has been optimized for the determination of dextromethorphan. The separation and quantitation are achieved on a phenyl column (4.6x150mm) using a mobile phase of 80:20% v/v 6.25mM sodium phosphate-TEA buffer (pH 3.0) and methanol at a flow rate of 0.6 L/min with UV detection at 226nm. The optimized HPLC method will be validated and subsequently employed in conjunction with SPE to determine the concentration of dextromethorphan in hair.

### 37. Pembroke Leisure and Recreation Then and Now: In-Depth Interviews of the Lumbee Tribe

**Presenter(s):** Martin, Jason  
Chavis, Christy  
Croveti, Christina  
Genwright, Kadeem  
Copper, Kyle  
Tindall, Jamie  
White, Lance

**Faculty Advisor:** Dr. Marian Wooten

**Discipline:** *Health, Physical Education and Recreation*

The Lumbee Tribe of North Carolina has had a long standing connection with the University of North Carolina at Pembroke. In the Spring semester of 2009, REC 3000 students interviewed eight members of the tribe who had attended the University in previous decades and one tribe member who did not attend the University, but later became the chancellor. The focus of the research was to learn the importance of leisure and recreation throughout their lives and about college life in previous decades. Based on the in-depth interviews, six basic themes arose: importance of the church, importance of education, farming, the small size of the campus, cheap tuition, and lack of technology.

### 38. What do u know??

**Presenter(s):** McDuffie, Andre' D

**Faculty Advisor:** Mr. Brandon Sanderson

**Discipline:** *Art*

Ever since the 1990's I have been working on my craft not to get famous or anything, even though that would be great. I draw, sculpt, paint, write poetry and etc to express what's on my heart and soul so I guess you can call me an expressionist; most of my pictures have a deeper meaning to them. In my younger age as I would admire the paintings and drawings in hospitals or in my barber shop and even watching Bob Ross on Sundays I would get inspired in a way and say to myself if they did it why can't I and I just would have this fire in heart to be better and the best I could be. I've always wanted to be a great artist like the masters its not that I'm cocky it's just they're artist I've looked up to and aspired to be as good or even better as that's great company to be put with, but the real reason I started drawing was I realized as I was analyzing those hundreds of pictures. The pictures made me feel a certain way, a relieved feeling; that calmed me, or on other occasions enraged me depending on the actual image and even think critically, I had emotions in me that never came out and from that all I wanted to do is express myself the way I always wanted to do verbally but couldn't on race, love, hatred, even personal issues that would sit on my heart. U should look at this picture and remember your first thought, now u should ask yourself WHAT DO I KNOW??

### 39. Multigenre Magazines about Current Issues

**Presenter(s):** McNeill, Jasmine  
Chance, Catelyn  
Griffin, Jeff  
Daniels, Brittany  
Townsend, Carlos  
Brown, Zeneta  
Locklear, Terry  
Salpaugh, Thomas  
Ragland, A.J.

**Faculty Advisor:** Dr. Monika Brown

**Discipline:** *English*

The Multigenre Magazine assignment in Composition II develops expertise for college research papers and supports UNCP's Quality Enhancement Plan, "to improve students' chances at success in college and beyond." Through class activities, including collaboration in a "plus-one" lab, students join a public discussion and learn how diverse publication media and genres shape expectations for form, content, documentation, and style. In Spring 2010, students have engaged in eight weeks of critical reading, writing, and research about an issue selected from the textbook *Writing in the Disciplines*. Each student wrote two papers based on research: a public issue proposal suited for a magazine and a documented academic argument. At mid-semester, each student compiled a themed magazine of related essays, articles, and visual texts in a variety of genres. Magazines focused on social problems include *Surviving in America* by Jasmine McNeill, *The Bail-Out Times* by Catelyn Chance, *America Affected by Poverty* by Jeff Griffin, *Nurses Are Ready to Conquer Poverty* by Brittany Daniels, and *Family Awareness* by Carlos Townsend. Other current issues are taken up in *What's Up With Music and Youth* by Zeneta Browne, in *Human Therapeutic Cloning* by Terry Poteat, and in *Cell Phones and Driving* magazines by Thomas Salpaugh and by A.J. Ragland. Each of the student editors can speak with authority about a current issue. Thomas concludes, "The government should ban all use of technology while operating a motor vehicle." Effective parenting, notes Carlos, can benefit from a wide range of resources and support. For Zeneta, parents who set limits for music listening may grow closer to their children. Jasmine argues, "If the government would make addressing the problems of outsourcing and living wages a priority, the issue would no longer be how to survive in America, but how to excel." As they do research, write essays, and create magazines, students place their own writings in public and academic contexts, and some can declare, with Catelyn, "I have learned to argue in a professional manner."

40. Skill Transference: Comparing Wii Bowling to Traditional Bowling

**Presenter(s):** Niccum, Kelly  
Piocuda, J. Emilio  
Kelsh, Jason  
Garrett, Mary  
Clark, Jessica

**Faculty Advisor:** Dr. Jennifer Bonds-Raacke  
Dr. John Raacke

**Discipline:** *Psychology*

The purpose of this study is to examine the concept of skill transference. The Nintendo Wii is an interactive gaming system that works through the wireless remote. The user watches the screen for their turn, then makes the motion while holding the wii remote which transfers the actions onto the screen by using the sensor bar. The game that will be used for this study is Wii Sports, which consists of baseball, bowling, boxing, golf, and tennis. Specifically, we will be studying confidence and skill transference in the bowling portion of the game. We will be using two college bowling courses to conduct the study. One class will start the semester on the Wii, while the other class does the traditional bowling class. Halfway through the semester the two classes will switch to either the Wii or traditional bowling, where their confidence and skill transference will be recorded. The researchers anticipate a gain in confidence for the class who starts out on the Wii first.

41. Media Shaping Reality: The Effects of Media Exposure on Perception

**Presenter(s):** Niccum, Kelly

**Faculty Advisor:** Dr. John Raacke  
Dr. Jennifer Bonds-Raacke  
Dr. Martin Slann

**Discipline:** *Psychology*

This study examined how repeated exposure to media can shape world views. It was found that as news exposure increased, participants were significantly more likely to find news reports to be objective, representative of groups depicted, and agree with the contents. Media content also significantly influenced these relationships.

42. Modifications help improve community involvement in Robbins, NC

**Presenter(s):** Oxendine, Jannaka

**Faculty Advisor:** Dr. Marian Wooten

**Discipline:** *Exercise and Sports Science*

The town of Robbins, located in Moore County, North Carolina is comprised of 1,195 residents. Of those families, 22% fell below the poverty line preceding the last census; making the median income for each household roughly \$29,000. However, despite these money matters, Robbins is still a host of several main attractions such as the Annual Farmers Day and the Northern Moore Fiddlers Convention. One of the older, yet natural places to visit in Robbins consists of Reservoir Park. The assignment, proposed by town hall, included establishing public access to the Park, while modifying the natural features of the Reservoir and the diminishing Nature trails. This project took four basic steps to achieve. The proposal outlined the history of the Park, while detailing the community involvement that has taken place at that specific location. In order for the alterations to impact the community, we had to first receive input from the community as to what they were looking for; this was achieved by a series of surveys designed to

encourage activities and hobbies the park could possibly impose. After receiving community input, the search for funding began. We had to search out grants to compensate for the final project. After all the modifications, the results should indicate an increase in community involvement for Reservoir Park.

43. Hemmed In: An Examination of Women of the 19th Century American Middle Class and Kate Chopin's *The Awakening*

**Presenter(s):** Paz, Sharon

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

The concept of an ideal female is not new. What have changed over time are the qualities that society uses to gauge feminine excellence. I am fascinated with the intricacies of the social norms for middle class women in the 19th Century. As a white middle class woman myself I have wondered what my life would have been like if I had lived in the late 1800s. What would I wear? What would be expected of me? Would I have been able to fit into that mould? Without a thorough understanding of the details and nuance of social conventions it can be easy to romanticize the past. When introduced to the female characters in Kate Chopin's *The Awakening*, I am reminded of the uncomfortable truth that cultural conventions were structured to contain women and limit their power. In *The Awakening*, Chopin presents the reader with Adele Ratignolle, Edna Pontellier and Mademoiselle Reisz, three female characters who occupy different places on the feminine continuum. Each of these women either embraces or rejects the societal norms placed upon them. My research will focus on middle class white women in the United States in the late 19th Century, to include their roles and responsibilities, their social conventions, dress and appearance. When I am able to better understand the rules of that era as well as the consequences for women who dared to break them, then I will better understand the sacrifices that these women had to make.

44. Have You Been Experienced? Race Relations and Jimi Hendrix

**Presenter(s):** Piocuda, Jorge

**Faculty Advisor:** Dr. Ryan Anderson

**Discipline:** *History*

I have chosen to examine, discuss, and interpret *The Jimi Hendrix Experience: Are you Experienced?* (1967, UK release). The 1960's were a period of great turmoil in American society; the civil rights movement as well as the counterculture movement were both in full swing. With Jimi Hendrix being a black rock musician, probably one, if not the only black rock musician of the era, what does this have to say about race relations in the late 1960's?

45. Homosexuality in the Media: Does Type of Show Influence Perception of Homosexuality?

**Presenter(s):** Piocuda, Jorge

**Faculty Advisor:** Dr. Jennifer Bonds-Raacke

**Discipline:** *Psychology*

The purpose of the study was twofold; first, to determine if animated shows have an influence on perceptions of gays and lesbians in comparison to non-animated shows. Second, to compare the results of the heterosexual participants and that of the homosexual participants to see if there were any differences in perceptions and attitudes.

46. That's Not Funny: How Comedic Race & Audience Influences Humor

**Presenter(s):** Piocuda, Jorge

**Faculty Advisor:** Dr. John Raacke  
Dr. Jennifer Bonds-Raacke

**Discipline:** *Psychology*

The purpose of the current experiment was to examine whether the race message of a comedian and the race of the viewing audience influenced perceptions of humor. Results indicated that racial message and the audience member's race influences perceptions of humor. However, the audience make-up does not.

47. Working Together: Investigating Dyad Study Habits

**Presenter(s):** Piocuda, Jorge

**Faculty Advisor:** Dr. Jennifer Bonds-Raacke

**Discipline:** *Psychology*

The current study found that couples who had taken college courses together were significantly more satisfied with their overall college experience and reported spending significantly more time studying with their significant other than couples who had not taken courses together. Relationship satisfaction was also related to study habits.

48. University organizations: Who belongs and what are the consequences?

**Presenter(s):** Painter, Jessica

**Faculty Advisor:** Dr. Kelly Charlton  
Dr. Shilpa Regan

**Discipline:** *Psychology*

Identifying the predictors of college student success has been an important issue for both students and institutions. This seems especially the case at smaller more rural universities where students may be the first generation in their family to attend school. Belonging to an organization may help engender some commitment to the institution that may then translate to higher retention rates. Indeed, past research has shown that adjustment to college is predicted by collective self esteem (e.g., Bettencourt, Charlton, Eubanks, Kernahan, and Fuller, 1999). The current study seeks to explore these issues, specifically how belonging to different types of organizations, as well as personality and leadership roles and style can influence adjustment to college. One hundred and ninety four students participated. In examining personality variables, we found that compared to people who are not in an, people in an organization scored higher on Conscientiousness. The consequences of joining an organization appeared to be positive. Those students who were in an organization showed differences in Collective Self Esteem, Social Adjustment and Academic Adjustment. Students who were members in Greek organizations scored higher on Collective Self esteem and Social Adjustment (respectively), than did those in other organization. It is interesting to note that those students who score high on conscientiousness also chose to join an organization and in turn belonging to an organization led to higher academic adjustment. It may be that conscientiousness is the predictor of academic adjustment; however the effect is still intriguing. In looking at the types of organizations students belong to, it is not surprising that organizations such as Sororities and Fraternities would have students with a higher social

adjustment, which nonetheless may predict commitment to finishing the degree.

49. *Solenopsis invicta* (red imported fire ant): Colony Density in Clay-based Bays (Antioch and Goose Pond Bays, North Carolina)

**Presenter(s):** Post, Sydney

**Faculty Advisor:** Dr. Lisa Kelly

**Discipline:** *Biology*

The invasive red imported fire ant (*Solenopsis invicta*) is one of the most important pest species in the United States, causing extensive ecological harm. While typically associated with disturbance habitats, we report the species from two relatively pristine, clay-based Carolina bays --- Antioch and Goose Pond Bays, North Carolina. Owned by The Nature Conservancy, these bays support a rich biota, including rare plants and animals, a dense herbaceous groundcover, and unique savanna habitat dominated by pond cypress (*Taxodium ascendens*). During summer and autumn 2009, we used line transects to determine colony density and relative distribution of *S. invicta* within each bay. We mapped all colonies from a 40 X 40 m area, located randomly within the interior of each bay. Colonies densities were greater in Antioch Bay. Colonies were distributed throughout both bays, but were uncommon in the interior of Goose Pond Bay, where a dense stand of *T. ascendens*, *Nyssa biflora*, and the rare shrub *Ilex amelanchier* occurred. The establishment of some colonies atop buttresses of *T. ascendens* may allow the species to persist in the bays even during prolonged flooding.

50. Delineation OF Spatial Variance of Carolina Bays within Robeson County, North Carolina

**Presenter(s):** Post, Sydney

**Faculty Advisor:** Dr. Preston Phillips  
Mr. Nathan Phillippi

**Discipline:** *Geology*

Carolina Bays are a dominant geomorphic feature on the Atlantic Coastal Plain. Robeson County is situated along the northern border between North and South Carolina, where the abundance of Carolina Bays is especially great. Preliminary estimates of Carolina Bays in northern half of Robeson County approximate 8,400 and are based on visual inspection of LiDAR (Light Detection and Ranging) data, aerial and infrared photography. Current efforts are focused on examination of the density and distribution of two categories of bay morphologies (prominent density and relict Carolina Bays) in northern Robeson County. Subcategorization as truncated prominent or truncated relict Carolina Bays have also been applied where appropriate. These observations are recorded in a Geographic Information data base using ESRI's Arcview, in conjunction with measurements of the length, width, and orientation. At present, the data suggest prominent bay forms in the study have an average axial orientation of 325o, while relict bays average 319o. Current data also suggest prominent bays are, on average, at least twice the length of relict bays. These data will be helpful in delineating the spatial variations of the bay types and subtypes throughout the study area and create a base for future investigations.

51. Mutational Analysis of a Histone Variant: htz1Rpb22

**Presenter(s):** Queen, Anna

**Faculty Advisor:** Dr. Maria Santisteban

**Discipline:** *Biology*



In the last 30 years, the yeast *Saccharomyces cerevisiae* has been used as a model organism in genetics, molecular biology, and biochemistry. The advances have been aided by the ease of the genetic manipulations, the ability of heterologous protein production, and the availability of the many databases on the Web, such as *Saccharomyces* Genome Database (SGD), Yeast Proteome Database (YPD), Munich Information Center for Protein Sequences (MIPS), etc., which assemble information about all the yeast genes and their protein functions, generated after the complete genome sequence of the microorganism was determined in 1996. The aim through my research is to identify suppressors of the lethality of the *htz1Rpb22* double mutant, which should help us identify the specific defect of this mutant. The identity of these genes should indicate if the defect of *htz1Rpb22* is at an early or late step in the transcription process.

#### 52. Renovation of Tracy Brown Park

**Presenter(s):** Revels, Sasha  
Chavis, Christy  
Clegg, Jermei  
Hunt, Kenneth

**Faculty Advisor:** Dr. Marian Wooten

**Discipline:** *Health, Physical Education and Recreation*

Robbins, North Carolina is a small town located in Moore County and has received a North Carolina Step Grant that they may use to restructure one of their public parks. The population of Robbins was about 1,195 in 2000. A group of students from PED 4030 was assigned the reconstruction of Tracy Brown Park. Currently there is a horseshoe area, playground, water tower, and picnic shelter with tables. The park is not being used to the fullest potential. The mission of the group is to provide Robbins, North Carolina citizens with an acceptable redesign of Tracy Brown Park that will be a positive impact on the staff, clients and the community as a whole. The group conducted a meeting with several of Robbins' town officials and discussed possible renovations necessary for the park while visiting the site. After the completion of the redesign of Tracy Brown Park, the park will include a universal playground, public restrooms, an updated horseshoe area, recycling bin, a new sign, and plants for beautification.

#### 53. Star Trek: Decoding a Phenomena

**Presenter(s):** Rodriguez Jr., Jorge L.

**Faculty Advisor:** Dr. Michael Spivey

**Discipline:** *Sociology*

The 1960s was a decade in American history that saw tremendous changes in the fundamental fabric of American society: the election of the first catholic president, increased media coverage in the Civil Rights movement, the Vietnam War, and the emerging counter-cultural movement. During these trying times, Gene Roddenberry created the cultural phenomenon Star Trek. The original series aired on National Broadcast Corporation (NBC) during primetime hours ranging from 8pm to 10pm between 1966 - 1969. The appearance of the Ultra-High Frequency television (UHF) station and their need for programming allowed for a younger audience exposure with the syndication of Star Trek. The purpose of the presentation is to explain this cultural phenomenon. The methodology used was a multidisciplinary approach, with a focus on Stuart Hall's media theory, psychological, economic, and literary theory, social history, metaphysics, and cultural anthropological and sociological interpretations. What caused the Star Trek phenomenon? The explanations of the Star Trek phenomenon are multifaceted: such as elimination of social problems, the representation of society as a utopia, the end of wars and diseases, and the end of capitalism. Finally, the economic reality of Paramount's answer to market demand for

Star Trek with an aggressive marketing campaign is examined.

54. Chant: Sacred to Modern

**Presenter(s):** Rodriguez Jr., Jorge L.

**Faculty Advisor:** Dr. Valerie Austin

**Discipline:** *Music*

The rise and fall of the Rome Empire help establish the Church as a fixture of society. The trade routes and growth of the Church not only brought Christianity but their sacred music as well. Gregorian chant was named for Pope Gregory (590-604) who established standards and codified chant music. Masses of the Liturgical Year allowed for structure for the church. The clergy wrote chants with text and precursor of modern musical notation, which allowed for standardized. The development of notation in chant allowed for composers to write music, and add to the existing sacred music. Another development was that music theorists had a graphic tool to display their theories. The purpose of this presentation is to show how chant helped in the evolution of modern music. Why is chant the basics of all notated music? The reintroduction to a new audience of chant into society has been through the modern media of videogames and motion pictures.

55. Bikers in American Culture: 1953-1975

**Presenter(s):** Roy, Marc

**Faculty Advisor:** Dr. Ryan Anderson

**Discipline:** *History*

My project explores how and why mass culture portrayed motorcyclists as “bikers” during the three decades after the Second World War. I will analyze how *The Wild Ones* (1953), *Wild Angels* (1956), and *Easy Rider* (1969); the magazines *Ed Roth’s Vintage Choppers*, *Easyriders*, and *Street Chopper*; and the book *Hell’s Angels: A Strange and Terrible Saga* (1967) by Hunter S. Thompson portray motorcyclists. I have interviewed Stan Grabey as a way of contextualizing my reading of secondary sources, which consist of works on economics, sociology, the film industry, and film reviews. While motorcyclists were portrayed as hooligans, outlaws, or criminals, my findings suggest that most were “enthusiasts” rather than “bikers”.

56. The Journey to Find Independence and Freedom in *The Awakening*

**Presenter(s):** Sabina, Christine

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

In Chopin’s *The Awakening* Edna is a married, end of nineteenth century woman who struggles with finding independence and a sense of freedom within her marriage and family. Edna’s life seems to be wonderful for a woman of that time period, but Edna finds out very fast within the novel that she values her independence more than the characteristics of a married Victorian woman who has a perfect husband and family. The problem that Edna struggles with is how to define independence and conquer the feeling of entrapment. To understand the reasons behind every move Edna makes in her quest to find freedom readers must look at her idea versus society’s idea of freedom and why Edna might feel that it’s more important than her marriage in the end.

I will look over the many ideas such as, why Edna wanted freedom so badly? And what in the end did she gained and lost from her passionate desire to get her definition of “freedom” and “independence” in the Awakening. In order to do this I will provide an Analysis of Edna as a character and the stereotypical roles she tried to avoid for a woman of that time period and then begin to describe by showing examples of why independence is so important to her in the novel. I will then begin to show different interpretations of what freedom and independence is according outside research and then compare the two. Last but not least I will try and determine whether or not Edna truly gained her freedom and the independence she wanted in the end by breaking out of the stereotypical gender roles that held her back from the freedom and independence she longed for.

57. Three Decades in Change: A Look into Women’s Work in the Years: 1910, 1920, and 1930

**Presenter(s):** Sampson, Deneka

**Faculty Advisor:** Dr. Jamie Martinez

**Discipline:** *History*

Women’s work has changed tremendously throughout the life of the United States. In particular, in the early 1900s, more women started to leave the traditional life of the home and become more involved in the wage workforce. As the decades progressed, women started to get more opportunities for work, moving from domestic service jobs to office and saleswomen jobs. The passage of the Nineteenth Amendment and the inventions of many new and productive products such as the typewriter, contributed to the spread of new opportunities for women in the workforce. My presentation takes visitors through the transformation of women in the workforce during the years 1910, 1920, and 1930, based on my research in the Atlanta Constitution. I will also show the transformation of the American woman as a whole throughout these decades, focusing on the appearance changes that American women went through, for example new cosmetics, and fashion.

58. Agenda Setting: the Media’s Role in Abolishing the Death Penalty in New Jersey

**Presenter(s):** Schmidt, Tiffany

**Faculty Advisor:** Dr. Tony Curtis  
Dr. Jennifer Bonds-Raacke

**Discipline:** *Mass Communication*

In 1976, the Supreme Court federally reinstated the death penalty. New Jersey became the 37th state to reinstate the death penalty in 1982, and signed its first death warrant for John Martini Sr. in 1999. By 2006, the state had a moratorium on the death penalty. On Dec. 17, 2007 Gov. Jon Corzine signed the bill that abolished the death penalty in New Jersey, making it the first state to repeal the practice since it was reinstated in 1976. This study looks into if and how agenda setting can influence public opinion and lead to policy change. Scholars have conducted decades of research on the mass media’s influence on public opinion. I am in the process of a content analysis study to look at how agenda setting can influence public opinion and lead to policy change. Specifically, I am looking at how newspapers reported the death penalty before its abolition in New Jersey. I believe that the news coverage and editorials published relating to the death penalty increased over the years. Through agenda setting, New Jersey print media led the public to think about the death penalty, which caused policy makers to look at change in legislation and led to the abolition.

59. Television Commercials and their Effect on Children

**Presenter(s):** Smith, Matthew  
Johnson, Jodie  
Light, Krystal  
Hill, Octavia

**Faculty Advisor:** Dr. Jennifer Bonds-Raacke

**Discipline:** *Honor College*

Television commercials play key roles in our decision making, but what role do they play in the lives of children? Our study attempts to link the effects of commercial viewing and children's decision making, focusing on the roles commercials play around the holiday season. In our study, we examine the Christmas wish lists of students in fifth grade classrooms at Pembroke Elementary School and attempt to link the children's desired gifts to the top commercials on children's television networks to see if there is a correlation between the most prominent commercials and the top requested gifts during the holiday season.

60. Gender Roles in "Devil in a Blue Dress"

**Presenter(s):** Steiner, Tank

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

In *Devil in a Blue Dress* Walter Mosley presents to his reader a wide array of fascinating characters. These characters are diverse in many ways, from their race and class, to their morals and ideology, these characters exist solely for the purpose of giving the reader insight into the dark realities of late nineteenth-forties United States. The majority of these characters are unchanging in their attitudes and in their actions; from the beginning of the novel and the entrance of Dewitt, who makes a world war two veteran feel a "shiver of fear" and a former prize fighter "nervous" to the end of the novel when Easy shares a meal with his "good friend" Odell the book is full of predictable characters that play a single easily recognized gender role in the novel. This is true of almost all of the characters with only two exceptions: Daphne and Easy. These characters seem to have dual personalities. They are split between the ideas of ideal and non-ideal gender personalities. Mosley has even presented signposts and triggers in the reading that give the reader insight into when the characters are playing which role. When Easy hears the voice in his head it leads him to act in the acceptable, ideal, masculine fashion; whereas with Daphne a change in persona is revealed to the reader through a change in her eye color. By researching a number of variables, such as the role that race plays in gender identity and what changed after world war two in regard to feminine self-perception, a greater insight should be gained into whether these characters are representative of that time, or clearly created from outside of it.

61. Banking Policies and Regulation: A Comparative Study of Oman and the United Arab Emirates

**Presenter(s):** Troskey, Brian

**Faculty Advisor:** Dr. Ramin Maysami

**Discipline:** *Economics, Finance, and Decision Sciences*

United Arab Emirates (UAE) and Oman have experienced tremendous economic growth over the last decade and both have emphasized development of their financial markets as an engine of growth. Although the discovery of oil in the region was the origin of the economic development, banking and financial services have been the fuel for sustaining the growth. Both countries aspire to become the

financial center of the Middle East and they both look forward to competing with Singapore and Hong Kong as Asian financial hubs.

This paper will review the structure of the banking system in the two countries, and reviews the literature in determining the present state of the banking system and financial services in the two countries, as well as future prospects of the two countries in achieving their aspiration to achieve financial center status.

There have been several studies on measuring performance of the commercial banks in the UAE, Oman, and their neighbors, and comparing these studies is crucial to the understanding of their development. Also, the creation of the GCC (Gulf Cooperation Council) has influenced the structuring and development of the UAE and Oman. The GCC was established in 1981, with members consisting of: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. Their intent is to work together to create a common economic structure. With the most recent discussion around creating a common currency among the six countries, in order to avoid exchange rates, and to better join the global competition.

#### 62. What Would You Do For A Klondike Bar?

**Presenter(s):** Walker, Candace  
McRae, Jerry

**Faculty Advisor:** Dr. Susan Cannata

**Discipline:** *English*

People often make huge sacrifices to achieve the goals they have set for themselves. Some of these goals are attainable; some are merely ones that will always be lusted after. In Kate Chopin's *The Awakening*, both Edna Pontellier and her love interest, Robert, make sacrifices that both help and hurt them. What will people think of these two when they learn of their hidden desires; ones that are obviously not acceptable during that time? The choices made by Edna and Robert are ones that will either be completely accepted or absolutely rejected; there is no in between in these ultimate sacrifices. This interests us because it begs the question, "how far is one willing to go to get what they want." The research for this project will focus on the limitations and restrictions that were placed on women like Edna in her time period and the repercussions she would have faced had she not have taken the plunge into the ocean. It will also focus on how men like Robert would have dealt with this situation during the same time period. Were those men expected to take control over the situation and stop it, and in doing so refusing the love that he felt for Edna. Also, what would have happened to his reputation, as well as everyone else's involved had he gone through with his feelings.

#### 63. Modulation of a Proteolytic System to Offset Pathogenic Protein Accumulation Events

**Presenter(s):** Young, Hollie  
Butler, David  
Estick, Candice  
Hwang, Jeannie  
Kumar, Saranya  
Kwon, Robert  
Wisniewski, Meagan

**Faculty Advisor:** Dr. Ben Bahr

**Discipline:** *Biotechnology*

Lysosomal proteases of the cathepsin family have been implicated in clearing Alzheimer's disease (AD)-related protein accumulation events, and defects in proteolytic clearance may contribute to the progressive compromise of synapses and memory function. Cathepsins exhibit up-regulation in response to accumulating proteins including Abeta1-42, a peptide that accumulates inside and outside neurons. Interestingly, albeit counterintuitive, we found that positive lysosomal modulation with mild levels of the cathepsin inhibitor Z-Phe-Ala-diazomethylketone (PADK) ameliorates the AD phenotype in mouse models. PADK and more potent non-peptidyl modulators were used to test whether proteolytic activity is enhanced and provides neuroprotection in transgenic models expressing different levels of Abeta pathology. PADK injections in APPswInd and APPswe/PS1dE9 mice caused selective 3-8-fold increases in cathepsin B protein levels and 3-10-fold increases in the enzyme's activity in lysosomal fractions, while neprilysin and insulin-degrading enzyme remained unchanged. The lysosomal modulation reduced intracellular Abeta staining and soluble Abeta1-42 levels, in APPswInd mice of 10-11 months that exhibit moderate Abeta deposition. More extensive protein deposition in 20-22-month APPswe/PS1dE9 mice was also reduced by PADK treatment. A corresponding increase in the less pathogenic Abeta1-38 occurred as Abeta1-42 levels decreased in the two mouse models, indicating that lysosomal modulation leads to Abeta detoxification. Also associated with Abeta clearance was the elimination of behavioral and synaptic marker deficits evident in both mouse models. Correspondingly, behavioral deficits were also attenuated, producing performance scores similar to those of age-matched non-transgenic mice. These findings indicate that pharmacologically-controlled lysosomal modulation can effectively target intracellular Abeta, to influence extracellular Abeta deposition as well as offset the disruption of synaptic integrity and brain function. The selective modulation promotes clearance at different levels of Abeta pathology, and represents a novel strategy for treating AD and other disorders involving pathogenic accumulations.

## **Oral Presentations—Morning**

### 1. Development of a Spectroelectrochemical Assay for Serum Bilirubin

**Presenter(s):** Alexander, Megan

**Faculty Advisor:** Dr. Paul Flowers

**Discipline:** *Chemistry*

Bilirubin (BR) is the normal product of the catabolism of heme, found in the hemoglobin of erythrocytes and produced when erythrocytes undergo cell death. Bilirubin levels are a common clinical marker for various pathological conditions, including poor liver function in adults and jaundice in infants. Several clinical methods are available for the determination of BR in body fluids, most involving its reaction with one or more chemical reagents and subsequent measurement of the reaction product's optical absorbance. We are pursuing the development of an alternative method in which a specimen's optical absorbance is monitored as it is subjected to controlled-potential electrolysis, a measurement strategy known as spectroelectrochemistry (SEC). Such an approach could yield advantages relative to existing BR assays, including shorter analysis times, reduced costs, and less chemical waste. Preliminary results obtained via the SEC analysis of mock serum samples are promising and will be described, along with results regarding analysis in the presence of potential interferants. Future studies aimed at developing and evaluating a clinically-suitable assay will also be addressed.

### 2. The Band Gap of Liquid Water Based on the Dispersion of the Verdet Constant

**Presenter(s):** Hutcheson, Samantha  
Hamner, Stuart

**Faculty Advisor:** Dr. William Brandon  
Dr. Tom Dooling

**Discipline:** *Physics*

This report consists of a comprehensive review of all known measurements allowing a comparison of the band gap parameters of water semiempirically determined from the dispersion of the refractive index-normalized Verdet constant. Previous measurements and calculations are reviewed, including an analysis of data readily available and overlooked by previous researchers. In addition, a magneto-optical apparatus was constructed and an independent set of measurements of the Verdet constant in liquid water was obtained. Justification for this endeavor hinges on the methodology for achieving a high degree of precision in calibrating such an apparatus and the insight afforded to interpret and weigh accordingly the results of the preceding measurements.

## **Oral Presentations—Afternoon**

### 3. Screening *Photobacterium luminescens* for Antibacterial Properties Using a Modified Version of the Kirby-Bauer Method

**Presenter(s):** Inman III, Floyd L.

**Faculty Advisor:** Dr. Len Holmes

**Discipline:** *Chemistry*

The aim of this work was to observe and determine the antibacterial properties of the bacterial symbiont, *Photobacterium luminescens*. A modified version of the Kirby-Bauer method was used to screen this bacterium for antibacterial properties against a collection of 28 different bacteria. The collection of bacteria used contained bacterial species with different cellular morphologies and Gram stain reactions.

The measurements of the zones of sensitivity were used to observe and determine these antibacterial properties. The Kirby-Bauer method was used and slightly modified to achieve the aim of this work. The modification consisted of using blank, sterile disks that had been infused with a liquid culture of mid-log phased *P. luminescens*. From these 28 different species of bacteria, 11 bacterial species was determined to be sensitive to *P. luminescens*.

4. Aaron Stallworth

**Presenter(s):** Perez de Leon, Yanissa

**Faculty Advisor:** Dr. Scott Hicks

**Discipline:** *English*

Everyone has a story. With that said, I chose to submit and have had the opportunity to present a story. This is a personal narrative of an account that happened to me. Though death is a part of life, when it is something that someone has not closely dealt with, it can leave an impact. Thus, all I could do is write. This eclectic piece of writing is my first account upon hearing the news of a previous classmate who passed away.

## **Student Performance**

1. *Tru Tale* by Michael Nelmark

**Presenter(s):** Charlotte Cassidy  
Frabott, Nikki  
Jaenicke, Sean  
Lawson, Elisha  
Lee, Hamel  
Lightfoot, Jonathan  
Malloy, Jalessa  
Oviedo, Nina  
Oxendine, Kayla  
Posey, Joshua  
Vincent, Gail

**Faculty Advisor:** Mr. Hal Davis

**Discipline:** *Theatre*

This performance might be considered a "work in progress". It is play within a play of an original screen play. It would be a "world premier". The basic story inside the setting is a twisted fairy tale. The setting is a classroom rehearsal of a "staged reading" of the screen play in which the fairy tale is told. There are 12 actors.



## **PURC Council**

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