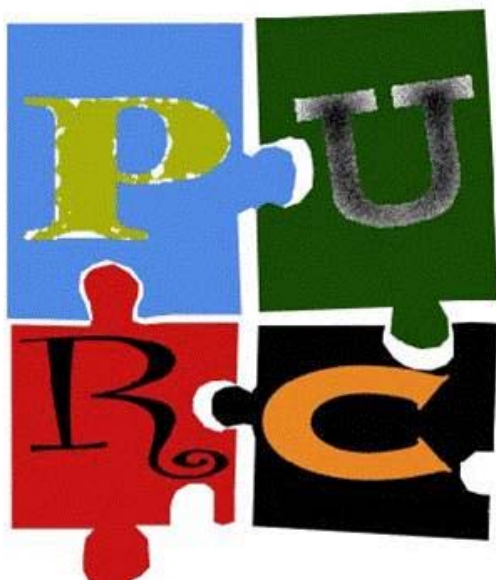


THIRD ANNUAL UNC-PEMBROKE UNDERGRADUATE RESEARCH AND CREATIVITY SYMPOSIUM



APRIL 6TH, 2009

*PROGRAM
WITH ABSTRACTS*



Pembroke Undergraduate Research and Creativity Center
One University Drive
Pembroke, NC 28372-1510
Phone: 910.521.6841
Fax: 910.521.6606

April 6, 2009

Dear Students and Colleagues,

The UNC Pembroke Undergraduate Research and Creativity Center cordially welcomes you to the Third Annual PURC Symposium, a campus-wide celebration of undergraduate research and creative endeavors. We are pleased to include 83 presentations of scholarly ventures by approximately 88 students and 38 faculty mentors, representing 12 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. 2008/09 marked the fourth year in a row in which students from our university have been selected to present at the National Conference on Undergraduate Research. During this academic year, at least 35 students presented research or creative works at state and national conferences. Please join us in acknowledging the accomplishments of UNCP students.

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 College of Arts and Sciences, the Office of Academic Affairs, Provost Harrington, and Chancellor Meadors. Thanks, also, to the representatives from NCSU Graduate School, Dr. David Shafer and Mr. Brett Locklear.

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
Assistant Professor of Geology

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

Pembroke Undergraduate Research and Creativity Symposium

April 6, 2009

Schedule of Events

9:00 – 9:10 Greetings

Chancellor Allen C. Meadors
Dr. Jesse Peters

9:10 – 9:55 Importance of Undergraduate Research and Creative endeavors when applying to Graduate School

Dr. David Shafer, Assistant Dean for Outreach and Diversity, NCSU Graduate
School
Mr. Brett A. Locklear, Director, Graduate Recruiting, NCSU Graduate School

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

11:15 – 12:30 – Oral Presentations

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|-------------|--|
| 11:15—11:30 | Building a High-Performance-Computing and Parallel Computing Environment
Everhart, Michael & Eidschun, Bradley |
| 11:30—11:45 | Bacterial Transformation as a tool for studying bioluminescence
Locklear, John |
| 11:45—12:00 | Down by the Ole Lumbee: An Investigation into the Origins and Uses of the Word
"Lumbee" Prior to 1952.
Locklear, Lawrence T. |
| 12:00—12:15 | Emerging Financial Centers: Structure and Prospects for the Future
Mathis, Michelle |
| 12:15—12:30 | The Determination of the Total Anthocyanin Content in Commercially Available
Bilberry Capsules Using pH-Differential Spectrophotometry
McClure, Rhonda |

12:45 – 2:00 – Afternoon Poster/Exhibit Session

Program Presenters

Dr. David Shafer



Dr. David Shafer is Assistant Dean for Outreach and Diversity in the Graduate School at North Carolina State University. He is responsible for oversight of fellowship and traineeship programs, graduate recruitment initiatives, and diversity programs. In addition, he organizes a number of professional development activities to prepare students for graduate school, and to help retain them once they are enrolled. Dr. Shafer serves as one of the Principal Investigators of the NSF AGEP program, entitled the North Carolina Alliance to Create Opportunity Through Education (OPT-ED). He also serves as co-PI of the NIH-funded Initiative for Maximizing Student Diversity (IMSD). Dr. Shafer began working with the Graduate School in 1990 after receiving his B.A. in political science at the University of North Carolina at Chapel Hill. Prior to his appointment as Assistant Dean in 2003, he served as Coordinator of the Colloquium on Issues in Graduate Education and

Director of Fellowship Programs. Dr. Shafer earned both a master's degree in political science (1993) and Ph.D. in public administration (2002) from North Carolina State University.

Mr. Brett Locklear



Brett A. Locklear is the Director of Graduate Recruiting in the Graduate School at North Carolina State University and holds an adjunct appointment in the College of Education, the Counselor Education Program. He earned a BA from UNC-Pembroke and a M.A. in Education Administration from NC State. His thesis, *“Generational Trauma, Anger and Cultural Invasion: Barriers to Access in Recruitment, Retention and Persistence for American Indian Students in Higher Education,”* has provided him the opportunity to present academic papers to institutions across the nation as well as national conferences addressing the Indian Education, tribal sovereignty, the political demolition of Indigenous nations, the psychological implications of mascots and stereotypes

amongst Native peoples, and the social climate of higher education and accessibility, just to name a few.

Mr. Locklear is one of the Founding Brothers of the Phi Sigma Nu Fraternity, Inc. established at UNC-Pembroke. The fraternal organization is the first American Indian Greek society recognized by an institution of higher learning in the nation. He currently serves as the Chief President to the National Council, which coincidentally, he helped establish. He is also a member of the Capital City Church of God where he serves as an Administrative Elder, co-directs the Voices of Praise Choir, sings with the Vocal Ensemble and is the lead singer for the Men’s Quartet.

PURCS Abstracts 2009

Poster / Exhibit Session—Morning Presenters

1. What catches your eye?: The role of physical attractiveness and intelligence in dating.

Presenter(s): Anderson, D. Ronnell
Brassard, Christi
Brassard, Kimberly
Oxendine, Courtney
Quizon, Rigoberto Maria

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Honor's College*

Previous research has documented that physical attractiveness influences the way a person is treated by others. This can influence how people perceive others in terms of personality characteristics, likeability, yearly income, competence, and even legal sentencing. Additional research has consistently documented that both men and women find the following aspects as important in a mate: pleasing disposition, mutual love and attraction, dependable character, and emotional stability and maturity. Furthermore, there are sex differences in preferred characteristics. For example, men rate physical attractiveness as very important while women rate financial resources as very important. The purpose of this experiment is to further investigate the factors men and women consider important when selecting a potential date. Specifically, the study manipulated the independent variables of physical attractiveness (below average/ average / above average) and intelligence (below average/ average / above average) on ratings of desirability. It is predicted that there will be an interaction between physical attractiveness and intelligence on ratings.

2. The Iraqi Financial System: Past, Present, and Promise of the Futures

Presenter(s): Bailey, Karen

Faculty Advisor: Dr. Rami Maysami

Discipline: *Business Administration*

Iraq has been the historic passageway between the Middle East, North Africa, and Europe, resulting in commercial viability of the country throughout the centuries and the vibrant trade and financial activities conducted there (albeit not recently, due to the above-mentioned issues). This paper begins by providing a review of Iraq's history as a commercial and financial center and quickly turns to a discussion of the current structure of its financial system. The Government of Iraq is struggling with "Dutch Disease" among other things. Having an oil-based economy has led to a neglect of non-oil sector growth and traditional industries in Iraq. Iraq has a highly based oil driven economy. The World Bank reported in September 2008, that the oil sector accounted for two-thirds of Iraq's GDP and over 98% of exports and the government's own revenues. Additionally, the International Monetary Fund reported as late as 2006 the economic activity in Iraq was dominated by cash transactions, and the banking system was largely inert. Few loans were being extended and the deposit base was not very active. We conclude by concentrating on what ought to be done, in the opinion of expert economics and finance scholars, and the ways and means of providing order to the country's seemingly non orderly financial markets. Iraq needs to develop international wire transfer capabilities set up an ATM debit/ credit card system and most importantly bank lending to enable their banking and financial system to

function in a modern global economy. Iraq must establish a strong financial and banking system that will support economic growth as they move toward a modern banking environment. As the violence drops the long-run health of the economy will be crucial in determining whether Iraq will be able to make the transition to a stable democracy. Moreover, the creation of a viable, efficient financial system will be key to the country's economic recovery.

3. Cloning and Characterization of the Amino Terminal 30% of Retinoid and Fatty Acid Binding Glycoprotein in Schneider's S2 Cells

Presenter(s): Bowman, Ashley

Faculty Advisor: Dr. Jeremy Sellers

Discipline: *Biology*

Our lab is interested in exploring insect lipid transporting genes and the lipoproteins they produce within *Drosophila melanogaster*, which serves as a model organism with certain analogous features to humans. We want to study insect lipid transporting genes in insects because several labs have demonstrated that components necessary for the synthesis and secretion of insect lipoproteins are similar to those necessary for production of low-density lipoproteins (LDL) in humans. This is of particular importance given that elevated LDL concentration in human plasma is known to lead to atherosclerosis and heart disease. It is our lab's intent to develop models for the exploration of lipoprotein biogenesis using *D. melanogaster* in expectation that our findings may contribute to our further understanding of human LDL production. At present, our interest centers on the production of insect apolipoprotein II/I, named retinoid and fatty acid binding glycoprotein (RFABG) in *D. melanogaster*. RFABG is a homolog of the major structural protein on human LDLs, apolipoprotein B, and is known to transport fatty acids to insect flight muscle during extended flights. As a result we have chosen to subclone an N-terminal portion of RFABG, which constitutes about 30% of the entire DNA sequence (RF30). Through sequential digests and purification procedures, our lab has successfully transferred the entire RF30 sequence into the insect expression vector, pRmHa-3. We have also appended a short, engineered sequence to RF30 that encodes the eight amino acid FLAG epitope tag and a termination codon. We now wish to explore the expression of this FLAG-tagged RF30 construct in Schneider's S2 cells to determine whether these cells are capable of producing lipoproteins.

4. Walking in Two Worlds

Presenter(s): Brayboy, Patricia

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

"Walking in two worlds" is a self portrait of a Native American by a Native American that asks the question: "Who am I?" through the use of digital arts tools and techniques. Instead of the traditional method of paint applied to canvas I have instead employed digital technologies to speak to a non-native audience. Key components in this artwork are digital photographs, scanned 3D objects, and original computer-generated graphic images. In making this work I have learned to bridge my two worlds by using digital technologies. Making "Walking in two worlds" has allowed me to exhibit my love of traditional and non-traditional art and to show how the the old and the new can work together to communicate about important cultural and personal issues. My artwork also clearly communicates that digital technology is the way of the future and can enhance the ways we make and perceive art and art forms. "Walking in Two Worlds" shows some of the possibilities of a digital arts approach. This piece also allows people to take a look at the my Native American culture.

5. Human Immune Complex Formation Rates in Reduced Gravity

Presenter(s): Bullard, Branyun
Henderson, Tamra
Godwin, Michelle
Walters, Lisa
Lindsey, Willis
Guyton, Lane

Faculty Advisor: Dr. Timothy Ritter

Discipline: *Chemistry/Physics*

NASA, as one of the leading aeronautical engineering facilities in the world, is widely known for their research in reduced gravity environments. Their experimental missions involve both human and non-human flights. Many of these missions require long periods of space travel by humans, which jeopardize their health in the long-term. For this reason, studies regarding humans in microgravity are of interest to the space agency in order to improve the astronauts' well-being while in space. One obvious concern with long term space travel is the health of the astronaut, which greatly depends on the ability of the human immune system to function properly. Our current project is investigating the effects of gravity on the human immune system. We have observed the rate of complex formation between antigens and antibodies as they are subjected to two different gravitational fields. The reaction used in our investigation is human immunoglobulin G (IgG) and anti-immunoglobulin G (A-IgG). In 1-g we measured the formation rate through the use of an ultraviolet spectrophotometer. These ground truth samples will be compared with the rates of reaction for the same complex formation in the gravitational fields of 0-g (weightlessness) and 1-g (ground truth). In order to reproduce these fields, the non-laboratory measurements were conducted onboard NASA's microgravity research aircraft during January 2009 as part of their highly competitive Reduced Gravity Student Flight Opportunities Program. It is our hypothesis that a reduced gravity environment will decrease the rate of complex formation and hence, reduce the efficiency of the immune system. The current status of this study will be presented.

6. Ceramic: Crystalline Glazes

Presenter(s): Cecil, Jordan

Faculty Advisor: Mr. Stephen Robinson

Discipline: *Art*

For the past year I have become interested in the unique style and technique of crystalline glazes. I have found this specific technique to be one of the world's most beautiful styles of art within the ceramic and fine arts world. Crystalline glazes are a combination of chemicals, mainly zinc and silica, which are dipped, poured, or painted onto a piece of porcelain. While the precise glaze recipes are necessary and important, the real technique comes from the demanding kiln schedule. When firing a crystalline piece the kiln temper must be raised to a little more than 2400 degrees Fahrenheit for six to eight hours. Once the temperature is consistent, the kiln is then crash cooled to somewhere between 2000 to 1800 degrees, then raised back up to 2400 degrees. This process is repeated several times to produce the crystals embedded inside the glazes. Each time the kiln temperature is crash cooled the crystals grow in size. Through my research I became fascinated with the work of a Phil Morgan. Phil Morgan is considered a grand master in the crystalline glaze method. Morgan has been practicing this skill for over 30 years and has helped Seagrove, NC establish its household pottery name across the United States. This research has inspired me to engage in this technique and share it with the general public.

7. Utilization of Cold Vapor Apparatus to Measure Mercury Concentrations in Fish Tissue

Presenter(s): Clark, Ashley

Faculty Advisor: Dr. Roland Stout

Discipline: *Chemistry*

In 1996, 14 of 26 samples of fish caught in the Lumber River by the NC Department of Environmental and Natural Resources had mercury levels above the EPA and/or FDA criteria. This is the basis for the fish consumption advisory that remains in effect for the Lumber River today. One could reasonably assume that fish purchased from stores would be lower in mercury. But is this true? We have tested catfish filets purchased from several local vendors. Using cold vapor atomic absorption techniques, we find that they contain from 0.02 to 1 ppm mercury, compared to the EPA criteria of 0.3 ppm and the FDA criteria of 1.0 ppm. At present we consider our results to be preliminary and are working to verify them with an independent measurement.

8. Exploring the Effects of Romantic Media on Individuals' Perceptions of Love

Presenter(s): Darden, Hannah

Faculty Advisor: Dr. Jamie Litty

Discipline: *Mass Communication*

The purpose of the study was to determine if romantic media influenced individual's perceptions of love. The study focused on the long-term, cumulative effects of romantic media and how it might alter or distort one's perceptions. Participants were given a survey to determine their current views of love as well their television viewing habits. The results should indicate that over time viewers who are exposed to romantic media more often than others will have more idealistic views of love.

9. Optical Chaos

Presenter(s): Davilla, Carla

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

Chaos can be defined as a state in which one's reality is out of control. "Optical Chaos" expresses the psychological underlying of my life, and at times, my emotional state. Represented as an optical illusion "Optical Chaos" displays bright colors against white background that gives the illusion of an explosion of shattered forms moving outward. The assignment from my Advanced Digital Art class required me to research images and the history of Optical Illusions. Within my research I discovered a tutorial that allowed me to create some abstract forms which I made in Adobe Photoshop CS2 by warping and duplicating several forms and layering them over one another. Each color flows right into the next color. The colored forms have jagged edges to represent the unsettled, yet chaotic moments in my life, but still have the softness of the events that remain in my control. A section in the digital art presents the literal/figurative darkness of chaos, while as the forms move outward the darkness recedes and becomes light. "Optical Chaos" is a metaphor for the illusion I present to others: being calm and organized, yet underneath things are not going well. Chaos has taken over. My life has been turned upside down.

10. Where in the world has Moses been since 2004?

Presenter(s): Dimmock, Edward

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

My artwork is a visual metaphor that shows the places I have traveled since graduating from high school in Africa in 2004. My depictions of this time period focus on geographical features on various continents. To show this I have used different types of airplanes that are visual indicators of where I have traveled. Inside of the planes I have placed NASA space shots of geographical features from the earth such as: Mount Kilimanjaro, the American Rockies mountains, parts of Southern Africa, and the Gobi desert. My artistic interest here was to put space-based geographical landscapes within a symbolic object. For the object I have chosen the form of an airplane because this vehicle is something I have regularly traveled on and enjoyed since I was very young.

11. Raw Image File to Refined Photo; Managing and Improving Output of a Digital Photo Using Photoshop CS2

Presenter(s): Dooling, Trisha

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

Camera manufacturers advertise the pixel count, user settings and other features as the means of capturing the perfect shot. Even so, digital photographers are often disappointed in their photos. In spite of this situation, once a photographic image is captured and then downloaded onto a computer, this raw file can still be refined in many significant ways. Using Adobe Photoshop CS2 software, utilized in a stepwise manner, I will refine and markedly improve the visual qualities of an image I have captured. Selected procedures, such as cropping, canvas rotation, adjusting levels, curves and saturation, layer styles will be systematically applied in order to predictably improve the visual impact of the photo.

12. Portugal: Two Sides of One Sea

Presenter(s): Etzkorn, Kendall

Faculty Advisor: Mr. Brandon Sanderson
Dr. Tulla Lightfoot

Discipline: *Art*

Through research of symbolism and intaglio techniques I am continuing the development of my body of artwork. Researching and utilizing techniques for creating an image on a copper plate (intaglio) combined with various printing techniques is essential to my image. To create this piece I experimented with the printing technique known as chine-colle, to test the effects of various papers and other materials on the final print. Chine-colle is a process of printing on a lightweight paper that will be attached to a heavier weight paper for stability. This process allows for variation on a single plate, as well the enhancement of space, movement and color.

13. Spectroscopy and Photometry of Comet C/2007 N3, Lulin

Presenter(s): Everhart, Michael
York, Jason

Faculty Advisor: Dr. Jose D'Arruda

Discipline: *Physics*

We will analyze the photometric and spectroscopic data taken from comet C/2007 N3 or as it is commonly known comet Lulin. This data will allow us to tell the composition, and distance of comet Lulin. The data is collected with our 8" Celestron telescope along with our SBIG ST10-XME CCD coupled with our Deep Sky Spectroscope (DSS); the data collected was analyzed from FITS images in Maxim DL as well as the software for the DSS. We will discuss the data gathered, as well as different software packages.

14. Reclining Nude in Soft Light

Presenter(s): Fisher, John

Faculty Advisor: Ms. Janet Hopper

Discipline: *Art*

The purpose of this figure study was to use an eraser to cut into the neutral gray background as a means of applying light. Dark areas of tone and lines were added to complete the three-dimensional effect. The result of this study is a clearly defined form that, for the most part, uses broad areas of different tones to indicate the shapes.

15. Study of Facial Structure Fragment

Presenter(s): Fisher, John

Faculty Advisor: Mr. Adam Walls

Discipline: *Art*

The intent of this study was to experience sculpting the area around the eye of a face. As the form emerged, I saw that ample material was there to shape something into the area above the brow, so I chose to carve an impression of a soldier's helmet so as to give the piece an ancient look. Upon completing it, I felt that I'd learned why sculptors often say they've "unlocked the figure from the material.

16. Exploring the benefit of using molecular models in the teaching of conformation analysis

Presenter(s): Jacobs, Glenn

Faculty Advisor: Dr. Rachel Smith
Dr. Brian Postek

Discipline: *Chemistry*

A research study was conducted to determine if physical models increase students' understanding of the concept of molecular conformation. The students in this study were randomly assigned to one of two groups. Group A took a pre-test on the material being presented and listened to a lecture on conformational analysis and 2D representations of conformers. They then participated in an activity which required them to interact with chemical molecular models to reinforce what they learned in the

lecture and then took a post-test to evaluate what was learned. Group B took the pre-test, listened to the lecture and then took the post-test without participating in the modeling exercise. Finally a survey was administered to both groups in order to determine their learning style and their perception of the difficulty of the subject being presented, as well as any benefit of using models to their understanding of the material. The difference in the pretest and post-test scores for each participant was used to examine whether or not Group A benefited from their interaction with tactile models. The surveys were used to categorize the participants based on the learning styles: visual, auditory, kinetics, or read/write. This allowed us to determine whether or not any correlation between learning styles and the benefits of using physical models existed. Preliminary data suggested that students gained no greater understanding of the concepts involved in conformational analysis from interacting with tactile models, but further research needs to be done to confirm this finding.

17. Personality and Gaming

Presenter(s): Guynn, Gabriel

Faculty Advisor: Dr. Kelly Chartlton

Discipline: *Psychology*

Though many prior studies have focused on how game playing affects behaviors outside the game, we predicted that there would be personality differences between gamers and those who don't play games. Ninety two Introductory Psychology course students (69 females and 20 males; 3 participants did not indicate their sex) participated for course credit. Of the 92 participants there were 26 gamers. Participants filled out several measures, including: 1) the Big Five (IPIP: Goldberg, et al., 2006) 2), The Venturesome Scale (Eysenck & Eysenck, 1978) and Sensation Seeking (Zuckerman, Eysenck, & Eysenck, 1978; Zuckerman, 2008). Additionally, they answered a variety of questions about their gaming habits. We found that gamers differed from non gamers on emotional stability and on thrill seeking behavior. It is striking that for many variables there was no difference between those who play computer games and those who do not. It is of note, however that our gaming population was relatively small and is possible that we didn't have the power to detect differences. It is also possible that we were unable to obtain a sample of gamers who spend more than casual amounts of time gaming. As such, future studies will address a larger population of game players.

18. Orange & Yellow

Presenter(s): Haupt, Kelli

Faculty Advisor: Ms. Janet Hopper

Discipline: *Art*

I have spent most of my time painting realistic flowers. For this particular painting I wanted to paint a flower in a spontaneous and abstract way.

19. My Sins

Presenter(s): Hobbs, Megan

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

Many artists create artwork thematically in order to develop a cohesive body of art. Themes often come directly from artists' lives. My art is a visual expression of my life and personality. Additionally, I am also

extremely interested historical periods such as Ancient Greece, the Roman Empire, Medieval Europe, Italian Renaissance, Elizabethan Era, Romantic Era, and Early America. I closely identify with so many aspects of these different times that I often combine them with my interests of the contemporary world such as fashion, tattoos and graffiti. Through studying art history I have become aware of and fascinated with artists' depictions of the seven deadly sins of Christianity: wrath, gluttony, lust, greed, pride, sloth and envy. In Medieval art, for example, sins have specific meanings, corresponding colors, and punishments in hell. My artwork is titled "My Sins" and was developed from my wondering, "What are my sins?" In order to identify my sins, I polled a group of my friends and asked them to estimate my behavior in terms of each of the seven sins, with their total estimate equaling hundred percent. Using this information I determined a ranking, and percentage, for each of "my" seven sins. I then created seven paintings corresponding to these sins. Watered down acrylic paint, applied in a downward dripping manner, was used to reflect the gloominess experienced when considering my sins.

20. Remarks on the photophysical properties of liquid water extracted from the dispersion of the refractive index-normalized Verdet constant

Presenter(s): Hutcheson, Samantha

Faculty Advisor: Dr. Bill Brandon

Discipline: *Physics*

Some previously reported values of band parameters associated with the photophysical and magneto-optical properties of liquid water are investigated. One set of these published parameters appears to be suspect. The band parameters in question are based on the measured dispersion of the refractive index-normalized Verdet constant and then calculated from a theory developed by Mort and Scher. For comparison, an analysis of data readily available in the International Critical tables and the Smithsonian tables apparently overlooked, until now, is also presented. Finally, a highly accurate automated Faraday rotation apparatus was built and then used to supplement these existing measurements of Faraday Rotation of liquid water. Therefore a comprehensive report on the dispersion of refractive index-normalized Verdet constant of liquid water and what may be ascertained from all known data is presented.

21. Transmittance and Luminescence Measurements Using a Microspectrometer

Presenter(s): Iluku, Cilia

Faculty Advisor: Dr. Paul Flowers

Discipline: *Chemistry*

Continuing work in the authors' laboratory has been directed towards the development of apparatus and methodology enable the simultaneous spectroscopic and electrochemical examination of microscopic samples. Analytical tools utilizing these "spectroelectrochemical" (SEC) measurements could be useful for numerous applications, ranging from analyses in which only small amounts of sample are available, such as the forensic investigation of trace evidence, to those requiring the interrogation of discrete volumes within an intact sample, such as the characterization of interstitial regions of a biological tissue. Towards this objective, a microspectrophotometer was assembled from a standard optical microscope, a miniature CCD spectrometer, and a high-intensity tungsten-halogen light source. The use of this instrument in measuring the spectral properties of microliter-sized samples was investigated on a SEC cell, including the effects of sample volume and geometry on the transmittance and luminescence signals. Support of this research by the UNCP Chemistry & Physics Department is gratefully acknowledged.

22. Alice's Wonderful Lands

Presenter(s): Inderbitzen, Daniel

Faculty Advisor: Dr. Susan Cannata

Discipline: *English*

Alice from Lewis Carroll's *Alice's Adventures in Wonderland* and *Through the Looking-Glass* faces many similar problems in both of her adventures. From repeating scenery such as lush gardens or just the fact that nothing is what it seems in either of these worlds, Alice quickly begins to understand the workings of both Wonderland and the land behind the looking-glass as worlds that operate with different rules than that of the real world (Empson 344). Two different worlds that still act as mad as the other, it is no wonder Alice could get so easily confused throughout each story. However, even though these two magical worlds do both encounter Alice, they still differ on many things. The many characters of Wonderland operate under a law of madness and disorder, their world molded to fit that of a card. However, the common theme of adult characters selfishly getting all that they want is still present, "They began when they like, and left off when they liked. At the end of the race everyone has won and all must have prizes" (Henkle 357). A third difference between the two stories is the setting, which is also representative of Alice's character, "Wonderland is set in a spring afternoon, Looking-Glass takes place in midwinter. The first books golden aura now seems only the yellowing age." (Henkle 362). Alice's age is discussed later in *Looking-Glass* by both the flowers in the garden and Humpty-Dumpty. Queens obviously play an important roll in both novels acting as "the explicit authority figures" (Polhemus 366) in each world. These subtle hints towards Alice's growing up repeat through each story, the contrasting parts forming the evidence that as both stories progress Alice matures not just physically, but also mentally.

23. Study of female head

Presenter(s): Johnson, Candice

Faculty Advisor: Ms. Janet Hopper

Discipline: *Art*

This piece is a study of a female head. I was using a live model to draw from. This did not require preliminary research but a lot of observation. I wanted to illustrate the form and create a background using the elements and principles of art.

24. Applying Research in Art

Presenter(s): Johnson, Candice

Faculty Advisor: Mr. Brandon Sanderson

Discipline: *Art*

My piece, "Easy for Who?," is a visual illustration of my feelings regarding animal testing for the cosmetic industry. My research leads to several photos of actual animal test-subjects. I chose a rabbit who was subject to an eye irritation test. I morphed the fluid leaking from its eye into mascara to show the irony of how some eye makeup is the direct result of the destruction of another creature's eye. The use of the Cover Girl slogan restates the irony of trying to produce beauty out of the ashes of ugliness.

25. Geriatric Figure

Presenter(s): Johnson, Candice

Faculty Advisor: Mr. Adam Walls

Discipline: *Art*

I wanted to create a form that illustrates a human figure in a submissive pose. This reflects how as people we have no choice but to submit to time and age. I wanted to create a surface texture that would remind the viewer of an elderly person's skin. There is a clock on each side of the figure's ribcage to symbolize how our biological clock's are always on our minds.

26. The Conundrum of Children's Literature

Presenter(s): Kerr, Jacqueline

Faculty Advisor: Dr. Susan Cannata

Discipline: *English*

Markus Zusak's *The Book Thief* is hailed by many critics as a successful crossover novel for appealing to both teenagers and adults. The New York Times literary critic Janet Maslin describes the book as "perched on the cusp between grown-up and young-adult fiction." In fact, not only is *The Book Thief* "loaded with librarian appeal," Maslin says, "[i]t may [also] encourage adolescents to read." This idea of a dual readership has generated a range of critical reactions that author Rachel Falconer describes as "a cacophonous mixture of outrage, disgust, defensiveness, and conspiratorial solidarity." Falconer claims that the rising success of the crossover novel has "made people acutely aware of the lack of consensus about what constituted appropriate reading for children as opposed to adults, and by extension, about the difficulty of maintaining traditional distinctions between childhood and adulthood." Falconer's assertion echoes a long-standing debate among literary scholars regarding the dilemma of labeling a category "children's literature" or "young adult literature." Critics such as Jacqueline Rose and Karen Lesnik-Oberstein see this categorization as a conundrum, citing the very people who are doing the defining as the crux of the problem. Literature for children is defined not by children themselves, but by adults who attempt to construct the child in order to categorize the child. Publishers of children's and young adult fiction engage in this process so as to determine age-appropriate reading material; yet, because these categories are contrived, complications arise. Such is the case with Zusak's *The Book Thief*, in which sophisticated literary techniques are paired with the classic Bildungsroman to create what Jonathan Hunt refers to as "literature in every sense of the word." As a result, *The Book Thief* indeed lies on the "cusp" of adult and young adult fiction, confounding these categories and calling into question their very natures.

27. Production of Biodiesel from Soybean Oil by Transesterification through Continuous Enzymatic Method

Presenter(s): Leviner, Eric
Jupiter, Jonathan

Faculty Advisor: Dr. Siva Mandjiny
Dr. Tom Dooling
Dr. Cornelia Tirla

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 10hrs at 40°C with 6:1 molar ratio of methyl acetate to soybean oil. Also in this work a technique was developed to determine the conversion of oil to biodiesel by calorific value method. The enzyme

activity was monitored over a period of one month and it was observed that there was no significant loss in activity. The advantages 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.

28. Sonication-Driven Transesterification Reaction for the Production of Biodiesel

Presenter(s): Locklear, Sarah

Faculty Advisor: Dr. Siva Mandjiny
Dr. Cornelia Tirla

Discipline: *Chemistry*

There is an immediate need to develop the technology for the efficient production of alternative fuel sources. Biodiesel production has been shown to be a partial solution to the worldwide energy shortage. Presently biodiesel is being produced via transesterification reaction of waste vegetable oil in a conventional batch process using potassium hydroxide as a catalyst. This present work has demonstrated that the transesterification reaction can be driven by sonication without any addition of heat. Results show that the time of the reaction is reduced significantly compared to the conventional method. Also in this work, a new technique was developed to determine the rate of conversion of waste vegetable oil to biodiesel by the calorific value method. This method determines the optimal reaction time thus potentially improving production efficiency.

29. Fluidity

Presenter(s): Locklear, Sonney

Faculty Advisor: Mr. Adam Walls

Discipline: *Art*

For my presentation, I chose an abstract piece which incorporates two medias. What I really wanted was a visual illustration of motion with an immobile object. At the same time I wanted to treat the surface in such a way so as to maximize light reflection around an abstract piece.

30. Influence of Cosmetic Treatments on the Stability of Dextromethorphan

Presenter(s): Lowery, Iner

Faculty Advisor: Dr. Meredith Storms

Discipline: *Chemistry*

The influence of commercially available cosmetic treatments on the stability of dextromethorphan was studied by incubating the drug with a bleaching product and hair dye at room temperature. HPLC was employed to determine the concentration of dextromethorphan using a phenyl column (4.6 x 150 mm) with a mobile phase of 80:20% 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. Forced degradation studies have been carried out on dextromethorphan by exposure to heat and hydrogen peroxide for different time periods to identify potential degradation peaks in an effort to develop a stability-indicating HPLC assay.

31. Trying to Understand the Dead

Presenter(s): Mathews, La`eeqa

Faculty Advisor: Dr. Nathan Phillipi

Discipline: *Geology and Geography*

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. Vessel

Presenter(s): Mature, Sheena

Faculty Advisor: Mr. Stephen Robinson

Discipline: *Art*

This piece was influenced by an ancient Japanese culture called the Jomon. The Jomon period was from 14000-4000 BCE. The piece was coil built and was fired in a wood fire kiln.

33. Comparison of the Cytotoxicity of Anthocyanin on Tumor Cells versus Normal Cells

Presenter(s): McClure, Rhonda

Faculty Advisor: Dr. Meredith Storms
Ms. Liberty Carroll

Discipline: *Chemistry/Biology*

Unfortunately, the number of deaths from cancer is not declining, and on the contrary is rising considerably. In fact, as of 2008, 22.8% of all deaths in the US resulted from cancer. Patients with cancer commonly try a variety of nontraditional treatments that fit the broad category known as Complementary and Alternative Medicine (CAM). These treatments often include dietary supplements with antioxidant effects such as vitamins, mineral, phytonutrients, and other natural products. Recent research shows promising results for the use of antioxidants in the treatment of cancer; therefore, the purpose of this research is to study the effect of a specific antioxidant, anthocyanin, on the viability of cancer cells as opposed to normal healthy cells. This is very exciting research not only because of its relevance to cancer, but also because of the fact that mammalian cell research has never been conducted successfully at UNCP.

34. The Distribution of Freshwater Shrimp in the Lumber River

Presenter(s): McMillan, Andrew
Watkins, Wayne

Faculty Advisor: Dr. Patricia Sellers

Discipline: *Biology*

The occurrence of freshwater shrimp in the Lumber River has been recorded by state authorities. Their occurrence, however, is not widely known to people who use or fish in the River. Nor has it been documented in the scientific literature. We collected two species of the genus *Palaemonetes* in the Spring of 2009. Our data show that *P. paludosus* and *P. kadiakensis* co-exist at several sites in the Lumber River. Decapod experts consider this co-existence to be highly unlikely. A distribution map of the shrimp for the Lumber River, along with images and other displays will be presented.

35. Two-Dimensional J-Resolved NMR Spectroscopy of Cobalt (III) Complexes Containing Tetradentate and Bidentate Ligands

Presenter(s): McMillan, Mary

Faculty Advisor: Dr. Mark McClure

Discipline: *Chemistry*

Two-Dimensional J-resolved NMR spectroscopy was used to study the complexes $[\text{Co}(\text{tren})(\text{phen})]\text{Cl}_3$ and $[\text{Co}(\text{trien})(\text{phen})]\text{Cl}_3$. The abbreviation tren represents the compound tris(2-aminoethyl)amine, the abbreviation phen represents the compound 1,10-phenanthroline, and the abbreviation trien represents the compound triethylenetetramine. It was possible to break down and assign the peaks arising from the 1,10-phenanthroline in both complexes. However, there was still overlap in the aliphatic region of the spectra, making assignments more difficult.

36. Sampling and Analytical Variability Associated with the Determination of the Total Anthocyanin Content in Bilberry Capsules

Presenter(s): Moore, Kimberly
McClure, Rhonda

Faculty Advisor: Dr. Meredith Storms

Discipline: *Chemistry*

Anthocyanins are the active component in several herbal supplements such as bilberry (*Vaccinium myrtillus*), which was used in the 12th century to induce menstruation and during World War II to improve night vision. Currently bilberry is generally regarded as a safe treatment for diarrhea, varicose veins, venous insufficiency, and other circulatory problems; however, high doses of bilberry leaf or extract are considered unsafe due to possible toxic side effects. Despite the label claim that the product is "standardized," previous studies indicate a noteworthy variation in the total anthocyanin content among different capsules. To assess the within capsule variability, the spectrophotometry method will be employed to determine the total anthocyanin content in aliquots of the powdered bilberry extract from individual capsules.

37. Critical Readings of Peter Pan

Presenter(s): Navarrete, Noemi

Faculty Advisor: Dr. Susan Cannata

Discipline: *English*

It is interesting to see, that there are many perceptions and approaches that can take place when regarding a particular work of literature; from feminist theories, to those of Marxism, we are able to see a variety take place when regarding literary works. But most often than not, we are accustomed to hearing and reading up on critical approaches that analyze and break down a work that is directed towards an adult audience, or more importantly appreciated by an adult audience. However, it is in J.M. Barrie's Peter Pan, a novel that fits into the children's literature genre that we explore the theories that many critics have applied in effort to understand this complex children's novel. Although, numerous approaches have been applied by many theorists in trying to figure out the symbolic themes that Barrie incorporated into his novel; there are two in particular that we will be identifying and delving into. We will be analyzing the feminist part of the novel that becomes present in the characters of Wendy and Tinker-Bell, as well as approaching the idea of "The Other", that takes place in the main character of Peter Pan (this theme being the one that deals with the whole concept of preserving the idea of "childhood" forever and rejecting the whole concept of adulthood; clearly differentiating between the two significant ideas of being an "Adult" or a "child"). In both theories we will see various perspectives that critics have developed in trying to understand the main characters of the novel and the significant roles that they play in the story. Ultimately, it will be evident that there is much more to a children's novel than just the entertainment provided by an adventure story and the lively characters it contains.

38. Crime on Campus: Priming Words In Students

Presenter(s): Niccum, Kelly

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Psychology*

For this study I will be using the concept of priming and crime on campus. It will be a between design study using a control group and an experimental group. The subjects will be randomly designed to the two groups, and they will be working on word searches. The word searches will have 5 words that are different than each other, and 5 words that are the same. One group will have words that are negative and having to do with crime, while the control group will do a word search with neutral words. At the conclusion of the word search, each group will be given a survey about crime on campus. The purpose of the study is to see if the negatively primed subjects will rate the campus as having more crime than the subjects primed with neutral words.

39. Would you see a psychologist?: Inappropriate portrayals of psychologist in the media

Presenter(s): Niccum, Kelly

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Psychology*

This poster will discuss what consumers of media learn about psychologists through television portrayals. Specifically, I will highlight four commonly depicted inappropriate behaviors engaged in by psychologists on television (breaking boundaries, sexual relations with clients, physical assault, and violating confidentiality) and discuss why these are of concern to the field.

40. NASA's Constellation Program: Preparing for the Psychological Challenges

Presenter(s): Niccum, Kelly

Faculty Advisor: Dr. John Raacke

Discipline: *Psychology*

This project will explore the environmental extremes that come with living and traveling in outer space. Specifically, I will be discussing the psychological challenges that will come with the development of a moon station and a manned trip to Mars as part of the NASA Constellation Projects. I will be including not only how this extreme environment impacts a person's abilities but also ways to minimize the effects of any unforeseen psychological challenges. First, I will start with a description of the moon and Mars; including information regarding size, distance, rotation, temperature, etc. Second, I will discuss the cognitive and physiological factors that will be affected by people living and traveling in and to these two environments. In particular, I will discuss the effects of isolation, training, decision-making, and stress on people's ability to navigate these environments. Finally, I will end the project with suggestions on how to overcome these environments and keep the aforementioned impacts to a minimum. Specifically, I plan to discuss issues in regards to adequate training, decision-making drills, and training in isolation.

41. Sorority Boys and Summer Catch: Exploring college student portrayals in the media

Presenter(s): Niccum, Kelly
Jorge Piocuda

Faculty Advisor: Dr. John Raacke

Discipline: *Psychology*

Previous research has noted that college students are negatively portrayed in the media. For example, college students are often portrayed as spending limited time in class activities. However, in actuality, most college students spend 15 to 18 hours per week in class plus additional time spent studying in the evening and on weekends. Another negative portrayal often depicted is that college students engage in excessive partying and drinking behaviors. Again, this is not necessarily an accurate depiction of all college students. In this poster, we conducted a content analysis of the popular movies Sorority Boys and Summer Catch to find the positive and negative portrayals of college students depicted in each. The stereotypical portrayals we found were parallel with the previous research in terms of little time in an academic setting and excessive time partying. In addition, we also found stereotypical portrayals related to frequency of sex and maturity level. The non-stereotypical portrayals found in this project include being independent, intelligence, and different standards. Results are discussed in light of how these portrayals may influence public opinion of college students.

42. Dora the Explorer: Exploring the Positive and Negative Effects of Children's Programming

Presenter(s): Osinski, Kyra

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Psychology*

For this poster, we will discuss the effects of children's programming. Today's children have plenty of television geared specifically for them, found on stations such as Nickelodeon and the Disney Channel. Younger children may view Nick Jr. or Playhouse Disney in the morning, while programs for older children are shown in the afternoon and evening. Most programs for young children are educational, especially those shown on Noggin, which claims to be "like preschool on TV" and accompanies each

show with an explanation of its benefits. The prevalence of this could be a result of 1990s lawmaking that required educational programming to be aired at least three hours a week. Its effects on young viewers include a decrease in the creative process because imaginative storylines replace the viewer's own imagination. For young teenagers, most of their programming involves fantastical plots involving secret rock stars and web show stars. Controversy has resulted from the antics of the actors, including teenage pregnancy. This poster will review research documenting the positive and negative effects of children's television programming. The poster also contains a content analysis of popular children's television shows and concludes with suggestions for parental involvement.

43. The relationship between religiousness and attitudes toward elderly sexuality

Presenter(s): Osinski, Kyra

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

Discipline: *Psychology*

This poster discusses a study examining the relationship between college students' view of elderly sexual practices and their religious convictions. Results showed that participants held relatively permissive attitudes toward elderly sexuality and were knowledgeable on the issue. However, deeper religiosity was correlated with a less permissive attitude.

44. Gender Stereotypes in Disney Movies: Are you a Prince or a Princess?

Presenter(s): Osinski, Kyra
Jorge Piocuda
Kelly Niccum

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Psychology*

In this poster, we will discuss and analyze the occurrence of gender stereotypical and non-gender stereotypical portrayals in Walt Disney films. The following movies were viewed: "Aladdin," "The Emperor's New Groove," "Peter Pan," and "The Little Mermaid." While viewing the films, each group member was asked to recognize these stereotypes. Gender stereotypes included gender roles, male and female body image, the contrast between the strong male and the weak female, and the concept of same-sex friendships. Non-gender stereotypes included male-female friendships, the misconception of the male attitude, and dominant women. After distinguishing the stereotypes, we found that many of them occurred in each of the four films, even though they had separate plots. In a study conducted by Towbin et. al. (2003), findings suggested that gender as well as cultural and racial stereotypes have been persistent in Disney movies over time. This suggests that gender stereotypes are prevalent in the media, specifically Disney films. By combining previous research and our observations, we plan to emphasize the occurrence of gender portrayals in Disney movies and discuss the possible consequences on children of such portrayals.

45. Constructions of Innocence in His Dark Materials

Presenter(s): Pack, Sara

Faculty Advisor: Dr. Susan Cannata

Discipline: *English*

The concept of childhood innocence, the point at which it is lost, and the possibility of its reclamation, have been topics of debate for centuries. For author Philip Pullman, the construction of innocence in His

Dark Materials often complicates some previously held assumptions about what it means to be “innocent.” Pullman’s work suggests that a child possessing the knowledge of good and evil, responsibility, and death, or other “adult” qualities, may still remain innocent under certain circumstances. My research highlights both the similarities and contrasts between Pullman’s construction of innocence and those of additional authors/critics. Pullman maintains that although innocence can never be regained through grace, it can be partially restored through dedicated effort on the part of the adult. He also challenges a more contemporary audience to rethink their notions of childhood by expanding on a child’s transition into experience. Pullman focuses heavily on the role of sexuality in a child’s transformation into adulthood, suggesting that sexual realization could be the defining factor in the death of innocence, as well as an indicator of one’s inevitable evolution into experience. After careful evaluation of *His Dark Materials*, it is clear that Pullman’s construction of childhood redefines innocence in a distinctive way, deserving of closer examination.

46. Offshore Banking: Motivations, Structure, and Consequences for the American Financial system

Presenter(s): Peele, James

Faculty Advisor: Dr. Ramin Maysami

Discipline: *Business Administration*

Offshore banking has served wealthy individuals for decades. From the traditional money safe havens such as Switzerland, to the Caribbean paradise islands of Cayman, and the British Commonwealths such as the Isle of Man, fund management targeted to American and European expatriates has been a profitable business. So much so that these tiny, obscure countries have transformed into financial behemoths that rival even the largest in the world. Often looked upon as a tool for those engaged in drug smuggling and money laundering or tax evasion, these money centers pride themselves in the strict confidentiality they provide their customers and the secrecy in which financial transactions may safely be conducted. Though not extremely recent, an example of this is seen in 2001 where reports indicated that the United States alone lost more than \$70 billion in tax revenues due to investment abroad. Today the activities of such offshore money centers reaches beyond the expatriate population and targets Americans on the mainland as well. Financial sophistication of the American consumer, be it the middle-class or more affluent, provides an attractive opportunity for investors. Why save at home when returns are higher elsewhere and the safety and confidentiality offered surpasses domestic financial institutions? The first part of this paper examines the motivation for using the services of offshore financial institutions in money safe havens. Next, the paper provides examples of the structure of money centers. These include the Isle of Man, the Cayman Islands, and Switzerland. Emerging centers such as Dubai and the Labuan in East Asia will be introduced as well. Finally, such consequences as stricter oversight and other regulatory measures, including effects of the Patriot Act, will be discussed as they have come about due to the enormous popularity of these offshore havens. The paper will conclude with recommendations based on a thorough integration of the literature.

47. Games as a Learning Environment: A Self-Study

Presenter(s): Piocuda, Jorge

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Psychology*

To begin, I reviewed literature on the effects of playing video games. Next, I tested my own behavior by systematically varying the type of video game that I played (e.g., violent/nonviolent) and recording physiological responses before and after play (e.g., blood pressure). Results are compared to previous findings.

48. Using LiDAR to Survey the Distribution of Carolina Bays in Robeson County, North Carolina

Presenter(s): Post, Sidney

Faculty Advisor: Dr. Lee Phillips
Dr. Nathan Phillippi

Discipline: *Geology and Geography*

Carolina Bays are a dominant geomorphic feature on the Atlantic Coastal Plain. Robeson County is situated along the border between North and South Carolina, where the abundance of Carolina Bays is especially great. Early counts of Carolina Bays in Robeson County near 9,000 and are based on visual inspection of aerial photographs included in the 1978 Soil Survey. A preliminary comparison of counts based on visual assessment of LiDAR (Light Detection and Ranging) and IR (Infrared) data indicates actual occurrences may be 90% greater. Furthermore, larger and better delineated Carolina Bays are concentrated on the higher ground, while less defined (ghost) depressions dominate the lower landscapes and very few have been identified on the terraces adjacent to the Lumber River.

49. Acquaintance Robbery: Regional, Racial, and Gender Differences

Presenter(s): Quales, Matthew

Faculty Advisor: Dr. Timothy Hayes

Discipline: *Sociology & Criminal Justice*

The South has long been regarded as a region marked by violent crime. This is especially evident given recent Uniform Crime Report data citing the Southern region of the United States with the highest rates of homicide and robbery. While recent literature on robbery recognizes that a substantial proportion of robberies are between acquaintances (see Felson et al 2000) and that some of the primary motivations for robbery include vengeance and dispute resolution (see Jacobs, 2000; and Topalli, Wright and Fornango, 2002), a literature review finds no articles linking robbery with arguments centering on a subculture of violence in the South. This research attempts to fill a perceived gap in the literature by examining regional, racial and gender differences in rates of acquaintance robbery using data from the National Incident-Based Reporting System (NIBRS). Limitations and avenues for future research will also be presented.

50. Mutational Analysis of a Histone Variant: htz1Rpb2-2

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 htz1Rpb2-2 double mutant, which should help us identify the specific defect of this mutant. The identity of these genes should indicate if the defect of htz1Rpb2-2 is at an early or late step in the transcription process.

51. Using Supplemental Instruction Methods to Improve Student Performance in Supplemental Instruction Courses

Presenter(s): Rodgers, Angela

Faculty Advisor: Dr. Timothy Hayes

Discipline: *Sociology & Criminal Justice*

Supplemental Instruction is designed to target traditionally difficult academic subjects and provides regularly scheduled, out of class, peer facilitated review sessions. This presentation will discuss using Supplemental Instruction methods in Introduction to Sociology, including the content of the SI review sessions. The presentation will also provide data on the efficacy of the program for Introduction to Sociology by examining differences in exam scores between those students that regularly attend SI sessions and those that do not participate in the program. In addition, variation in student participation and methods to improve student engagement will also be discussed.

52. Takin' it to the Streets

Presenter(s): Schmidt, Tiffany
Piocuda, Jorge
Sweeney, Thomas Grey

Faculty Advisor: Dr. Kim Gunter
Dr. Jesse Peters

Discipline: *Honors College*

Marilyn J. Valentino asks in her call for the 2009 Conference on College Composition and Communication (CCCC) which pedagogies work best for justice issues and with new and emerging contact zones. She asks how we can encourage students and new teachers to make waves and what are the dangerous undertows we face. Myopia is an ever-present danger for all of academia, first year composition (FYC) included, and to combat this hazard urges for FYC a pedagogy that requires students to take to the streets. In this course, focusing on the U.S. death penalty, students left the insular walls of the classroom and instead walked the hall of North Carolina's Central Prison and its death row. Students read journal articles but also interviewed parole officers, prison psychologists, and district attorneys. Students took field trips to hear Sister Helen Prejean (Dead Man Walking) speak and attended campus lectures of visiting death penalty activists and local politicians. Academic writing, then, came alive for these students as they transformed into scholars who went on to present their research at academic conferences. Radical pedagogies can be supported by administrative vision and thus empower students to make knowledge for themselves and to make writing their own.

53. Characterization of *Drosophila melanogaster* gene CG15828: A novel lipid transporting gene?

Presenter(s): Simmons, Ellen

Faculty Advisor: Dr. Jeremy Sellers

Discipline: *Biology*

Our lab is exploring lipid transport systems in *Drosophila melanogaster*. Previously, we identified and characterized a factor in insects that was originally thought to be exclusively involved in the production of mammalian atherosclerotic lipoproteins: the microsomal triglyceride transfer protein (MTP). While the role of MTP in insect lipid transport is actively being defined, it has been demonstrated to function in the biogenesis of apolipoprotein II/I containing lipoproteins, is suggested to act in vitellogenesis, and may act on other insect specific substrates. To this end, we reviewed the *Drosophila* genome for candidate lipid transfer genes and through our searches have revealed an uncharacterized gene in the fly genome.

This gene, CG15828, is predicted to encode a protein that has properties similar to other lipid transporting proteins as well as some potential differences. Previously, our lab began characterizing expression of CG15828 by a gene specific reverse transcription polymerase chain reaction (RT-PCR). However, when the DNA sequences of these products were compared to the predicted mRNA sequence in the database, we identified several notable discrepancies. In particular, at least one of the exon/intron splice boundaries that should encode the extreme amino terminus of the CG15828 polypeptide appears to be incorrectly predicted. As such, we have continued our investigation of this gene to determine the correct CG15828 mRNA sequence by amplifying portions of it by RT-PCR and sequencing the products. As we continue to explore the function of this gene, its similarities to human lipid transporting genes may provide insights into the biosynthesis of lipoproteins that could elucidate new pharmaceutical targets. Alternatively, exploration of the specificity of CG15828 to insect lipid transport may reveal innovative means for insecticide development and thus the control of pest insect species.

54. Professor Disclosure and Student Evaluation

Presenter(s): Singer, Taylor

Faculty Advisor: Dr. Kelly Charlton

Discipline: *Psychology*

Past research has revealed that disclosure between a professor and student within an academic setting can influence a student's evaluation of the professor (Klinger & O'Flaherty, 1989). The current study attempts to illustrate the collaborative effects of intimacy and disclosure on a student's evaluation of the professor. One hundred ten undergraduate students read about a male or female professor who disclosed either health or personal information that was either high or low intimacy and then rated the professor on 22 semantic differential trait evaluations. In general we found that differences in overall evaluations existed for a professor who disclosed health information versus personal information. Further these differences were moderated sex of the professor and intimacy level of the disclosure. We found additional and somewhat similar effects for social and emotional balance evaluations. The results indicate that, at least in some cases, student evaluations are affected by the sex of the professor and their type of disclosure. These findings do have implications for the kinds and depth of personal information professors choose to disclose in the classroom.

55. Fabrication and Characterization of an Electrochemical Cell for Microscopic Samples

Presenter(s): Strickland, Jordan

Faculty Advisor: Dr. Paul Flowers

Discipline: *Chemistry*

Continuing work in the authors' laboratory is directed towards the development of apparatus and methodology permitting the simultaneous spectroscopic and electrochemical examination of microscopic samples. Analytical tools employing these "spectroelectrochemical" (SEC) measurements could be useful for numerous applications, ranging from analyses in which only small amounts of sample are available, such as the forensic investigation of trace evidence, to those requiring the interrogation of discrete volumes within an intact sample, such as the characterization of interstitial regions of a biological tissue. In pursuit of this goal, an SEC cell was fabricated on a standard glass microscope slide platform by imbedding platinum wire auxiliary and silver/silver chloride reference electrodes in a thin Nafion film mounted on the slide, with a separate platinum wire serving as the working electrode. The electrochemical performance of the cell was evaluated via the analysis of microliter-sized drops of aqueous ferricyanide. Results of various electrochemical measurements indicate the micro-SEC cell is effective in permitting the selective electrolysis of small samples. Support of this research by the UNCP

RISE Program, funded by the National Institutes of Health, and the UNCP Chemistry & Physics Department is gratefully acknowledged.

56. Tutors as Negotiators: Negotiating the Crossroads of Academic Tradition and Student Innovation.

Presenter(s): Sweeney, Grey
Wilson, Craig

Faculty Advisor: Ms. Teagan Decker

Discipline: *English*

As tutors, we find ourselves at the intersections of instructor expectations (often mysterious), assignment prompts (sometimes inscrutable), and student attitudes toward writing (always complex). These intersections are busy ones and can serve as sites of productivity or sites of collision. What should we do, for instance, when a writing assignment appears to ask for a formulaic response but the student brings a creative, innovatively written draft? How do we work with a student who is reluctant to make any changes to a draft due to fear of violating perceived instructor expectations? How do we negotiate instructor expectations, student goals, disciplinary conventions and our own attitudes toward academic writing? For this research project, a group of writing center staff (two undergraduate tutors, one graduate student tutor, and one director) have collaborated to conduct student surveys, student testimonials, and instructor interviews. This research consists of background from composition and writing center theory, anecdotes from UNC-Pembroke's writing center staff, and a survey assessing professor's opinions and attitudes, and student responses toward composition classes. This research offers insight to peer tutors and instructors that allows them to better assist students in their writing processes.

57. Anne Bonny: Queen of the High Seas

Presenter(s): Swinton, Amanda

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Honors College*

Born in Ireland and moved to Charleston, South Carolina in the eighteenth century, Anne Bonny used her low social status to her advantage. Born illegitimately it was easy for Bonny to give up the mundane duties of a wife and daughter to roam the seas. While she never commanded her own ship, Bonny was an anomaly for the fact that she etched out a life for herself as a female pirate, looting and fighting as well as any man. I will explore why this complex woman was such a rarity in the eighteenth century in the social and economic terms that defined the respectable from the unacceptable.

58. Art Teacher Needs

Presenter(s): Thompson, Scotty

Faculty Advisor: Dr. Tulla Lightfoot

Discipline: *Art Education*

The art teacher needs adequate supplies, the art teacher needs to let the other teachers know about art curriculum, and North Carolina Standard Course of Study, the art teacher needs to make an effort to talk to other teachers and see if they can link curriculum or integrate subjects together so that students studying a topic or subject in one class can study it further in art class, the art teacher needs to exhibit student art around the school, the art teacher needs to exhibit his or her own artwork to let other

teachers know that he or she is keeping up with her or his field and is a professional artist, the art teacher needs to have a good relationship with parents—they can help with supplies and can help gain support from administrators.

59. A New Me

Presenter(s): Torres II, David

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

At times in our lives we all wish we could just “turn over a new leaf” and become something or someone completely different. With “A New Me” I have transformed myself using that concept. I began using nature itself in this assigned project in my Digital Art Class. I began collecting different leaves from outside and allowed them to dry before I scanned them and began my work. The leaves used for my face were selected because at a closer look it begins to look like skin. The leaves used for my hair look like hair follicles. I used several digital tools to combine layers (upon layers) of these leaves in order to show greater depth and detail in my hair and skin. I wanted to portray myself as realistically as possible using software tools to give my self-portrait convincing facial highlights and shadows. I used the concept of “turning over a new leaf” to show a major changing point in my life. This first assignment in my Advanced Digital Arts class of my senior year (“A New Me”) became the foundation to my future as a Digital Artist. At the beginning of my senior year I realized that it was time to make changes before journeying out into the real world. We, as people, have the choice at times to change who we were in the past into something better for our future. My artwork “A New Me” is a self-portrait that reflects a highly detailed, youthful man with a promising future ahead of him. Note: This piece of digital art was designed and created in Adobe Photoshop CS2 on a MAC computer.

60. The Effects of Biochar in Potting Soil on the Soil-born Plant Pathogen *Phytophthora nicotianae* on *Petunia x* hybrid

Presenter(s): Williams, Theresa

Faculty Advisor: Dr. Deborah Hanmer

Discipline: *Biology*

Our study explores the effects of biochar (i.e. natural charcoal) on the soil born plant pathogen, *Phytophthora nicotianae*. *P. nicotianae* is an agriculturally important and destructive root rot pathogen on ornamental plants worldwide. Biochar added to soil sequesters carbon permanently and enhances soil quality, cation exchange capacity, water conservation and microbial growth. In some cases, robust soil microbial communities can inhibit the development of plant diseases caused by soil born pathogens. This research investigates the prospect of biochar providing plant disease protection from root infections through comparing the infection rates of *Petunia x hybrida* in potting soils inoculated with *P. nicotianae* with and without biochar amendments. The amendment rates of biochar include 0%, 10% and 20% by volume. An isolate of the oomycete *P. nicotianae* from annual bedding plants grew on rice from mycelium plugs. This rice culture underwent grinding then mixing with the soils at incremental rates of 0 – 4.5 gm /pot. We hope to show that biochar as a soil amendment functions as biological fungal suppressant. Reducing atmospheric CO₂ is vital to global climate change and adding biochar to soils permanently sequesters carbon in the soil. Decreased plant susceptibility to soil-born pathogens through the addition of biochar to soils would benefit the horticultural and agricultural industries by reducing pesticide usage and consequently human exposure to harmful chemicals. The authors gratefully acknowledge financial support from the North Carolina Beautiful Organization, experimental

support from Dr. Mike Benson of the Plant Pathology Department at NCSU and the Biology Department of UNCP.

Poster / Exhibit Session—Afternoon Presenters

61. Cloning the suppressor of a histone variant *htz1*-RNA pol II subunit double mutant, which affects transcription.

Presenter(s): Abengowe, Francina

Faculty Advisor: Dr. Maria Santisteban

Discipline: *Biology*

In the budding yeast *Saccharomyces cerevisiae* *HTZ1* gene encodes histone H2A.Z, a variant of the H2A family. H2A.Z has been conserved in its own evolutionary lineage from yeast to humans and it is an essential protein in mammals and other metazoans but not in yeast. Some time ago, we carried out a synthetic lethal screen to isolate mutations that render Htz1 function essential. Through this screen, we uncovered genetic interactions between *HTZ1* and genes encoding subunits of the RNA polymerase II, indicating that the polymerase is sensitive to the histone composition of the template. In the present study, we attempted to identify second site suppressors of the lethality of *htz1Δ RPB2-2^{SL}* double mutant. *RPB2* gene encodes the second largest subunit of the RNA polymerase II. A single *rpb2-2* mutation is recessive, but becomes dominant in the absence of Htz1 as if the mutant polymerase blocks the passage of the wild type enzyme through the DNA template devoid of Htz1. In order to understand the molecular defect of the *htz1Δ RPB2-2^{SL}* double mutant, we initiated a suppressor screen of the synthetic lethal phenotype. We have identified one library clone that complements the suppression of the *htz1 RPB2-2^{SL}* lethal defect by an unknown mutant gene. After sequencing, we identified a genomic fragment containing the *SET2* gene, which lead us to believe the specific molecular defect in transcription of the *htz1 RPB2-2^{SL}* strain is within the elongation process. To verify that the *SET2* gene is responsible for the reversion, we must subclone this gene. Then, to demonstrate that we have cloned the mutant gene and not a high copy suppressor we have to backcross the strain containing the suppressor mutant *htz1 RPB2-2^{SL} sup** with an isogenic strain carrying a marked deletion of the *SET2* gene, not the mutant suppressor gene. If the mutation responsible for the suppression is in the *SET2* gene, all the progeny will display the suppressor phenotype, and the marker of the *set2* null will segregate 2:2.

62. What are you hiding?

Presenter(s): Ellis, Allison

Faculty Advisor: Mr. Brandon Sanderson

Discipline: *Art*

In this particular piece, one can view me in different ways using their own perception. By looking at me one way, your perceptions of me are limited. We also usually judge people by first impressions. This piece, *What are you hiding?*, comes from my own life experiences. I can be viewed differently depending on the point of view. Someone's perception of me and my actual state of mind are two different things. My piece comes from real life actions in my own life. I can be viewed upon differently depending on the angle. I can be outstandingly happy and just okay; sometimes angry but a lot of times you will never see me sad. Why because like everyone, I hide something from the audience. In my case it's my weakness; my tears; my pain. Throughout my piece are hidden objects and phrases that express how I feel and like

my tears, I hide them. And from the technique used to make this art, some marks have disappeared and washed away but never forgotten.

63. Exploring Advertising in the Pharmaceutical Industry: Benefits and Risks

Presenter(s): Harris, Megan

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Psychology*

One of the fastest growing areas of advertising is the pharmaceutical industry. For example, \$6 billion is spent annually by the pharmaceutical industry to promote its products and in the year 2000, \$1.7 billion dollars were spent on drug advertising on television alone. Drug advertisements on television occur in 14% of adult prime-time shows for prescription drugs and 50% of adult prime-time shows and 43% of popular teen shows for over-the-counter drugs. The purpose of this research is to review literature on how prescription drugs are advertised on television and in magazines. This presentation will discuss the advantages of drug advertisements, such as increased consumer involvement in their own treatment options and encouraging consumers to ask physicians about specific drugs available, and disadvantages, such as potential confusion about the risks of specific drugs and potential tension between patients and physicians. Next, the presentation will explore differences in consumer responses to drug advertisements. Specifically, age, sex, and socioeconomic differences will be discussed. Finally, the relationship between the FDA and the history of drug advertisements will be investigated.

64. Reduction and Oxidation of Methylene Blue

Presenter(s): Jattan, Justin

Faculty Advisor: Dr. Len Holmes

Discipline: *Chemistry*

In this study, I experimented with Methylene Blue to understand its chemical properties. I experimented using an experiment named the "Blue Bottle Experiment". I learned different properties of Methylene Blue by understanding its behavior against Fructose in a Sodium Hydroxide solution. There is two forms of Methylene Blue that I was working with. The oxidized form, Methylene Blue, and the reduced form Leuco-Methylene Blue. The oxidized form has a blue color to it and the reduced form is clear.

65. Study of Glycerol Reactions

Presenter(s): Kingsbury, Nathaniel

Faculty Advisor: Dr. Cornelia Tirla

Dr. Sivanadane Mandjiny

Discipline: *Chemistry*

In an effort to reduce pollution and green house emission many companies are producing biodiesel from vegetable oil. In the production of biodiesel from vegetable oils and animal fat there is a 10% glycerol yield. The glycerol may become an oversupplied chemical if biodiesel production keeps growing. The literature has shown numerous uses of glycerol including the production of moisturizers, plastics, and even to neutralize phenol burns. The problem is the purification of crude glycerol. Glycerol is hydroscopic making separation very difficult. In this research project we tried to find applications for crude glycerol, by transforming the glycerol into useful molecules. The initial experiments of this project

were concerned with the creation of triacetin from glycerol using acetic acid in an esterification reaction this reaction presented difficulties. Currently this research project is studying the conversion of glycerol to ethers, using an acidic catalyst and various alcohols. Ethers are highly effective as additives used in gasoline, fuel oils and biodiesel. These chemicals can also function as very useful intermediates in the synthesis of organic molecules.

66. Juror Decisions: Does Empathy, Socialization and Court Case Play a Role

Presenter(s): Leshore, Sabrina

Faculty Advisor: Dr. John Raacke

Discipline: *Psychology*

In this presentation, I will propose a project in which I will attempt to show how the empathy levels and socialization levels of jurors impact their verdict on court cases. In addition, this project will also assess whether the aforementioned variables change in regards to the type of criminal trials that are presented to potential jurors; arson, murder, kidnapping, and burglary. To begin, the project will start with a review of relevant research over empathy and socialization. Specifically, the review will focus on research which measures the relationship between empathy and socialization. Following this review, the project will discuss the research on these two topics in juror research. Once the relevant literature has been discussed, I will propose a project to examine the previously cited variables. Specifically, a 2 (juror gender) x 4 (trial type) mixed subject design will be used to evaluate the impact of empathy levels and socialization levels on final juror verdict. Predicted results for the study will be presented.

67. SMS Messaging: How are College Students Txting

Presenter(s): Leshore, Sabrina
Jorge Piocuda

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

Discipline: *Psychology*

The use of technology to communicate has risen over the past two decades. However, with the advent of mobile communication, SMS messaging, has seen an exponential increase. The current project evaluated SMS messaging use among college students and examined gender and ethnicity differences in use.

68. Acid Catalyzed Heterogeneous Esterification Reaction for Biodiesel Production

Presenter(s): Locklear, Aaron

Faculty Advisor: Dr. Cornelia Tirla

Discipline: *Chemistry*

Currently biodiesel is produced through the transesterification of waste vegetable oil using methanol and potassium hydroxide. Potassium hydroxide, once used in the reaction, is eliminated with the waste products. This can prove to be an expensive method of producing biodiesel as potassium hydroxide is not recovered from the wastes and a new batch must be added for subsequent reactions. This also sparks the debate as to whether or not biodiesel is a cost-effective and efficient fuel source when compared to fossil fuels. Solid acid catalysts are a possible solution to this problem. Removal of a solid acid catalyst is easier and the starting material is fatty acids instead of oil. This research will describe the synthesis of biodiesel from fatty acids in the presence of solid acid catalysts.

69. 1984

Presenter(s): Lopez Martin, Elena

Faculty Advisor: Mr. Brandon Sanderson

Discipline: *Art*

Just right now, I am working on a series of paintings and drawings influenced by the content of the Orwell novel called 1984. The idea of The Big Brother, as an eye that can see everything, at anytime, suggests an uncomfortable world where submissiveness is the only way of life for the citizens of Oceania. In the novel, the Ministry of Truth is seen to change historical records creating a new history for the super-state of Oceania. The fact of creating a new history is really interesting to me. Different "realities" are mixed, the real reality and the fake reality for Oceania people, which is also different because it is constantly changing in order to be adapted to the needs and circumstances of the Big Brother's governmental policy. One of the main subjects in my works is SPACE. I create different spaces that overlap themselves, spaces that merge with other spaces, ambiguous spaces that are a reflection of these "real realities". Most of these spaces are framed by thick lines suggesting two very different aspects: captivity and holes through which everyone can be observed. The negativism of the atmosphere in 1984 is shown through the lack of colors; dark greys and a strong black made with charcoal dominate the compositions. The surface of the picture plane, in most of the cases paper, is treated aggressively, with water, sandpaper, and sometimes even xactos. The geometric character of the composition is due to the strict Big Brother government, but in my works we can always find a few organic lines or biomorphic shapes that show the presence of a few people who lead an intellectual rebellion against The Party. Most of these biomorphic shapes are surrounded by the dark, because they are threatened and they have to be hidden.

70. Temporal Imprints

Presenter(s): Lopez Martin, Elena

Faculty Advisor: Mr. Stephen Robinson

Discipline: *Art*

Our bodies are made of elements common to nature, hence they are abstracted and synthesized as clay in my artwork. Each body is related to a life. My artwork incorporates a temporal element – time is the engine of our lives and is thusly responsible for their end. Time is endless and has no regard for the lives it touches. Of what consequence is time to our lives? Time brings everything to fruition, and it fills us with experiences, and anecdotes that will affect the way we live. By constantly rotating the sphere along the ground, I imprint upon it the moments and places that have been, are, or will be significant in someone's life. As I rotate the sphere, the textures will superimpose themselves, as one person's temporal experiences overlay upon another's.

71. Studies On β -Carotene From Sweet Potato Remnants

Presenter(s): Moore, Kimberly

Faculty Advisor: Dr. Siva Mandjiny
Dr. Cornelia Tirla

Discipline: *Chemistry*

The purpose of this project is to develop a protocol for the extraction of β -carotene starting from sweet potato waste. This raw material is a rich source of β -carotene, a food supplement used in the cellular

biosynthesis of the vitamin A. In this project, a protocol for the extraction of β -carotene from sweet potatoes is developed using fresh carrots as a model. Several solvents were evaluated to determine the best conditions of extraction. The extract was purified by column chromatography, and the β -carotene content is verified by UV visible spectrophotometry. The determined optimal conditions were applied to sweet potato waste. In conclusion, this research addresses uses of agricultural waste biomass for the extraction of high value added product.

72. The Growth of Urinary Tract Infection Causing- Microbes on Natural Juice Agar Media

Presenter(s): Oxendine, Delora

Faculty Advisor: Dr. Marilu Santos

Discipline: *Biology*

Urinary tract infections (UTI) are bacterial infections that occur anywhere along the urinary tract. The microorganisms usually migrate from the outer genitalia region to the urethra and sometimes up into the kidneys. We are performing an experiment that originated from the curiosity of homeopathic remedies for urinary tract infection; their growth on natural juices was evaluated. We grew pure cultures of seven bacteria and one yeast that are known to cause UTI on natural juice agar media. The test organisms include: *Escherichia coli*, *Staphylococcus aureus*, *Candida* yeast, *Proteus vulgaris*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Enterobacter aerogenes*, and *Lactobacillus acidophilus*. The test juice media include: lime, pineapple, pomegranate, pomegranate-blueberry, carrot, cranberry, orange, and nutrient agar. Approximately 300mL of juice was added to 300mL of deionized water along with 9g agar. The agar was autoclaved and poured into plates. A 0.1mL of 24 hr old bacteria was spread onto plates using disposable L-Spreaders. The plates were then inverted and incubated at 37°C for 48 hrs. The pH of each juice was tested. The most acidic was cranberry with a pH of 1; the most neutral juice was carrot with a pH of 6 and nutrient agar with a pH of 7. The most favored growth media are carrot juice agar and nutrient agar. The least favored growth media are cranberry juice, pomegranate-blueberry juice, and pomegranate juice. This experiment is being expanded to evaluate growth of UTI-causing microbes on alkaline juices and to test the growth of microbes from healthy urine sample on said juices.

73. Captain America

Presenter(s): Rodriguez, Jorge

Faculty Advisor: Dr. Ryan Anderson

Discipline: *History*

My presentation is a cultural and political history of Captain America's service to the United States during World War Two. His career fighting fascism began with his introduction in Captain America Comics 1; on the cover he is engaged in combat with Adolph Hitler, a fascist. Captain America's first mission was to fight spies on the home front, which reflected the government policy of the time. The origin of Captain America showed the transformation of Steve Rogers who volunteered for the army but was not physical qualified to serve in the military. Captain America post war career will be addresses briefly, so as to illustrate how the image in time of war changed. The government's New Deal Art Program, Office of War Information, War Production Board and United States military all addressed controversies but no government agency addressed the controversies in Captain American Comic 1, activate engaged in hostility with the Germans, and the use of the "fifth column" a full year before America entrance into the war. The cultural icon of Captain America does he reflect American society or does he embody the ideas that America stands for? Is the question I will try to answer?

74. Building a High-Performance-Computing and Parallel Computing Environment

Presenter(s): Sherrill, Aaron
Ricker, Ed
Fulkerson, Christopher
Witter, Chelsey
Hughes, Pamela

Faculty Advisor: Dr. Jennifer Bonds-Raacke

Discipline: *Honors College*

The intended study is aimed at determining the satisfaction of college students with their campus living arrangements. The subjects are chosen from introductory to psychology classes. There will be three groups with one being the control group. The other two groups will be primed with pictures of either attractive dorm rooms or unattractive dorm rooms. After being primed with either attractive, unattractive or no pictures the students will then be surveyed about their campus living experience. We expect to find that those primed with attractive dorm room pictures will rate their campus living experience lower than those primed with unattractive dorm room pictures.

75. Identity Theft

Presenter(s): Sippy, Sara

Faculty Advisor: Dr. John Labadie

Discipline: *Art*

The inspiration for this composition is autobiographical: my identity was stolen online. A computer system had been purchased under my name without my consent. I had to go through a whole process of security checks, called credit unions, and I even changed my personal information. It was a very stressful time, not to mention keeping my information secure from that point on. Identity theft is way too common these days and many people are victims of this crime. A positive thing that came from this situation was the inspiration to warn people through art. The artwork I am sharing is a mixed media drawing called "Identity Theft". In this work I have used a combination of charcoal, conte crayon, ink, and colored pencil. A major visual element is a huge hand coming out of a computer screen. The hand belongs to the person sitting behind the monitor. He is a representation of all hackers. The female figures in the foreground are nude because their identities are being stripped away. These nudes represent innocent victims. Strings of personal information wind around their bodies, which travel to the hacker's brain. Fingerprints also trail across the desk from the victims' hands. There is key significance in the size of the characters. The hacker is huge because he is a mastermind that holds all the power. The victims are smaller than the size of a computer because this shows how helpless people can be without their identities kept private.

76. Experimental Wet Into Wet

Presenter(s): Smith, Merial

Faculty Advisor: Ms. Janet Hopper

Discipline: *Art*

There isn't anything that can quite compare to the wet into wet technique. This particular technique has a flow when water colors and wet paper come into contact. The wet paper determines how and where the pigments will spread. Often times, there are beautiful, accidental reactions. I will be developing works that involve this technique.

77. Developing a Tandem Knoevenagel Condensation Inverse Electron Demand Diels-Alder Reaction for the Advanced Organic Chemistry Lab

Presenter(s): Thompson, Leslie

Faculty Advisor: Dr. Rachel Smith

Discipline: *Chemistry*

The purpose of this research project was to develop an advanced organic chemistry lab that could demonstrate the tandem Knoevenagel condensation-inverse electron demand-hetero-Diels-Alder reaction. The aim was to develop a cost and class-time efficient protocol using readily available reagents while acquiring a sufficient percent yield. This process required differing the solvents and basic catalysts used. Among the solvents being tested was MeOH, H₂O, and a no solvent situation. The catalyst being examined EDDA, tBAB, NH₄Ac, as well as a no base/catalyst reaction. Using methanol as the solvent presents a problem in that it requires distillation prior to work-up. However, it was determined that the only significant yield resulted from use of methanol as the solvent with catalysis by EDDA.

78. Feminist Criticism: Illuminating Women's Work in Literature about Two Utopian Societies through the 19th Century American Transcendentalist Period.

Presenter(s): Young, Rachel

Faculty Advisor: Dr. Patricia Valenti

Discipline: *English*

My project illuminates the domesticity of women's work in the Fruitlands of Louisa May Alcott's "Transcendental Wild Oats," and the Brook Farm community in Nathaniel Hawthorne's *The Blithedale Romance*. These works written in New England during the 19th Century, both address female and male physical labor. In "Transcendental Wild Oats," Alcott depicts satirically this role reversal, where women were disillusioned by the pretenses of their control of their own spheres. Alcott shows through Sister Hope how the reins of power can shift when the men are so focused on philosophizing that the women are left with complete responsibility of the home, and for the family's livelihood. Looking through a feminist lens, Sister Hope and the rest of the women and children were given the duties by the men considered more trivial and involving less expansion of the mind. Similar to Alcott's satire, *The Blithedale Romance*, exposes the pretense of gender roles in utopian communities, where tasks and chores were meant to be androgynous. Zenobia represents how women are seen as objects of beauty to be observed, while their artistic consciousness and thinking is devalued. Gender prejudice exhibited by Coverdale showed that women were only optimized through marriage. Through a Feminist perspective, the repression that women experienced in these works of literature, underneath the claustrophobic patriarchy, created a social dynamic that cornered women in becoming mothers and laborers. Both works of literature reveal the fear that women would become too interdependent and supersede male thought, lead to men like Hawthorne's Miles Coverdale, and Alcott's Abel Lamb to leave the women with no time to use their imagination. The struggle and ultimate failure of these characters to interlace gender duties sends the message that sex boundaries remained rigid despite the new theologies that the men created.

Oral Presentations—Afternoon

1. Building a High-Performance-Computing and Parallel Computing Environment

Presenter(s): Everhart, Michael
Eidschun, Bradley

Faculty Advisor: Dr. Jose D'Arruda
Dr. Steven Bourquin

Munizza, Scott

Discipline: *Physics/Math*

As a special topics class we had three students build and program a Parallel Platforms for Parallel and Distributed Computing Education using five old computers we obtained from IT department at UNCP. Students had hands on experience by directly constructing a HPC computer from parts of five single core systems. They learned how to interface them together and how to make them function as one unit and addressed such key concepts as speedup, efficiency, load balancing and how these are much more effectively done on a parallel platform. We will display and operate the system at the session and discuss its construction. We name our system DAVID1.

2. Bacterial Transformation as a tool for studying bioluminescence

Presenter(s): Locklear, John

Faculty Advisor: Dr. Len Holmes

Discipline: *Chemistry*

Bacterial transformation is a valuable tool. Transformed bacteria can be used to facilitate the production many desirable products. There are different procedures you can follow when doing transformations. The plasmid pVIB is being used in our laboratory. This plasmid codes for ampicillin resistance and bioluminescence. The plasmid is derived from the marine bacterium *Vibrio fischeri* that lives symbiotically within the Hawaiian bobtailed squid and other marine life. Our lab is focusing on transforming members of the Enterobacteriaceae family. The bacteria of interest *Serratia liquefaciens*, is inhibited by ampicillin at 10µg/mL. Future work will be to produce gene product for bioluminescent studies.

3. Down by the Ole Lumbee: An Investigation into the Origins and Uses of the Word "Lumbee" Prior to 1952.

Presenter(s): Locklear, Lawrence T.

Faculty Advisor: Dr. Jane Haladay

Discipline: *American Indian Studies*

Flowing among the swamps and farm fields of Robeson County is a river which shares its name with the Indian people nestled along its banks. Designated by state legislation in 1809 as the Lumber River, it is referred to by the local American Indians as the Lumbee River. In 1952, these Indians adopted "Lumbee" as their tribal name. Little research has been conducted into the origins and earliest uses of the word "Lumbee." Therefore, to uncover the mystery which surrounds the word, research was initiated using The Robesonian, the county newspaper, along with publications about the river and Lumbee Indians by local authors and the federal government. The word "Lumbee" appears numerous times in publications between 1888 and 1952. Some of those include the May 10, 1904 Robesonian which states the word "Lumbee," pronounced Lombe, "means black, because of the dark water." The earliest documented use is state Representative Hamilton McMillan's reference to "Lumbee" as the ancestral name of the river in his 1888 essay "Sir Walter Raleigh's Lost Colony." John Charles McNeill, in his 1906 poem "Sunburnt Boys," reminisces about swimming "Down on the Lumbee river." In 1928, students at Cherokee Indian Normal School were organized into four literary societies, including the Lumbee Society. Pembroke State College for Indians' first yearbook, in 1941, was named the Lumbee Tattler. Use of the word "Lumbee" is not limited to poetry and the name of the river; numerous organizations and events carried the word in their title. The movement to change the name of the Indians of Robeson County from Cherokee to Lumbee began in the late 1940s. The numerous uses of the word "Lumbee" suggest a shared affection for the river by the native and non-native population of Robeson County. The words "Lumber River" and

“Lumbee River” came to represent different things; Lumber River, the physical, tangible river, and “Lumbee River,” the intangible, feelings and emotions invoked by the river.

4. Emerging Financial Centers: Structure and Prospects for the Future

Presenter(s): Mathis, Michelle

Faculty Advisor: Dr. Ramin Maysami

Discipline: *Business Administration*

Dubai, home of the world’s tallest high rise and the most expensive hotel; Singapore, the lion city famed for prohibition of chewing gum as much as for its incredible economic growth putting the per capital income of the nation higher than that of America’s; and Hong Kong, a bustling free economy ruled by communist China under the one country two systems principles: Please meet the new emerging financial centers of the world!! This paper recounts, in a comparative manner, the policies implemented by each respective government for the growth and prosperity of each of the above-mentioned countries. We will demonstrate that while the goal of each nation has been the same, i.e. becoming the dominant financial center in its own region, all the while eyeing financial dominance within the Asian continent and the world for that matter, the approaches taken to achieving this have been quite diverse. Hong Kong, for example has followed a totally free and uninterrupted capitalist system, while Singapore has earned financial strength through prudent and often heavy-handed regulation. Dubai, a relative new comer to the competitive financial center scene seems to have chosen elements of each, along with strong government investment actions with many of the main revenue generators for the nation being government owned. Though being a new player in the financial field, this country has found rapid growth through a surge of foreign investors seeking to capitalize on the booming economy. Though this nation has faced a recent economic downturn among the rest of the world in the current financial crisis, this country is still growing with spending expected to increase 11% in 2009 from 2008. The paper will introduce the structure of banking, insurance, and stock market in each of the three countries and then compares and contrasts them across the three nations, with the aim of providing recommendation for the future growth of each financial center, as well as providing a model to be followed by other nations interested in entering the competition.

5. The Determination of the Total Anthocyanin Content in Commercially Available Bilberry Capsules Using pH-Differential Spectrophotometry

Presenter(s): McClure, Rhonda

Faculty Advisor: Dr. Meredith Storms

Discipline: *Chemistry/Biology*

The use of Traditional Medicine / Complementary and Alternative Medicine (TM/CAM) is increasing rapidly in the United States. Despite the increase in the use of herbal products as a result of their promising potential, questions remain concerning their quality, safety and efficacy (QSE). Published analyses of herbal supplements have found differences between what is listed on the label and what is in the bottle. Also, the word "standardized" on a product label is no guarantee of higher product quality, since in the United States there is no legal definition of "standardized" (or “certified” or “verified”) for supplements. Therefore, the goal of this project is to employ pH-differential spectrophotometry to assess the total anthocyanin content in commercially available bilberry capsules to determine the variability among brands that are labeled “standardized”.

Notes

PURC Council

Ryan Anderson, Ph.D. Department of History

Anthony Curtis, Ph.D., Department of Mass Communications

Hal Davis, Department of Music

Tulla Lightfoot, M.F.A., Ed.D., Department of Art and Art Education

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

Lee Phillips, Ph.D., Department of Geology and Geography, Associate Director – PURC

Robert Poage, Ph.D., Department of Biology

John Raacke, Ph.D., Dept. of Psychology, Associate Dean –Arts and Sciences

Meredith Storms, Ph.D., Department of Chemistry and Physics