

SECOND ANNUAL

**UNC-PEMBROKE UNDERGRADUATE
RESEARCH AND CREATIVITY FORUM**



APRIL 23RD, 2008

***PROGRAM
WITH ABSTRACTS***

Pembroke Undergraduate Research and Creativity Center
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April 23, 2008

Dear PURC Forum Participants,

The UNC Pembroke Undergraduate Research and Creativity Center cordially welcomes you to the second annual campus-wide celebration of undergraduate research and creative endeavors. We are pleased to include 55 presentations, prepared by approximately 75 students and nearly 28 faculty mentors. Ten academic departments are represented in today's celebration.

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 marked the third 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 25 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, to RISE, the Office of Academic Affairs, Provost Harrington, and Chancellor Meadors. Thanks also to our plenary speakers, Dr. Charles Boklage, Dr. Patrick Pellicane, and Dr. Richard Harris.

It is our desire that the PURC Forum 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

Schedule of Events

9:00—9:05 am

Greetings—Chancellor Allen C. Meadors

9:05 – 10:00 am

Importance of Undergraduate Research and Creative endeavors when applying to Graduate School

Dr. Patrick Pellicane, Dean, The Graduate School, East Carolina University

Dr. Richard Harris, Professor of Psychology, Kansas State University

Dr. Charles Boklage, Professor of Pediatrics, East Carolina University

Ms. Fantasy Lozada, UNCP Undergraduate

10:00 – 11:15 am

Morning Poster Session

11:15 – 11:25 am

"Doctor Gradus ad Parnassum" composed by Claude Debussy as performed by Ms. Gertie Parker – UNCP Social Studies Education Major

11:30 – 12:15 pm

Vanishing Twin Syndrome, chimeras and your genetic 'identity'

Dr. Charles Boklage, Professor of Pediatrics, East Carolina University

12:25 – 12:45 pm

Excerpt from UNCP Student Theatre Production of **"Once Upon a Mattress"**

1:00 – 1:30 pm

Mentoring Can Be Magic

Mr. Bob Ebendorf, Belk Distinguished Professor in the School of Art and Design

1:30 – 2:30

Afternoon Poster Session

3:00—4:00 pm

Plenary Speaker

Myths About the Media: Evil Mind Control or Good Clean Fun?

Dr. Richard Harris, Professor of Psychology, Kansas State University

4:00—5:00 pm

Reception hosted by the UNCP Office of Academic Affairs

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*Poster #'s refer to display location.

Plenary Speaker—Dr. Richard Harris
Myths About the Media: Evil Mind Control or Good Clean Fun?



Richard Jackson Harris is Professor of Psychology at Kansas State University in Manhattan, Kansas, where he has taught since 1974. He has also held Fulbright teaching fellowships in Brazil and Uruguay and most recently was a visiting scholar in New Zealand. He is a graduate of the College of Wooster (B.A.) and the University of Illinois at Urbana-Champaign (M.A., Ph.D.).

As part of the Cognitive and Human Factors Psychology program, Dr. Harris' research examines issues involving language and cognition, primarily in the areas of psycholinguistics and mass communication. While some of his research has a strong applied component, other work is clearly basic research.

In addition to empirical research, Dr. Harris is the author of two textbooks in multiple editions and the editor of several books of readings. Most notably, he has authored the best-selling textbook *A Cognitive Psychology of Mass Communication*. Dr. Harris has 100 published research articles on a variety of topics, included memory, language, psycholinguistics, deceptive advertising, bilingualism, video games, the psychology of organ donation, and effects of watching movies. He also leads occasional community workshops on critical viewing, media literacy, and managing television in the home.

Dr. Harris is married to Caprice Becker, Director of Medical Services at Mosaic. They have three children, Clint (born 1989) and Natalie and Grady (twins born in 1991). Some of his hobbies are travel, reading, hiking, theater, genealogy, and stamp collecting. Although born and raised in suburban Pittsburgh PA, Dr. Harris has come to love the smaller college-town life of Manhattan, KS.

Program Presenters

Dr. Charles Boklage

Vanishing Twin Syndrome, Chimeras and Your Genetic 'Identity'

Dr. Boklage began his college education at Bellarmine College in Kentucky before moving on to California (UC, San Diego) to do his graduate research. After postdoctoral fellowships at the University of Kansas and UNC, Chapel Hill, he accepted a faculty position at East Carolina University where he is currently a professor Genetics and Pediatrics and the director of the Laboratory of Behavioral and Developmental Genetics. His research on human genetics at ECU spans almost 40 years and has been funded by the grants from the National Institutes of Health, the Children's Miracle Network Foundation and the North Carolina Developmental Disabilities Council. His work has taken him to conferences around the world, including the prestigious Gordon Conferences in the USA and international conferences in Italy, The Netherlands, England, Denmark and Israel, to speak on the genetics of multiple pregnancies, twins and human chimeras (people who are have arisen from more than one individual organism: a genetic composite).

Mr. Bob Ebendorf

Mentoring Can Be Magic

Born in 1938 in Topeka, Kansas, Bob received his BFA in 1960, his MFA in 1962. Following graduation, he received a Fulbright Fellowship to study at the State School of Applied Arts and Crafts in Norway. He has taught at the University of Georgia (1967-71) and State University of New York at New Paltz (1971-88). In 1995, he was awarded the American Craft Council Fellowship for his achievement in the crafts and Commitment to the craft movement. Bob is co-founder and past president of the Society of North American goldsmiths (SNAG) and represented in many worldwide collections including the Metropolitan Museum of New York, the Victoria and Albert Museum (England), the Museum of Fine Arts in Boston, and the Mint Museum of Craft Design in Charlotte, NC, Le Musee des Arts Decoratifs de Montreal, national Museum of Wales, Schmuck Museum, Pforzheim, Germany to name a few. He currently serves as the Belk Distinguished Professor in the School of Art and Design at East Carolina University, Greenville NC.

Dr. Patrick Pellicane

Dr. Patrick J. Pellicane was born in Elmhurst, New York. He received his basic education in Queens, NY and holds an A.A. degree in Liberal Arts & Science from Queensborough Community College; a B.S. degree in mathematics from The City College of New York; an M.A. degree in mathematics from St. John's University (SJU); M.S. and Ph.D. degrees in Forestry (focus: structural engineering with wood) from Colorado State University (CSU).

Since July 2006, Dr. Pellicane serves as the Dean of Graduate Studies at East Carolina University. In this capacity, he has responsibilities for more than 6,000 graduate students in about 130 master's, doctoral, and certificate of advanced study programs in the 10 colleges and major schools. Previously, he served as the Dean of the Graduate School and Professor of Forest Sciences at CSU. For two years prior to this appointment, he was a Professor of Geospatial Sciences, and for 20 years before that was Professor of Wood Engineering in the Department of Forest Sciences at CSU. Prior to CSU, his professional experiences include 1½ years as a statistical analyst/ computer programmer for the Automobile Insurance Plans Service Office in New York.

2008 PURC Presenter Abstracts

Department of Biology

1. Heterologous Expression of Human Lipoprotein Genes in *Drosophila melanogaster* S2 Cells

Joseph Ballard

Faculty Mentor: Jeremy Sellers, Ph.D., Department of Biology

Atherosclerosis is a chronic pathological condition in which fatty deposits, calcium, cellular waste products, and cholesterol accumulate along the inner walls of an artery. Over time, these deposits form a plaque that can significantly alter blood flow through the artery. In addition, an over accumulation of plaque can render the arteries fragile and therefore, more prone to rupture. This unstable plaque and altered blood flow increases the risk of a thromboembolism leading to a heart attack or stroke. Although other factors exist, a major contributor to the development of atherosclerotic lesions is an elevated plasma concentration of low-density lipoprotein (LDL) associated cholesterol. While the vascular metabolism of LDLs is relatively well characterized, many of the events of their intracellular biogenesis remain to be elucidated. One method for exploring the biogenesis of human lipoproteins is by comparative analysis of the biosynthesis of other animal lipoproteins. In particular, several investigators have demonstrated that the components necessary for the synthesis and secretion of insect lipoproteins are very similar to those necessary for human lipoprotein production. As such, our lab has begun to develop an insect cell model for the exploration of lipoprotein biogenesis using the *Drosophila melanogaster* derived Schneider's S2 cell line. Previous work from our group indicated that S2 cells express the genes necessary for lipoprotein synthesis and secretion. However, there are no previous reports that demonstrate whether S2 cells are capable of producing lipoproteins. Therefore, we have begun characterizing the lipoprotein secretion capacity of S2 cells by transforming the cells with well characterized human lipoprotein secreting genes and analyzing the lipoproteins that are produced from the transformed cells. The development of an insect cell based system for the exploration of animal lipoprotein synthesis and secretion could provide a comparative model by which the biogenesis of human can be further elucidated.

2. An Investigative Study on Transient Microflora from EMS Devices

William R. Baxley & Thomas M. Manolis

Faculty Sponsor: Marilu Santos, Ph.D., Department of Biology

Emergency Medical Services (EMS) has become an integral part of the healthcare industry. This study was conducted to quantitatively investigate the presence of bacteria and other microorganisms on EMS devices and to determine if the routine disinfection process after each call can decrease potential source of infections and diseases.

Five items in three EMS ambulances in Lee County, NC were swabbed in the morning and in the evening. The swabs were streaked on general media and selective media. The plates were examined for colonies after 72 hours incubation. The surfaces that yielded the most bacterial growth were: reusable pulse oximetry device, blood pressure cuff, and the stretcher side rails/straps. The least growth was seen on the ECG cable sample plates and oral thermometer sample dishes. Bacterial growth included *S. aureus* and *E. coli*. Two ambulances showed high number of colonies from morning samples and fewer to no growth from the evening samples.

This study shows that EMS devices harbor microorganisms and, hence can be vehicles for transmission of potential pathogens. Difference in counts between the morning and evening samples show that the routine disinfection process using antibacterial swipes after each call effectively decreases the number of transient bacteria on the devices. Further studies should be conducted to determine if there are colonies belonging to pathogenic serotypes of *Staphylococci* and *E. coli*.

3. Expression and Purification of Glutathione-S-Transferase from *E. coli*

Ashley Bowman

Faculty Sponsor: Jeremy Sellers, Ph.D., Department of Biology

Our lab is interested in exploring insect lipid transporting genes in *Drosophila melanogaster*. However, there are no antibodies to the protein products of insect lipid transporting genes presently. Therefore, we are exploring means for producing antibodies to the lipid transporting proteins from our research. One option we have investigated, involves the construction of glutathione-S-transferase (GST) fusion proteins. In this scheme, the gene of interest is appended in frame to a linker region of a GST containing plasmid containing an inducible promoter. When expressed, the N-terminal portion of the fusion protein will be GST followed by the C-terminal portion containing the gene product of interest. Currently, our lab has successfully expressed and purified the GST protein using a bacterial expression plasmid, pGEX-3X, in *Escherichia coli* hosts. The plasmid is constructed such that a hybrid promoter sequence of the lactose and tryptophan operons, Ptac, controls the level of expression of GST. Expression of the GST protein from the plasmid was induced with a lactose analog, IPTG, over a time course to determine at which time GST protein expression was maximal. Once optimal expression was determined, the strategy of our experiment focused on the purification of the GST protein from the crude *E. coli* cell lysate. This was achieved through affinity purification by binding the GST protein in the bacterial cell lysate to glutathione-agarose beads. Following multiple washes, the bound GST was eluted from the beads in the presence of 5mM free glutathione. After analysis by SDS-PAGE it appeared that a significant portion of the GST from the crude lysate was purified to apparent homogeneity. Using this expression and purification scheme, in future experiments it may be possible to generate GST-fusion proteins that can be used to develop antibodies to insect lipid transporting proteins for more native analysis of their biogenesis.

4. Continued Characterization of the *Drosophila melanogaster* Gene CG15828

Natalie R. Bullock

Faculty Sponsor: Jeremy Sellers, Ph.D., Department of Biology

Multicellular organisms have processes for capturing, transporting, and storing lipids. The transport of lipids is of particular interest in animals, given the necessity to efficiently move these hydrophobic molecules through aqueous circulatory fluids. Therefore, animals utilize amphipathic apolipoproteins to emulsify their dietary and stored lipids and thereby facilitate their transport through blood and hemolymph. Several apolipoproteins involved in neutral lipid transport are grouped into a family of proteins known as the large lipid transfer proteins (LLTPs). This family includes apolipoprotein-B, apolipoprotein II/I, vitellogenin, and microsomal triglyceride transfer protein. Apolipoprotein-B is produced in the vertebrate liver and intestine, is the major structural protein of low-density lipoproteins (LDLs), and is involved in the transport of neutral lipid to peripheral tissues. Elevated plasma LDL concentration is a known risk factor for the development of type II diabetes and cardiovascular disease. Therefore, further elucidating the biogenesis of apoB is critical for continued development of therapies toward the prevention of these diseases.

Our lab is interested in identifying and characterizing lipid transporting genes in insects to develop an invertebrate animal model of lipid transport that can be comparatively analyzed to provide insights into the biogenesis of human lipoproteins. Recently, we identified a gene (CG15828) in *Drosophila melanogaster* that is predicted to encode a large lipid transfer protein, based on its size and sequence homology to existing LLTPs. Previously, our lab cloned and expressed an N-terminal ~270 amino acid fragment of CG15828 and it displayed properties suggestive of a novel member of the LLTP family. The purpose of this project is to clone and express a larger fragment of this gene and to characterize its behavior. Ultimately, our goal is to assemble and characterize the full length CG15828 gene product and to determine whether it constitutes a novel member of the LLTP family.

5. Fertilizers Derived from Byproducts of Biodiesel Manufacturing

Coty Gearner

Faculty Sponsor: Maria Pereria, Ph.D., Department of Biology

Recycling and proper hazardous waste disposal has been an important practice since the 1980's. These practices had found their way into the manufacturing of fertilizer. Fertilizers from hazardous waste have been problematic to the agricultural community. Reduced crop yields, altered livestock reproductive development, and diminished livestock health have been noted. The production of biodiesel from waste vegetable oil produces a safe waste; glycerol and biodiesel waste washwater (BWW), that can be used in the manufacturing of potassium (K) and phosphorus (P) fertilizers. These byproducts contain potassium. The aim of this investigation is to assess the fertilizer produced from biodiesel and the environmental compatibility of this fertilizer with the agricultural community to produce a safer crop.

In this experiment the glycerol after partitioning, resulted into two products, a potassium phosphate salt and glycerol potassium phosphate. The glycerol partitioned products and BWW were measured for N-P-K content and compared to a 20-20-20 fertilizer.

After the samples evaluation, the results indicate that NPK is present in all samples. Potassium phosphate solution contains 1:891:1230 ppm of NPK, respectively. The glycerol potassium phosphate solution contains 287:89000:152000 ppm of NPK, respectively. The BWW contains 1:50:50 ppm of NPK, respectively. The 20-20-20 fertilizer solution contains 208000:90817:172671 ppm of NPK, respectively. The glycerol potassium phosphate proved to be the most equivalent to the 20-20-20 fertilizer.

These analyses indicate that the byproducts of biodiesel appear to have fertilizer properties. Since fertilizers produced from hazardous waste deposit arsenic, cadmium and uranium into the soil, a fertilizer produced from biodiesel would insure a safer crop.

6. The Effects of Biochar as a Soil Amendment on the Growth of *Spinacea oleracea*

Amber Harris

Faculty Sponsor: Deborah Hanmer, Ph.D., Department of Biology

Biochar can be used as a type of soil amendment consisting of biomass charcoal that is produced through the process of low-temperature pyrolysis. Pyrolysis is a thermo-chemical process which decomposes organic material in the absence of oxygen. Biochar has been shown to increase the fertility and sustainability of tropical soils. Biochar, in tropical soils, demonstrates the ability to maintain nutrient and water retention. However, the effect on soils in temperate climates has not been determined. The goal of this research project is to determine what percentage of biochar addition to the soil results in optimum plant growth. The project consists of five different treatments with percentages of biochar, 0%, 3%, 5%, 10%, and 20% mixed into local sandy field soil. *Spinacea oleracea* (spinach) plants will be grown under greenhouse conditions in four inch pots. Growth rates will be determined by measuring the dry weight of the above ground plant parts. Sample leaves will be analyzed for levels of pH, Nitrogen, Potassium, and Phosphorus.

7. A Survey of Corticolous Myxomycetes in the Taxodium Dominated Canopy of Antioch Bay: A Carolina Bay in Hoke County, North Carolina.

William V. Hickman

Faculty Sponsor: Deborah Hanmer, Ph.D., Department of Biology

The purpose of this survey is to characterize the corticolous myxomycete community within the Taxodium dominated canopy of Antioch Bay. To achieve this, 36 trees near randomly selected points throughout the bay were climbed using the double rope method in order to sample bark at three meter increments along the trunk axis. The bark samples were placed into moist cultures in order to promote the growth and development of any myxomycetes present in or on the bark. Myxomycete fruiting bodies from the cultures will be identified and preserved as herbarium samples. The stratified-random sampling scheme employed during tree selection will enable the statistical analysis of the abundance and diversity of the corticolous myxomycete community within the bay. The vertical-sampling scheme utilized in bark

sample collection will permit the statistical representation of the vertical distribution of the corticolous myxomycete community within the bay.

8. Towards an Understanding of Rice Disease Resistance Against Fungal Infection

Shannon Rose & Dr. Yinong Yang (Pennsylvania State University)

Faculty Sponsor: Deborah Hanmer, Ph.D., Department of Biology

Rice is a staple food for over half of world's population..The fact that it is so important has triggered research into protecting rice from various pathogens in order to maintain and increase rice production. *Rhizoctonia solani* is one of the most important rice pathogen in the U.S. and around the world. Therefore, it is necessary to explore effective methods to control the disease and understand the mechanism underlying host resistance to this pathogen. In this experiment, we tested the effectiveness of chemical control with validamycin, an antibiotic which can inhibit the fungal trehalase and control the disease. In addition, validamycin may also inhibit rice trehalase, resulting in an increase of trehalose and triggering sugar sensing in the rice plants. We hypothesized that this would cause defense gene expression and induce resistance to *R. solani* in the rice plant. We found that the application of validamycin prior to *R. solani* inoculation could significantly increase sheath blight resistance. We also made a DNA construct for suppression of rice trehalase gene expression in rice plants via RNA interference.

Department of Chemistry & Physics

9. Solid-Phase Extraction and HPLC Determination of the Stability of Dextromethorphan in Hair After Exposure to Cosmetic Treatment

Amy Avirett

Faculty Sponsor: Meredith Storms, Ph.D., Department of Chemistry & Physics

A high-performance liquid chromatography method has been developed for the determination of dextromethorphan in hair. The separation and quantitation are achieved on a phenyl column (4.6 x 150 mm) using a mobile phase of 80:20% v/v 6.25mM sodium phosphate buffer (pH 3.0) and acetonitrile at a flow rate of 1.0 mL/min with UV detection at 226 nm. A solid-phase extraction method has been developed using a Strata C18 SPE cartridge. The SPE-HPLC method has been employed to determine the effect of cosmetic treatment on the concentration of dextromethorphan in hair.

10. An Inexpensive Technique for Measuring Optical Rotatory Dispersion (ORD) in the Visible Region of the Electromagnetic Spectrum

Dillion Barrier

Faculty Sponsors: William Brandon, Ph.D. & Mark McClure, Ph.D., Department of Chemistry & Physics

This research can be broken down into two parts. The first task was to synthesize a racemic mixture of tris(ethylenediamine)cobalt(III) and separate the enantiomers through a well-established procedure. This procedure involved the use of (+) tartaric acid to crystallize one enantiomer from the solution, leaving the other in solution. After separation the isomers were tested for optical rotation with a sodium lamp and a polarimeter to prove that they have successfully been separated. The second step was to generate an ORD (optical rotatory dispersion) curve for the resolved complex. The primary purpose of the research was to develop an inexpensive and transparent technique to measure ORD by employing a common "half-shade" polarimeter, in which measurements are acquired by vision. The tunable radiation source consisting of a fiber optic illuminator coupled to a mini-monochromator. After assembling and calibrating the apparatus the optical rotation was then measured over a broad range of wavelengths beginning in the 400 nanometer range.

11. Production of Biodiesel from Vegetable Oil by Transesterification Through Continuous Enzymatic Method

Ashley Clark

Faculty Sponsors: Sivanadane Mandjiny , Ph.D., Department of Chemistry & Physics

Presently, there is an increasing need, internationally, for the production of alternative fuel sources. Biodiesel seems to be the most promising candidate in this race against the declining supply of fossil fuels. It has been established that biodiesel can be produced from vegetable oil in a conventional batch process using a potassium hydroxide catalyst and methanol. This process, however, is laborious and has a poor yield due to production of glycerol and soap which must be extracted from the biodiesel prior to its use. In this study, ethyl acetate was used to produce biodiesel by a continuous enzymatic process with the immobilized lipase, Novozyme-435. While using the enzyme in the continuous process for several months, the enzymatic activity was monitored for degradation that usually occurs with rigorous use. In this study, there was no significant loss in activity. Optimal conditions for the transesterification process were 7 hrs at 55°C with 6:1 molar ratio of ethyl acetate to vegetable oil. Also in this work, a new technique was developed to determine the percent conversion of vegetable oil to biodiesel by calorific value method. Through the calorific value method it was observed that the higher the concentration of ethyl acetate, the lower the yield. As the ethyl acetate is converted to triacetin, and the vegetable oil to biodiesel, the calorific value of the samples increased. The advantages of this process are of two fold; first that there is no need for separation of any byproducts and second that the triacetin produced is a known fuel additive.

12. Measuring the Dispersion of the Verdet Constant

Christopher Concepcion

Faculty Sponsor: William Brandon, Ph.D., Department of Chemistry & Physics

Faraday rotation is a magneto-optical phenomenon used in several practical applications such as circulators, field sensors, communication devices, and also as isolators ("one-way light valves" in high-power lasers). When a magnetic field is applied to a material, a small energy shift associated with Zeeman splitting is induced in the atomic structure. This shift changes the way light interacts with the material. In particular, it creates a difference in the index of refraction for right and left circularly polarized light, similar to that associated with natural optical activity, or circular birefringence. As a result, the overall polarization direction of the light is rotated about the axis of propagation as it traverses the material in the presence of a magnetic field—a magnetic field-induced optical activity. The amount of rotation depends on the strength of the magnetic field, the material medium (i.e. its temperature and length), and the wavelength of the light. The material and wavelength properties are combined into a quantity known as the Verdet constant where the wavelength dependence of the Verdet constant is very similar to the more familiar dispersive behavior associated with the refractive index. This work will focus on measuring the Verdet constant through a range of wavelengths in the ultraviolet region of the spectrum. We hope to resolve whether or not the theory of Mort and Scher does indeed apply to liquid water-- while also providing additional data to the Magneto-optical critical tables. Perhaps of even greater importance is that our apparatus should prove adequate to measure the Verdet constant, and hence extract band gap energies, associated with any transparent material so that future work can, in principle, be sustained indefinitely.

13. Photometric Data of three types of Variable Stars

Michael Everhart & Jason York

Faculty Sponsor: Jose D'Arruda, Ph.D., Department of Chemistry & Physics

We will analyze the photometric data taken from three types of variable stars. These stars include the variable star Algol (Beta Persei), an eclipsing binary star in Perseus, Mintaka (Delta Orionis), a multi star system in Orion, and Mekbuda (zeta Geminorum), a Cepheid variable star in Gemini. The data is collected with our 16" LX200 Meade telescope along with our SBIG ST10-XME CCD; the data collected was analyzed from FITS images in Maxim DI. We will discuss the data gathered, as well as different software packages.

14. *Vibrio Fischeri*

Mallorie Fountain

Faculty Sponsors: Len Holmes, Ph.D., Department of Chemistry & Physics

In understanding growth and stability of bacteria, it is important to explore the basic mechanisms bacteria employ during infection, colonization and intoxication of host tissue. During the investigation, a look at how to keep *V.fischeri* growing at a constant rate using a chemostat is employed. The temperature was not a factor that affected the growth; therefore, this was not controlled. Observations were recorded during growth and when its bioluminescence was at a high. This data was compared using a bio growth curve. From the data it was obvious which conditions were the best for *V.fischeri* growth. By comparing the results in this study one can learn how to control the bacteria. The introduction of the use of auto inducers will also be incorporated in the future to study the *V.fischeri* growth.

15. Extraction of Beta-Carotene from Sweet Potatoes Waste

Donna W. Gilchrist

Faculty Sponsors: Sivanadane Mandjiny, Ph.D., Tom Dooling, Ph.D., Len Holmes, Ph.D., & Cornelia Tirla, Ph.D., Department of Chemistry & Physics

Beta -carotene, a food supplement, is a precursor for the synthesis of vitamin A. Because sweet potatoes' waste is rich in this compound, this research is focused on the extraction of beta-carotene from said supplement. In order to formulate a protocol for the extraction, Beta-carotene will first be isolated from fresh carrots. The resulting model will be used for extraction from the sweet potatoes' waste. Several solvents such as: acetone, ethanol, ether, and ester; will be evaluated to determine the best conditions. The extract will be purified by column chromatography and the Beta-carotene content will be verified by UV- Visible Spectrometry. When the optimal conditions and solvent for the protocol have been determined, they will be applied to sweet potatoes' waste.

16. Synthesis of Bioethanol from and Extraction of β - Carotene from Sweet Potatoes Remnant

Sarah Hymbaug

Faculty Sponsor: Cornelia Tirla, Ph.D., Tom Dooling, Ph.D., Len Holmes, Ph.D., & Sivanadane Mandjiny, Ph.D., Department of Chemistry & Physics

Bioethanol can be produced from a large variety of biomass material. While these method works, the raw material can be equally a food source. A very good source for starch is the remnants of sweet potatoes. The purpose for this project is to develop a protocol for the synthesis of bioethanol starting from sweet potatoes waste. The starch present in this raw material will be hydrolyzed to glucose in acidic conditions and then the solution will be neutralized and used for the glucose fermentation. Our raw material is equally rich in β - carotene a food supplement used in the synthesis of vitamin A. This project will develop a protocol that will allow the extraction of this valued added product in optimum conditions during the hydrolysis step of the ethanol synthesis.

17. *Vibrio Fischeri* and Bioluminescence

Cathy Iverson

Faculty Sponsor: Len Holmes, Ph.D., Department of Chemistry & Physics

The purpose of this study was to examine the conditions involved in growing, reviving, and maintaining bioluminescence in *Vibrio fishcheri*. Several independent studies were conducted where factors such as oxygen, media and surface were manipulated to compare and contrast the response of the *Vibrio*. After certain factors were concluded as most favorable, a chemo stat was initiated to maintain equilibrium of

those factors, therefore maintaining bioluminescence.

Based on collaborative efforts, valuable insight was gained into the life cycle of *Vibrio fischeri* and our set goals of maintaining bioluminescence in suspension and of reviving cells that have crossed the cell density threshold for bioluminescence were realized. Our research now leads us to look at carefully how auto inducers and plasmids contribute to cell communication "quorum sensing" and the molecular dynamics of bioluminescence.

18. Glucose Extraction from Paper

Aaron Locklear

Faculty Sponsor: Cornelia Tirla, Ph.D. & Harold Teague, Ph.D., Department of Chemistry & Physics

Though today's society has found a method of recycling paper, we try to develop a new use for paper towels that are consumed annually. Paper towels are primarily composed of cellulose. Glucose can be extracted from cellulose and then fermented to ethanol. The literature describes methods for the conversion of cellulose to ethanol in strong acidic conditions or using cellulase. In the case of the enzymatic process a limitation is the toxicity of the enzyme, and in the acidic conditions process a limitation is the fact that the acid it recovered with difficulty. The paper towels as raw material present the advantage that by the lignin was already eliminated in basic conditions. This project described the attempt the extract the glucose from paper using a mechanical approach and solid acid catalyst.

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

Rhonda McClure & Ashley M. Chavis

Faculty Sponsor: Meredith Storms, Ph.D., Department of Chemistry & Physics

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 between those that are labeled "standardized" as opposed to those that are not.

20. Packed Cell Volume as a Means of Estimating Microbial Cell Population Densities

Chad Riggsbee

Faculty Sponsor: Len Holmes, Ph.D., Department of Chemistry & Physics

When growing cultures of microbes, it is often necessary to track the growth of cell cultures by estimating the size of the population at various times during its growth. Traditionally, optical density measurement using a spectrophotometer has been one of the primary indirect methods for measuring population size. In this project, we have used packed cell volumes, measured in Sartorius' VoluPAC tubes, as an indirect method of population size estimation of *Saccharomyces cerevisiae* suspension cultures, and compared the data generated by this method to data generated by optical density measurement of the same cultures. We have graphically related data from both methods to direct cell counts performed with a hemocytometer to see which method correlates better, and performed simple statistical studies to see which method is more precise. In the end, we found both techniques to be of approximately equal precision, and both correlate well graphically with direct cell counts. However, the VoluPAC tubes do have some advantages, such as direct measurement of biomass, and they require less suspension culture to be removed for measurement.

21. Kinetics of Transesterification of Vegetable Oil to Biodiesel

Mark A. Stevens

Faculty Sponsors: Sivanadane Mandjiny, Ph.D. & Meredith Storms, Ph.D., Department of Chemistry & Physics

The use of an analytical HPLC method was incorporated into this study to analyze the kinetics of enzymatic biodiesel production to determine optimal time for the enzymatic reaction to proceed. Biodiesel is produced by a transesterification reaction between vegetable oil and ethyl acetate using Novozyme 435 enzyme. The optimal time for biodiesel enzymatic reaction is between 6 to 8 hours at 55°C and was determined by bench top laboratory practices. Previous studies of biodiesel production from a transesterification reaction show the qualitative presence of biodiesel and the quantitative amount of biodiesel present by the use of GC/Mass Spectrometry. We hope to obtain a more precise optimal time frame by using the HPLC method to analyze biodiesel samples at various time intervals of the reaction and compare our results with the standard GC/Mass Spectrometry data for biodiesel.

22. Atmospheric Carbon Dioxide Determination Using Mass Spectrometry

Sarah S. Subaran

Faculty Sponsor: Paul Flowers, Ph.D., Department of Chemistry & Physics

Carbon dioxide is an important greenhouse gas, whose atmospheric concentration must be accurately and precisely monitored in order to support on-going efforts to understand global warming and climate change. In an effort to develop improved methods for atmospheric measurements, the authors are presently investigating the use of mass spectrometry for determination of CO₂ at environmentally relevant levels around its nominal concentration of 380 ppm. This poster describes the results of initial calibration studies using standard gas mixtures with CO₂ concentrations ranging from approximately 100 ppm to 1000 ppm. Various analytical performance criteria derived from the calibration data will be presented, including sensitivity, precision, and detection limit. In future studies, the accuracy will confirm concentrations of 0.1 ppm. This research is supported by the National Oceanic and Atmospheric Administration and the UNCP Chemistry and Physics Department.

23. Construction and Initial Characterization of a Microspectrophotometer for Biomedical Applications

Josie Torrence

Faculty Sponsor: Paul Flowers, Ph.D., Department of Chemistry & Physics

The development of analytical tools and methods for biomedical measurements can sometimes present special challenges due to the complexity and instability of the samples and the need to analyze small, discrete volumes within an intact sample (for example, the cellular and interstitial regions of a biological tissue sample). As part of an on-going research project aimed at developing new clinical assays based on simultaneous spectral and electrochemical measurements, the authors have begun work on the construction and characterization of a suitable microspectrophotometer. A standard light microscope was coupled via an optical fiber to a miniature CCD spectrometer, and its photometric performance was assessed through calibration measurements made using aqueous nickel(II) standards and varying instrumental parameters. The results of these studies and plans for future work are presented in this poster. 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.

24. The Human Immune System in Zero Gravity

Lisa Walters, Clint Haywood, Samantha Schrock, & Tala Smith

Faculty Sponsor: Timothy Ritter, Ph.D., Department of Chemistry & Physics

Since the International Space Station became operational, astronauts spend an extended amount of time in the reduced gravity environment of space. A critical factor for the safe operation of space vehicles is the astronaut's health. But what effects do micro- and hypergravity have on the human immune system? We report the status of a study on the formation rate of human immune complexes when subjected to varying gravitational fields. Specifically, the rate of absorbance is measured at a wavelength of 280nm during the first 20 seconds of the reaction when human immunoglobulin G (IgG) binds with Anti-human immunoglobulin G (A-IgG). In order to obtain meaningful results during this compressed time period, polyethylene glycol is added to the sodium phosphate buffer to increase the interaction between IgG and A-IgG. The optimal concentrations of IgG, A-IgG, and polyethylene glycol, were determined at a 7.5mM solution. The effects of gravity on this process will be determined by comparing the absorbance rate of 1-g ground truth samples to the rate measured when the process is repeated in 0-g as well as, 2-g. The 0-g and 2-g measurements will be conducted onboard NASA's microgravity research aircraft as part of their highly competitive Reduced Gravity Student Flight Opportunities Program. In addition to the above experiment, an extremely important part of our program is outreach to local schools and communities with an emphasis on the Native American communities. To provide a visual for our outreach portion of the project, a second experiment was performed. Flame dynamics is explored by using a candle inside a metal box that has visual differences of color and shape of flame between the varying gravitational fields. A video recording of both experiments provide clear visuals of our experiments and what it feels like to be weightless.

Department of Economics, Finance & Decision Science

25. Protection of Consumer Financial Rights in the United States

Gwendolyn McGuire

Faculty Sponsor: Ramin Maysami, Ph.D., Department of Economics, Finance & Decision Science

The uncertainty consumers face in conducting financial transactions and the lack of transparency in consumer-related financial regulations may have been the reasons for the "wrong" financial decisions made by the said consumers. Confusion and frustration are the outcomes from a personal point of view, and economic turmoil may be have been the results at the national economic stage (the current real estate crisis is a good example).

My research provides an analysis of the consumers' rights by reviewing consumer protection rules and regulations as far as financial markets and transactions are considered. The issue in question is demonstrated through review of several court cases against financial institutions raised by consumers or consumer advocacy groups.

I will propose and demonstrate the benefits of financial institutions and government agencies cooperation to find a common course of action to benefit all individuals involved, with the goal of enhancing the rights and entitlements of American citizens in conducting fair financial transactions.

26. The Rise in India's Financial Might

Taruna Walters

Faculty Sponsor: Ramin Maysami, Ph.D., Department of Economics, Finance & Decision Science

The United States has "traditionally" been the global economic leader. Leadership in technology has been the "traditional" primary reason for such comparative advantage. Traditions seem to have changed in recent years, or at the least are starting to change. Countries such as India and China are beginning to show increasing technological advantages and are on the way to becoming economic leaders. I concentrate in the study of India's economy with emphasis on the Indian financial markets and regulations.

India has risen from the depths of poverty and growing fast in the economical markets. There have been some major changes in India's stock markets, financial markets, even the banking sectors have changed tremendously with the deregulations of interest rates and evolution of robust private members including foreign banks.

On the one hand there is an improvement on India's financial stabilities yet still proof of the credit use by India's SME firms that do depend on trade credit. India has come from the being dictated by the British to doing what is necessary for the survival of the country by fighting for their independence and growing at such a rate as a whole. Microfinance has become the upcoming new venture that is attracting the domestic and foreign companies. As for the stock markets, the NSE has become the largest stock exchange in the country. As for the country's GDP purchasing power, it is estimated at \$2.965 trillion and the official exchange rate was \$1.09 trillion. These numbers were estimated for the year 2007.

My research will outline the rise in India's financial fortune and the supporting structure in the form of prudent regulation of financial markets.

27. Poland's Financial Past, Present and Future

Maggie Wojtowicz

Faculty Sponsor: Ramin Maysami, Ph.D., Department of Economics, Finance & Decision Science

Poland has gone through many changes in its history. From the late 1980's and early 1990's Poland has transformed from a command economy into a capitalistic economy. Not only has Poland's economy gone through a reform as it went from communism to becoming a democracy, it has gone through yet another reform as it was preparing to enter into the European Union and since the time that it has entered the EU. In 1989, communism ended in Poland allowing the economy to grow. Since 1995 to 2006 Poland's GDP per capita has been increasing in a positive upward direction. The inflation rate has gone from 249.3% in 1990 to 1.3% in 2006; once again the economy has been improving since the fall of communism in Poland. Poland's reforms have made it one of the leading countries in growth opportunities in Easter Europe.

The European Union has noticed the growth opportunities in Poland and in 2001 Poland has become a part of the European Union. Growth opportunities have been very appealing to foreign direct investments, increasing throughout the years, 72% of all FDI in Poland come from the European Union. The EU is not the only ones that believe in Poland, the United States is the second largest investor-country in Poland.

All of Poland's political changes have been the causes to the economic effects that have been occurring; changes such as the banking structure, bonds, and stock market took place. Poland's positive changes and growth opportunities can be used as a blue print for other developing countries around the world.

My research will outline Poland's financial facts and figures. In addition I will predict Poland's economic future based on a comprehensive review of related literature, including those related to the role of Poland's financial rules and regulation within the European Union.

Department of English, Theater, & Languages

28. For the Best: A Mother's Ultimate Expression of Love in Elizabeth Barrett Browning's "The Runaway Slave at Pilgrim's Point"

Jacqueline Kerr

Faculty Sponsor: Melissa Schaub, Ph.D., Department of English, Theater, & Languages

Elizabeth Barrett Browning once referred to her poem "The Runaway Slave at Pilgrim's Point", which depicts such unnerving issues as rape and infanticide, as "too ferocious" to be printed. The poem's shocking nature continues to engage critics of Barrett Browning, particularly the speaker's motive for killing her child. Several critics, specifically Parry, Krueger, and Brophy, allege that the speaker acts selfishly and refer to stanza XXI for verification, claiming that "the master's look" she sees in her child

impels her to murder him. Conversely, more sympathetic critics, Stone and Battles, purport that the speaker "[p]aradoxically...acts out of love" (Stone 145) to "save it [her child] from slavery" (Battles 95). Nevertheless, Stone still interprets the look the speaker sees as being the slaveholder's "'look' reproduced in the baby's face" (145) and Battles neglects the issue entirely. I propose that since the speaker never explicitly states that she sees the look in her child, only that she "saw a look", she instead mentally envisions her slaveholder's face by looking at the baby he forcefully created. This recollection of her "master's look" brings the horrifying reality of a life of slavery to the forefront of her thoughts. Thus, she reflects upon the wrongs that have been done to her, and the inevitability of the same injustices being committed against her child, a destiny that the speaker resolves to avert through infanticide. The fact that "the master's look" is not seen in the child itself, but rather in the speaker's mind, substantiates the argument that her love for her child is the true motivating factor behind her act.

Department of History

29. Ray Charles

Richard S. Butler

Faculty Sponsor: Ryan Anderson, Ph.D., Department of History

The 2004 film, *Ray*, is a biopic depicting the life and times of one of America's greatest musicians, Ray Charles. The film is written, directed and produced by Taylor Hackford and James L. White. The film puts his disabilities at the center of the story: his impoverished childhood, blindness, drug addiction as well as his extra marital affairs are covered throughout this film. However, the most intriguing part of Charles' life is his success despite and indeed, because of these problems. My presentation will cover the following ground. First, I will present the film's narrative. Secondly, I will discuss the film's historical context. Thirdly, I will analyze the role his disability played in his life and how contemporary America perceived him because of it. In evaluating these ideas this paper will judge Ray Charles' contribution to the Rock & Roll industry and American society and culture. Finally, I will assess the film's historical accuracy and conclude this essay by determining if this film has any value as a historical text.

30. Juana La Loca

Jessica Villarreal

Faculty Sponsor: Richard Beem, Ph.D., Department of History

In my presentation I will be discussing the life of Juana the crazy. Here is a quick recap of her life. Juana is the daughter of Isabel and Ferdinand they request that she marry Philip the Handsome which she does. The two are passionately in love with each other but Philip cheat on her with numerous women which caused Juana to have jealous rages. Juana later on become queen of Spain but when Philip dies Juana losses her mind or that is what was said about her. One thing I will be doing have on a presentation is a panel that Says was Juana really crazy or was she just madly in love? This is of course not a easy question to decide because historically we do not know.

Esther G. Maynor Honors College

31. Honors Opportunities Enhance the Learning Experience

Tiffany Schmidt & Jorge Piocuda

Faculty Sponsor: Kim Gunter, Ph.D., Department of English, Theater, & Languages

Out-of-class experiences, creative assignments and peer-led discussions are fundamental to the learning process. This approach to learning causes a sort of personal and academic metamorphosis. UNCP professor Dr. Kim Gunter teaches a themed Honors English Composition class. In the spring of 2007 the theme was capital punishment. Unlike most English classes, in addition to writing argumentative papers, students had to produce a print publication, and had the opportunity to go on a guided tour of the NC State Prison (including death row). Students were also able to hear several speakers (Sister Helen

Prejean, Scott Langley) present information, stories, and personal experiences about the death penalty. Students were not just writing a paper for class, they were writing about something they felt passionate about. Ultimately, these opportunities enhance the learning experience and help link students' lives to their academics.

32. Design of Death

Amanda Swinton, Sean Kelly, & Anna Queen

Faculty Sponsor: Jesse Peters, Ph.D., Honors College

We will be performing an in-depth analysis of the death penalty in North Carolina and comparing it to other states' methods of execution. Our research will determine if lethal injection, used in many states, is the best deterrent of serious crime, or are alternative methods still in use by other states better for the job?

33. Doctor Gradus ad Parnassum

Gertie Parker

Faculty Sponsor: Jesse Peters, Ph.D., Honors College

Doctor Gradus ad Parnassum is a satirical piano composition by Claude Debussy. Debussy was born in St. Germain-en-Laye on the 22nd of August in the year 1862. He died in Paris on the 25th of March. Doctor Gradus is from his suite Children's Corner Suite. It pokes fun at finger exercises for the piano. Children's Corner was published in the year of 1908. He dedicated it to his daughter he called "Chouchou". It is a part of his music that represents his transition from romantic to modernist music. This is an interesting piece."

Department of Mass Communications

34. Autograph Acquiring

Wade J. Allen

Faculty Sponsor: Anthony Curtis, Ph.D., Department of Mass Communications

After seven years and acquiring over 1,500 signatures from every celebrity imaginable, a twenty-year-old entertainment memorabilia collector shows how to get started in the hobby and the outcomes to expect. Whether meeting celebrities in-person or acquiring autographs through the mail, challenges are met every day. After meeting hundreds of celebrities and becoming friends with quite a few, his collection rivals most others and amazes people all over the country. This is a wonderful way to learn about this interesting hobby.

35. Jason Young: Superstar! & Jason Young: Superstar! Part 2

Efrain Colon II

Faculty Sponsor: Anthony Curtis, Ph.D., Department of Mass Communications

"Jason Young Superstar!" is a glimpse of a day in the world through the eyes of Jason Young who unknowingly gets his wish of seeing what life would be like if it were a musical. The story begins as Young is watching the overture to "Jesus Christ Superstar" and his best friend enters to tell him about his recent break up via song. Throughout the video, we see that there is a one way love interest as well as a finale as he finally accepts that his life has become a scene straight from the stages of Broadway. This video, though comical, illustrates that music can still be used as a way for people to express their feelings to one another.

36. Freelance Writing

Margaret Damghani

Faculty Sponsor: Anthony Curtis, Ph.D., Department of Mass Communications

As a journalism student, I will largely be using my skills as a writer by freelancing for magazines and newspapers after I graduate. I am also a mother, and this has affected the issues I wish to write about.

I attended the Gentle Birth World Congress last September and attended workshops presenting the latest research in regards to birth, pregnancy and breastfeeding. Many of the keynote speakers were from other countries, discussing the differences about what is being learned across the world. I introduced myself to several of the keynote speakers as a writer so that I can use them in the future as references in my articles. While I was there, I not only learned information that will make for very new and interesting articles, but I also met the staff of Mothering magazine.

In my presentation, I will talk about the most notable things I learned at the conference and can now write about, and also what I have learned about networking and making it as a writer in the freelance world. Since attending the conference Mothering magazine accepted one article of mine and I have begun freelancing for the Fayetteville Observer.

Department of Psychology & Counseling

37. Eating Fresh: Measuring the Influence of Jared and Peter in Subway Advertisements

Christopher Adams & Rakesha Johnson

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current experiment is to test participants' willingness to buy Subway products based on the influence of celebrity advertising. There will be three groups of participants. Group one will view a celebrity ad with spokesperson, Jared. Group two will view the cartoon character, Peter Griffin, displayed on the ad. Group three will be the control group viewing the Subway ad without any celebrity influence. It is predicted that Jared will have the strongest influence in audience's willingness to buy Subway products.

38. Ratemyprofessors.com: How We View Our Professors

Meagan Carpenter

Faculty Sponsors: John Raacke, Ph.D. & Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

Literature on the topic of attractiveness is quite extensive and research has consistently documented that individuals are judged according to their level of physical attractiveness. This finding extends to many facets of life including the classroom. For example, research has found that grade school children rate attractive teachers as being: nicer, happier, and prettier than unattractive teachers and report believing they would learn the most from the attractive teacher. If children rate teachers differently based on physical attractiveness, then do college students judge their professors' quality based on physical attractiveness?

The current study utilized the website www.ratemyprofessors.com to obtain student ratings of professors. The researchers sampled Psychology Departments of the 118 colleges and universities holding NCAA Division I football status because these colleges are all required to meet similar standards. Data were collected and a total of: 117 colleges and universities, 5070 psychology professors rated, and 46,040 total numbers of ratings. For each professor, data were collected on the following measures: total number of ratings, overall quality, average easiness, average helpfulness, average clarity, and total number of hotness ratings. All these qualities are all given a score on a 5-point Likert scale, with the website indicating that higher numbers equaling better ratings.

A series of Pearson correlations were conducted to determine the relationship of student perceptions of hotness to student ratings of a professor's: overall quality, average easiness, average helpfulness, and average clarity. Results indicated that a professor's hotness was significantly correlated with professor's overall quality, average easiness, average helpfulness, and average clarity. Consistent with previous findings, the current study showed that a professor's perceived hotness (attractiveness) impacted perceived quality of a professor. Specifically, results indicated that as hotness ratings increased, so did ratings overall. Future research should investigate if student learning is influenced by perceived attractiveness of the professor.

39. Social Networking Sites: How Students Spend their Time

Meagan Carpenter

Faculty Sponsors: John Raacke, Ph.D. & Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

MySpace and Facebook are two social networking sites that have become extremely popular among high school and college students. The current study investigated these friend networking sites in the following ways. First, general information regarding the prevalence of the use of friend networking sites among college students was obtained. Two, information regarding characteristics about the users of these sites was obtained. Finally, the researchers evaluated these friend networking sites using the uses and gratifications theory.

A total of 116 students from a four-year public, university were recruited to participate in this study on "Student Internet Usage." Of the participants, 45.7% were men and 54.3% were women. Upon arriving to the study, participants were given a packet to complete. The first page contained one question, "Do you have a MySpace or Facebook account?" Students responded by checking "yes" or "no" to this question. Directions then instructed those participants who had checked "yes" to proceed to page two of the packet (Part I) and those who checked "no" to proceed to page five of the packet (Part II). Each part collected different data, which was related to having or not having a friend networking account.

Results indicated that 87.1% of participants had either a MySpace or Facebook account. Users reported spending 1.46 hours daily on their accounts. Participants were also asked how many friends they had. The mean number of friends linked was 235.51. There were also sex differences in number of times per day logging into account, how often they changed the appearance of the website, number of friends, setting the website to private, and using their accounts for dating purposes. Finally, results indicated two significant differences between users and non-users in terms of demographics in terms of age and ethnicity.

40. Sleepless in Seattle and The Notebook: Examining the Effects of Romantic Media Images on Individuals' Perceptions of Love

Hannah Darden

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current study is to investigate how media portrayals of relationships influence peoples' attitudes toward love and relationships. There will be two groups of participants. The first group, the experimental group, will watch movie clips from idealistic love stories. The second group, the control group, will watch nothing. All participants will then complete a survey to assess their idealistic distortions of love and relationships. It is predicted that the experimental group will be more apt to let the idealistic views of love and relationships influence their own attitudes toward love and relationships. It is also predicted that the woman of the experimental group will be more influenced by the idealistic views of love and relationships than the men.

41. Supplemental Instruction in Introductory to Psychology Classes

Nicole Gillenwater, Fantasy Lozada, Meagan Carpenter, Ryan Kelly, & Wendy Gunderson

Faculty Sponsors: William Collier, Ph.D., John Raacke, Ph.D., Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling, & Darcy Hayes, M.S., Center for Academic Excellence

Supplemental Instruction (SI) is a program that targets traditionally difficult academic subjects and provides regularly scheduled, out-of-class, peer facilitated review sessions lead by upper level classmates majoring in that subject. SI has been implemented in universities across the nation in an attempt to raise retention rates and to increase passing grades in historically difficult general education classes. The purpose of the current study was to examine the success of Supplemental Instruction in three sections of Introduction to Psychology during the fall 2007 semester at UNC Pembroke. Success of the program was measured in terms of the number of contact hours between SI leaders and students outside of class and a comparison of final course grades between those students attending SI and those students not attending SI. Results indicated that for all three sections of Introduction to Psychology, 67% of students participated in at least one SI session during the semester. In addition, the final course grades for students attending SI sessions were higher than grades for students not attending SI sessions in all sections. Specifically, the final grade difference between those students attending SI and those not attending SI in the first section of Introduction to Psychology was 10 points (74% versus 64%), with 146 contact hours. For the second section of Introduction to Psychology, there was an 18 point difference (81% versus 63%), with 75 contact hours. Finally, for the third section of Introduction to Psychology, there was a 5 point difference (74% versus 69%), with 30 contact hours. These results are discussed in light of the expansion of the Supplemental Instruction program at UNC Pembroke.

42. Biases of Ethnicity and Sexual Orientation in Roommate Preferences

Nicole Gillenwater & Fantasy Lozada

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

Past research has indicated that preferences for college roommates reach beyond smoking habits and bed time preferences. There is evidence that indicates that some college students have preferences for a roommate's sexual orientation and ethnicity as well. The purpose of this study was to measure these preferences among college students. It was predicted that participants would show a preference for a roommate that has the same sexual orientation and ethnicity as his/her own. Participants were first asked to read a scenario with the instructions to pretend that it was their first year of college and the Office of Housing and Residence Life was working on the roommate selection process. It further stated that the office was interested in the participant's preferences for a roommate (whether they currently had a roommate or not). The scenario included a roommate profile of a potential roommate including demographic information and attitudes toward the school and which varied only in ethnicity ("same as yours" or "different than yours") and sexual orientation ("same as yours" or "different than yours"). Participants were randomly assigned one of these four surveys. After reading the scenario containing the potential roommate profile, participants were asked a series of Likert-scale questions. For each of the six questions, participants indicated their level of satisfaction with the potential roommate ("not at all" to "very much"). The second part of the questionnaire included measures of attitudes toward homosexuality (Attitudes Toward Lesbian and Gay Men Scale) and ethnicity (Color Blind Racial Attitude Scale). Results indicated that participants had a greater preference for a roommate that was of the same sexual orientation. However, results also indicated that there was no particular preference for a roommate's ethnicity.

43. Listener Attitudes Towards Announcers' Voice

Michael Graham

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of this research is to see if college students base their attitude toward announcers on their gender or tone of voice. The same announcement can be made by either a male or a female and at a slow or quick pace. We predict that students will choose the quicker, female voice as the one they respond to the most. First, students will sign a consent form stating their willingness to participate in this experiment. Next, students will listen to various examples of announcers speaking fast and slow, both male and female. They will next be asked a series of questions about the announcements they heard. This is a 2 (announcer's gender) X 2 (rate of speech) between subjects design. Students will then be debriefed.

44. America's Next Top Model: Comparing Body Size across Cultures

Tashieka Hammond

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current experiment is to explore the rate of eating disorders in countries such as America, Australia, and Germany and to explore what each country views as an ideal body size. Specially, I will accomplish these two objectives by first finding current rates of eating disorders in each of the countries mentioned above. Next, I will watch episodes of the television show Next Top Model for each of the countries and visit the shows' websites to gain additional information about each model. I predict that countries with the higher rates of eating disorder prevalence will portray the ideal body size to be smaller with the models than countries with lower rates of eating disorders.

45. Academic Perceptions: Do Body Piercings Influence Attitudes?

Nuchelle Hazlett

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the present studies was to investigate college students' attitudes towards body piercings. A pilot study was conducted to determine what students consider to be acceptable and not acceptable types of body piercings. Results indicated that students believed the traditional ear piercing was very acceptable and the face piercing around the mouth was the least acceptable. The next experiment is currently being conducted to determine if college students judge scholarship applicants differently based on the body piercings of the applicant. There will be four groups of participants each reading the exact same scholarship application. However, the picture attached to the scholarship application will be of the same person but with different piercings in each of the four conditions. It is predicted that the applicant with the mouth piercing will receive lower ratings for the scholarship than the other conditions with no piercing or traditional piercings.

46. Medical Television shows and Career Paths chosen among College Students

Diana Jenssen & Ashley Faircloth

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current study was to investigate the relationship between regularly watching television medical dramas and interest in career paths upon graduation. College freshmen (117) were given a questionnaire about television shows they watched and professions they would most likely be interested in upon graduation of college. Results indicated that 48% of participants watch three or more medical television shows regularly per week. Next, four Pearson correlations were conducted to determine if a relationship existed between the total number of TV medical shows viewed regularly and interest in entering professions related to such shows. After a Bonferroni approach to control for Type I error across the four correlations, a p value of less than .00125 (05/4) was required for significance. There were significant correlations for the professions of detective ($r(115) = .29, p < .001$) and police person ($r(115) = .28, p < .001$) and a marginally positive correlation for the profession of forensic psychologist ($r(115) = .27, p = .002$). These correlations indicate that as the number of TV medical dramas viewed per week increases so too does interest in entering professions related to the shows.

47. We're having a Baby: College Students' Attitudes toward Adoption

Fantasy Lozada & Nicole Gillenwater

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

Past research on adoption has explored a wide variety of topics, such as sex differences in attitudes toward adoption and family ideology and social stigma of adoption. The purpose of the current study

was to focus on college students' attitudes toward adoption using an experimental task. It was predicted that college students would exhibit a more positive attitude toward a couple having a biological child than a couple adopting a child and that this bias would be accentuated by family size and financial status of family. In the current experiment, college students were presented with a scenario describing a fictitious couple that was adding another child to their family. The specific circumstances under which this addition was occurring varied yielding a 2 (adoption status) X 2 (number of current children) X 2 (financial status) between subjects design. Participants were given a scenario about a fictitious couple named Jill and Ted. The scenario described the circumstances under which the couple was going to add a child to their family. Participants were randomly given scenarios which varied according to the method of adding a child to the family (adoption or biologically), the financial status of the couple (financially struggling or "well-off") and the number of current children (two or four). After reading the scenario, students answered a series of questions on their attitudes toward the new addition and completed the Adoption Belief Scale. Results indicated main effects for each of the variables and a positive correlation between scores on the Adoption Belief Scale and attitudes toward the new family situation. These results are discussed in light of societal norms and expectations for family size and structure.

48. Jennifer, Maria, and LaTasha: What's Your Ethnicity?

Fantasy Lozada, Chris Campbell, Nicole Gillenwater, Beullah Chanakira, Jessica Joyner, & Rosaline Whittington

Faculty Sponsor: John Raacke, Ph.D. & Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

Past research has indicated that particular names elicit stereotyped beliefs. This is particularly true when names are thought to be associated with a particular race or ethnic group. Although there has been a wealth of research on beliefs about names, there appears to be little research on which names are commonly believed to be associated with or "stereotypical" of a particular ethnicity or race of people. The purpose of this experiment was to identify names that are believed to be common or stereotypical of a particular race. Thirty names (15 male names; 15 female names) were selected by the researchers as common names. These names were put into a survey format using a 7-point likert scale ranging from 1 (not at all stereotypical) to 7 (very stereotypical). Participants were asked to rate how stereotypical each name was for three ethnicities: Caucasian American, African American, and Hispanic American.

Responses were analyzed according to their mean, median, and mode. The names considered the most stereotypical for white females were "Jennifer," "Claire," and "Emma". The most stereotypical Caucasian American male names were "Bradley," "Kyle," and "Chad." Stereotypical male African American names included "Jamal," "Terrence," and "Demetrius," while, stereotypical female names included "Latasha" and "Shawna". Finally, stereotypical Hispanic names included, "Jose," "Alejandro," and "Miguel" for male names and "Maria," "Gabriela," and "Rosa" for female Hispanic names. Interestingly, the analysis showed that there were no names that were considered to be stereotypical for more than one ethnicity. The results of this study imply that first names can represent or bring to mind certain ethnicities. Future research could investigate the extent to which these particular names have on decision-making processes in potential application procedures.

49. Trying to Find Reason: The Relationship between Physical Appearance and Talent

La`eeqa Mathews

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current study will be to investigate the relationship between body size (physical appearance) and vocal talent. There will be three groups of participants. Participants in each group will listen to a vocal tape of a female singer. However, the physical appearance of the female singer will vary. Group one will see a picture of the female singer's face. Group two will see a full body picture of the female singer. Finally, group three will have no picture of the female singer. Participants in all three groups will be asked to rate the quality of the female singer's voice. It is predicted that the female singer's physical appearance will influence ratings of voice quality.

50. Does the Presence of a Celebrity Figure Determine Participants Level of Interest?

Joe Perry

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current study is to determine if the presence of a celebrity figure on a flyer for an upcoming on campus event helps add or detract from the number of students attending the event. Participants will view two flyers for a student vs. faculty charity basketball game. One flyer will have an image of Michael Jordan's Nike silhouette with information about the upcoming game, the other flyer will include the same information but without the picture. It is predicted that the participants will be more inclined to attend the game with the flyer that includes the silhouette because of the recognition it has with the game of basketball.

51. How Interracial Relationships are Viewed by College Students

Linda Robb

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current study will be to investigate the attitudes of college students towards interracial relationships. There will be two groups of participants. The first group will view a picture of a Caucasian couple holding hands. The second group will view a picture of an interracial couples (i.e., African-American and Caucasian couple) holding hands. After the participants view the photographs of the holding hands, their attitudes toward the couple will be assessed through the series of survey questions. The answers will be completely confidential that way the participants do not feel guilty or uncomfortable about answering the survey. It is predicted that the majority of female participants surveyed will be more accepting towards interracial relationships, whereas the males will be less accepting towards the intermixing of races.

52. Assessing the Effectiveness of Multiple Modes of Media: Which is better for College Students?

Bryan Stewart

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The main purpose of this experiment is to uncover how effective -- i.e. - how much information is absorbed -- using different types of news media. This will focus mainly on physical newspapers, online sources and television.

The experiment involves college students, divided into three groups, reading and watching the same news story with the same amount of information, in one of the three various media outlets. All will be given the same amount of time, will be chosen at random and will be given a quiz at the end of the study to record how much information was "absorbed" and see which outlet had been most effective.

It is predicted that the majority of people who read news stories online absorbs the most information, followed by newspapers and last would be television, even though televisions was the most enjoyable of the three to the audience.

53. Who Would You Vote for?: Does Race and Ethnicity Influence Your Vote?

Rick Tyree

Faculty Sponsor: Jennifer Bonds-Raacke, Ph.D., Department of Psychology & Counseling

The purpose of the current study is to determine if sex and race influences a person's willingness to vote for a person as a presidential candidate. This will be a 2 (sex: male and female) by 2 (race: Caucasian and African-American) between subjects design. Participants will be randomly assigned to one of four groups. Each group will read a profile of a presidential candidate. The information provided on the profile will be exactly the same. The only information that will be varied is sex and race. After reading

the profiles, participants will rate their likelihood for voting for the candidate. It is predicted that these factors will influence participants' willingness to vote.

Department of Sociology

54. Courtesy Rituals: Case Studies of Gender and Age

James Greene

Faculty Sponsor: Brooke Kelly, Ph.D., Department of Sociology

We live day to day and moment to moment with rituals and the rules that govern them; some are universally known throughout our culture and society, and some are formalized and integrated into the structures of society. Although we participate in courtesy rituals every day, they are often taken for granted. So how do individuals define courtesy and how do individual meanings reinforce structural concepts such as gender and age? This qualitative and ethnomethodologically inspired study of courtesy rituals and routines in everyday life investigates such questions. Ethnomethodology is a method of study that explores the reasoning of how people react to a common rule or norm being broken and the way individuals try to restore normalcy. This study relies on in-depth interviews with individuals of various sexes and ages that depend heavily on the interviewee's opinion of rules and reasoning behind courtesy. The interview questions also address concerns given by the respondents such as what is the definition of a lady or a gentleman, what is the ideal courteous encounter, and what is discourteous? By asking these questions and getting elaborate detail and discussion from the respondents, an overarching definition of what courtesy really is to the persons performing these ritual acts are conveyed. Each interviewee will also be asked to voluntarily break a socially accepted courtesy rule, thus lending information into what is behind mundane everyday rules and activities. The volunteers will then be asked a series of questions as to how they felt about doing this rule break to someone and why they chose to break a certain rule over another. By observing this rule break, a cross examination of the conceptual defining process given by the respondents and the actual act can be found. In other words, respondents will give their definition and ideas about courtesy, but will their actions and responses match their ideas, or will they change in real life situations? This study will investigate such questions and is aimed to identify societal placement of meaning on courtesy.

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